

INTELLECT, INITIATIVES, INSIGHT, AND INNOVATIONS

Richard TAPIA

April 1-4, 2009
Portland, Oregon

Celebration of Diversity in Computing Conference



Association for
Computing Machinery



Organized by the Coalition to Diversify Computing
Sponsored by the Association for Computing Machinery
In cooperation with the Computing Research Association and the IEEE Computer Society

Welcome to the 2009 Tapia Conference

Intellect, Initiatives, Insight, and Innovations

2009 Richard Tapia Celebration of Diversity in Computing Conference
April 1-4, 2009 Portland, Oregon
www.richardtapia.org

We're honored to welcome you to the fifth Richard Tapia Celebration of Diversity in Computing Conference, and our first event in the Pacific Northwest.

Your involvement is critical to the success of the conference, and we encourage you to attend the technical program, visit the exhibit tables, network with your colleagues, and enjoy the social activities. This year's technical program, including papers, panels, workshops, posters, Birds-of-a-Feather sessions, a Doctoral Consortium, and a Robotics Competition, is the strongest in the conference series history. To add to the program, we are honored to have the following plenary speakers: Hector Garcia-Molina, Stanford University; Ann Gates, University of Texas at El Paso; Charles Isbell, Georgia Institute of Technology; Jane Margolis, UCLA; and Mario Pipkin, Microsoft Corporation. In addition to its technical content, the conference includes presentations on initiatives to increase the number of individuals from underrepresented groups succeeding in computing-based careers.

We'd like to thank our many conference sponsors and supporters from industry, government, and academia. They bestow funding for conference events, submit technical papers, host exhibit booths and special events, and provide scholarships that fund hundreds of student attendees, many of whom are experiencing their first professional event. The conference also would not be possible without the energy and dedication of our many conference committee members that volunteer their time and expertise to ensure a successful event.

Students are particularly important to the conference, and we have a robust program for them this year. All students are invited to a Student Welcome and Networking Session on the first day, to introduce them to leaders at the conference, meet mentors, and help them map out a conference

schedule tailored to their interests. Students participate as presenters in the technical program, leaders in Birds-of-a-Feather sessions, and contestants in the Robotics Competition. The technical program's poster competition is part of the ACM Student Research Competition (SRC); the top three posters in the graduate and undergraduate student categories will advance to the ACM SRC Grand Finals.

The 2009 Tapia Celebration is organized by the Coalition to Diversify Computing, and sponsored by the Association for Computing Machinery in cooperation with the Computing Research Association and the IEEE Computer Society. It builds upon the success of the past conferences in the series, held in Houston, Texas (2001); Atlanta, Georgia (2003); Albuquerque, New Mexico (2005); and Orlando, Florida (2007).

The conference celebrates the technical contributions and career interests of diverse people in a wide range of computing fields and honors the significant contributions of Richard A. Tapia, University Professor and Maxfield-Oshman Professor in Engineering in the Department of Computational and Applied Mathematics and Director of the Center for Excellence and Equity in Education at Rice University in Houston, Texas.

Again, we welcome you to the 2009 Tapia Celebration; we hope you have an enriching experience.

Nina Berry, Sandia National Laboratories
2009 Tapia Celebration Conference Chair

Pamela Williams, Logistics Management Institute
Coalition to Diversify Computing Chair

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Plenary Speakers

All plenary talks will take place in Salons E&F



Gates

8:30-9:30 am Thursday, April 2

The Patchwork Promise: Providing a Better Future

Ann Gates, Associate Vice President of Research, University of Texas at El Paso



Isbell

1:30 - 2:30 pm Thursday, April 2

Adaptive Drama Management: Bringing Machine Learning to Interactive Entertainment

Charles Isbell, Associate Dean, College of Computing, and Associate Professor, Laboratory for Interactive Artificial Intelligence Intelligent Systems Group, School of Interactive Computing College of Computing, Georgia Institute of Technology



Margolis

8:30-9:30 am Friday, April 3

Stuck in the Shallow End: Education, Race, and Computing

Jane Margolis, Senior Researcher, Institute for Democracy, Education and Access at the UCLA Graduate School of Education and Information Studies, and author of the recently published book, "Stuck in the Shallow End: Education, Race, and Computing" (MIT Press, 2008), which won the 2009 Prose Award from the Association of American Publishers in the Education category



Garcia-Molina

1:30 - 2:30 pm Friday, April 3

Ken Kennedy Distinguished Lecture, 2009 Tapia Celebration

Hector Garcia-Molina, Leonard Bosack and Sandra Lerner Professor in the Departments of Computer Science and Electrical Engineering, Stanford University, Stanford, California.



Pipkin

7:00 - 9:00 pm Friday, April 3

Banquet Speaker

Supported by Microsoft

Imagine Your Future: Invent Your Career

Mario Pipkin, General Manager, Enterprise Experience Division, Microsoft Corporation

Richard A. Tapia

University Professor
Maxfield-Oshman Professor
in Engineering
Director, Center for Excellence
and Equity in Education
Rice University, Department of
Computational and Applied
Mathematics



The conference honors the many contributions of Richard A. Tapia, a mathematician and professor in the Department of Computational and Applied Mathematics at Rice University in Houston, Texas. He is internationally known for his research in the computational and mathematical sciences and is a national leader in education and outreach. Tapia's current Rice positions are University Professor, Maxfield Oshman Professor in Engineering, Associate Director of Graduate Studies, and Director of the Center for Excellence and Equity in Education.

Tapia was born in Los Angeles to parents who separately emigrated from Mexico as young teenagers in search of educational opportunities for themselves and for future generations. The first in his family to attend college, Tapia went on to receive B.A., M.A. and Ph.D. degrees in mathematics from the University of California, Los Angeles. In 1967 he joined the Department of Mathematics at UCLA and then spent two years on the faculty at the University of Wisconsin. In 1970 he moved to Rice University where he was promoted to associate professor in 1972 and full professor in 1976. He chaired the department from 1978-1983. He is currently an adjunct faculty member of both Baylor College of Medicine and the University of Houston. Tapia has authored or co-authored two books and more than 100 mathematical research papers.

Among his many honors, Tapia was the first Hispanic elected to the National Academy of Engineering. In 1996 President Clinton appointed him to the National Science Board, where he served until 2002, and from 2001 to 2004 he chaired the National Research Council's Board on Higher Education and the Workforce. He has received the National Science Foundation's inaugural Presidential

Award for Excellence in Science, Mathematics, and Engineering Mentoring; the Lifetime Mentor Award from the American Association for the Advancement of Science; the Distinguished Service to the Profession Award from the Society for Industrial and Applied Mathematics; the Distinguished Public Service Award from the American Mathematical Society; the Distinguished Scientist Award from the Society for the Advancement of Chicanos and Native Americans in Science; and honorary doctorates from Carnegie Mellon University, Colorado School of Mines, and Claremont Graduate University. He was also named one of 20 most influential leaders in minority math education by the National Research Council and was the first recipient of the Computing Research Association's A. Nico Habermann Award for outstanding contribution to aiding members of underrepresented groups within the computing research community. In 2005, Tapia was elected to the Board of Directors for TAMEST, which is comprised of the Texas members of the National Academy of Engineering, National Academy of Sciences, and the Institute of Medicine.

While at Rice, Tapia has directed or co-directed more underrepresented minority and women doctoral recipients in science and engineering than anyone in the country, and has led several programs that have brought recognition to the university's commitment to diversity. Since 1996, 60 underrepresented minority students have received Ph.D.s in science and engineering at Rice University. Tapia directs programs that are supported by the Alfred P. Sloan Foundation, the National Science Foundation, and other organizations that are designed to increase the number of underrepresented minorities obtaining graduate degrees in science, technology, engineering and mathematics and enhance the preparation of underrepresented minorities for faculty positions in academia. At Rice, the NSF-supported Alliances for Graduate Education in the Professoriate has developed a supportive community of students and faculty members that gives advice on admissions to departments and provides students with formal and informal resources, support, and professional development.

Program Highlights

Doctoral Consortium

8:00 am - 5:30 pm Wednesday

Eugene Room

Supported by Google

The Doctoral Consortium provides an opportunity for Ph.D. students to discuss and explore their research interests and career objectives with a panel of established researchers in computing and in computational mathematics, science, and engineering.

Scholarship Recipient Orientation and Student Welcome and Networking Session

Don't miss the Scholarship Recipient Orientation and the Student Welcome and Networking Session. Experience and suggestions will be offered to students toward maximizing the benefits of their participation in the 2009 Tapia Conference and future professional activities. Right away, start getting to know one another or re-kindle relationships from past conferences.

Student Scholarship Recipient Orientation

6:00 - 6:30 pm Wednesday

Salons A-C

Scholarship recipients are strongly encouraged to attend this session. Scholarship reimbursement procedures and conference participation expectations will be discussed. In addition, questions about submitting reimbursement requests and common mistakes made in the past will be addressed. Prevent reimbursement delays by attending this session.

Student Welcome and Networking Session

6:30 - 8:00 pm Wednesday

Salons A -C

All students are invited to attend this pre-conference information session, which is aimed at helping students make the most of their conference experience. Students will be introduced to colleagues, luminaries, leaders, and representatives from professional societies, academia, national laboratories, and industry. Students will also learn valuable networking skills that can be immediately put to use.

Opening Reception - 2009 Tapia Celebration

8:00 - 10:00 pm Wednesday

Salon E

Supported by the Empowering Leadership: Computing Scholars of Tomorrow Alliance

The Opening Reception offers a relaxed setting for the start of the conference. This is an opportune time to meet and network with colleagues, leaders in the field, and potential future collaborators. Conference participants will have an opportunity to meet honoree Richard Tapia, a host of speakers and panelists, representatives from our sponsors and supporters, conference organizers, and other conference participants

Plenary Speakers

As reflected in the conference theme, "Intellect, Initiatives, Insight, and Innovations," Tapia 2009 plenary sessions feature presentations on wide ranging topics by diverse leaders in the computing sciences.

The Patchwork Promise: Providing a Better Future

Ann Quiroz Gates, Associate Vice President for Research, University of Texas at El Paso

8:30 to 9:30 am Thursday

Salons E & F

Adaptive Drama Management: Bringing Machine Learning to Interactive Entertainment

Charles Isbell, Associate Dean, College of Computing, and Associate Professor, Laboratory for Interactive Artificial Intelligence Intelligent Systems Group, School of Interactive Computing College of Computing, Georgia Institute of Technology

1:30 to 2:30 pm Thursday

Salons E & F

Stuck in the Shallow End: Education, Race, and Computing

Jane Margolis, Senior Researcher, Institute for Democracy, Education and Access at the UCLA Graduate School of Education and Information Studies, and author of the recently published book, "Stuck in the Shallow End: Education, Race, and Computing" (MIT Press, 2008), which won the 2009 Prose Award from the Association of American Publishers in the Education category.

8:30 to 9:30 am Friday

Salons E & F

Ken Kennedy Distinguished Lecture, 2009 Tapia Celebration

Web Information Management: From Search to Social Networks

Hector Garcia-Molina, Leonard Bosack and Sandra Lerner Professor in the Departments of Computer Science and Electrical Engineering at Stanford University. Dr. Garcia-Molina will give the Ken Kennedy Distinguished Lecture at the Tapia Celebration, a tribute to Rice University Professor Ken Kennedy, who was one of the world's foremost experts on high-performance computing.

1:30 to 2:30 pm Friday

Salons E & F

Imagine Your Future: Invent Your Career

Mario Pipkin, General Manager, Enterprise Experience Division, Microsoft Corporation

Banquet Speaker

Supported by Microsoft

7:00 - 9:00pm Friday

Salons E & F

Student Poster Presentations

Poster Presentations and Competition

6:00-9:00 pm Thursday

Mt. Hood Room - 2nd Floor (Restaurant Level)

Supported by IBM

Poster Semi-Finalist Oral Presentations

10:00 am - 12:00 noon Friday

Salons A & B

The Tapia 2009 poster session is an opportunity for students to present their latest research results and methodologies to a wide conference audience and to network at the same time. The posters competition is part of the ACM Student Research Competition (SRC). The top three posters in the graduate and undergraduate student categories will advance to the ACM (SRC) Grand Finals.

Robotics Competition

Robotics Competition Posters

6:00-9:00 pm Thursday

Mt. Hood Room - 2nd Floor (Restaurant Level)

Robotics Competition teams will present posters coinciding with the Student Poster Presentations and Competition.

Robotics Competition

3:00 - 5:00 pm Friday

Salons A & B (or in Columbia and Willamette Rooms)

For the second time, the Tapia conference is hosting a Robotics Competition to test students' skills in building and programming robots. Student teams will be focused on a search and rescue task and will involve simulated and physical disaster environments where the goal is to identify and locate objects.

Gala Banquet and Awards Ceremony

7:00 - 9:00 pm Friday

Salons E & F

Supported by Microsoft

At the celebratory banquet, good food and lively conversation will be followed by an invited talk by Mario Pipkin the General Manager of the Enterprise Experience Division at Microsoft Corporation, and the conference awards ceremony. In addition to networking with a diverse group of students, faculty, researchers and practitioners from many areas, you will be able to socialize with a number of leaders in the field of computing in an informal setting. The evening will end with great music and dancing.

Student Poster Awards

The posters at the Tapia 2009 Conference are part of the national ACM Student Poster Research Competition (SRC). The first stage of the competition occurred prior to the conference: poster submissions were reviewed for relevance and importance of the problem before they were accepted. The poster presentations at the conference comprise the second stage of the competition. During this second stage, judges view the posters and talk with the entrants about their work. The third and final stage takes place when poster semi-finalists give oral presentations about their work. Based on the posters and the oral presentations, awards will be given for first, second, and third place, and these winners will advance to the ACM SRC Grand Finals, to be held online.

Robotics Competition Awards

At the Robotics Competition, teams from around the country were required to qualify for entry. Prior to coming to the conference, each team has programmed a robot to enable it to seek out objects in a rendered environment. During the competition at the conference, the robots will be required to locate objects in an environment created at the hotel expressly for this competition. The winner of the competition will be announced at the Banquet and Awards Ceremony.

The Richard A. Tapia Achievement Award for Scientific Scholarship, Civic Science and Diversifying Computing

A highlight of the evening will be the presentation of the "Richard A. Tapia Achievement Award for Scientific Scholarship, Civic Science and Diversifying Computing." The award honors Richard Tapia's lifetime work as a "civic scientist" - a scientist who recognizes that people are at the very center of our highly complex technological and scientific world. Recipients are distinguished computational or computer scientists or computer engineers who are also making significant contributions to quality of life matters such as teaching, mentoring, advising, building and serving communities, or affecting local or national policy on human resource issues. Awardees are recognized as those who demonstrate extraordinary leadership in increasing the participation of those groups who are underrepresented in the sciences.

Ken Kennedy Distinguished Lecture Honor

The Ken Kennedy Distinguished Lecture will be given at each Tapia Conference. The technical presentation will be in an area of computing and given by a world-class researcher

who embraces Kennedy's research and outreach ideals. It recognizes the vast contributions of Ken Kennedy, a computing pioneer and one of the world's foremost experts on high-performance computing. Kennedy was a strong promoter of diversity and gender equity and founded Rice University's Department of Computer Science as well as several centers focused on computing.

Banquet Invited Presentation

Imagine Your Future: Invent Your Career

Mario Pipkin, General Manager, Enterprise Experience Division, Microsoft Corporation

Conversation, Music, and Dancing

Finish the evening with great conversation, music and dancing.

Town Hall Meeting

10:45-11:45 am Saturday

Salons E & F

Your help is needed with the planning of future events and programs related to increasing diversity in the field of computing. Voice your ideas or suggestions during the Town Hall Meeting, which will provide an open forum for discussions about future Tapia events as well as possible programs that can be undertaken by the Coalition to Diversify Computing, a joint organization of the ACM, CRA, and IEEE-CS, which is open to ideas for new projects that aid in increasing the diversity in the field of computing.

Your feedback is important!

Please fill out the survey!

During the conference, we will be surveying the participants to get your feedback on the appropriateness of the sessions, what you found most useful, and your suggestions for future Tapia Conferences. In addition, we would like to find out how the conference benefits you, and whether you intend to follow up with any of the speakers, panelists, committee members or others you have met while you were here. We cannot stress enough how important your feedback is - we want to be sure we continue to offer quality sessions that entice you to return again and again, and to participate fully in future events, as well as enthusiastically encourage your colleagues to attend in 2011 and beyond.

Conference Schedule at a Glance for Wednesday, April 1, 2009

7:00 a.m.-7:00 p.m.	Registration Open, Ballroom Level Registration Counter Doctoral Consortium (DC). by invitation (8:00 a.m. to 5:30 p.m.). Consortium held in the Eugene Room on Ballroom Level Food is in the Portland Room on Ballroom Level
7:45-8:00 a.m.	Breakfast
8:00-8:15 a.m.	Welcome and Introductions by Prof. Charles Isbell, DC Chair
8:15-9:00 a.m.	Invited Talk "Pathways to Success: "Navigating the Ph.D, Overcoming Obstacles, and Identifying Resources" Dr. Ma ry Ann Leung, Krell Institute
9:00-10:00 a.m.	"Assessing the Impact of Cache Injection on High-Performance Computing Applications" Edgar Leon, University of New Mexico
10:00-10:15 a.m.	Break
10:15-11:15 a.m.	"A Multi-Tasking, Tablet PC-based Approach to Teaching Introductory Statistics" Alexandre Probst, Colorado School of Mines
11:15 a.m.-12:15 p.m.	"Uncertainty Quantification and Uncertainty Reduction Techniques for Large Scale Simulation Models" Haiyan Cheng, Virginia Polytechnic Institute and State University
12:10-1:30 p.m.	Lunch Portland Room
1:30-2:30 p.m.	"Quantifying and Improving Wireless Privacy" Damon McCoy, University of Colorado, Boulder
2:30-2:45 p.m.	Break
2:45-3:45 p.m.	"Analysis of Motion Landscapes" Lydia Tapia, Texas A&M University
3:45-4:45 p.m.	"Supervised and Unsupervised Machine Learning for Pattern Recognition and Time Series Prediction Problems" Kathryn Bean, University of Texas at Dallas
4:45-5:30 p.m.	Wrap up: Questions from other students to the panelists
5:30 p.m.	Doctoral Consortium adjourns
Tapia 2009 Begins	
6:00-6:30 p.m.	Scholarship Orientation (Salons A & C)
6:30-8:00 p.m.	Student Orientation (Salons A & C)
8:00-9:00 p.m.	Opening Reception - Remarks by Dr. Richard Tapia (Salon E)

Detailed Conference Schedule

Wednesday, April 1, 2009

Registration

Open 9:00 am - 7:00 pm

Ballroom Level Registration Counter

Doctoral Consortium

Breakfast - 7:45am - 8:00am

Portland Room, Ballroom Level

Doctoral Consortium Presentations

8:00 am - 5:30 pm

Eugene Room, Ballroom Level

Supported by Google

Doctoral Consortium Co-Chairs

Tony Drummond, Lawrence Berkeley National Laboratory

Charles Isbell, Georgia Tech

Doctoral Consortium Committee Members

Michael Littman, Rutgers University

Juan Vargas, Google

Doctoral Consortium Panelists

Tony Drummond, Lawrence Berkeley National Laboratory

Charles Isbell, Georgia Tech

Mary-Ann Leung, Krell Institute

Damian Rouson, Sandia National Laboratories

The Doctoral Consortium provides an opportunity for Ph.D. students to discuss and explore their research interests and career objectives with a panel of established researchers in computing and in computational mathematics, science and engineering. The objectives of the Doctoral Consortium are to:

- Provide a setting for feedback on participants' current research and guidance on future research directions
- Develop a supportive community of scholars and a spirit of collaborative research
- Provide a new generation of researchers and scientific leaders with advice and insight into academic, research, industrial and non-traditional career opportunities
- Contribute to the conference goals through interaction with other researchers and participation in conference events.

Doctoral Consortium Presentations

8:00 - 8:15am

Welcome and Introductions - **Charles Isbell**, Georgia Tech

8:15 - 9:00am

Invited Talk: Pathways to Success: "Navigating the PhD, Overcoming Obstacles, and Identifying Resources"

Mary Ann Leung, Krell Institute

Mary Ann Leung works for the Krell Institute where she serves as the Program Manager for the Computational Science Graduate Fellowship program. The DOE CSGF program She supports top scientists across the nation as they pursue their Ph.D. degrees in science, technology, engineering, and math (STEM) disciplines that also involve computational science research. Prior to joining Krell, Dr. Leung was the Project Director for the Tools for Success program at Miami Dade College (MDC), which is aimed at increasing the number of under-represented students completing associate degrees at MDC and transferring to four-year programs in STEM. Dr. Leung is a first generation scholar who is passionate about increasing the achievement rate of aspiring students, particularly students from under-represented groups in STEM. She earned her Ph.D. and M.S. degrees from the Chemistry department at the University of Washington and her bachelor's degree at Mills College with a major in chemistry and a minor in mathematics.

9:00 - 10:00am

Assessing the Impact of Cache Injection on High-Performance Computing Applications

Edgar A. Leon, University of New Mexico

The memory wall adversely affects the performance of memory-bound, parallel, scientific computations. Cache injection addresses this disparity by placing data into a processor's cache directly from the I/O bus. The effectiveness of this technique on application performance is dependent on policies to place incoming network data into the appropriate level of the memory hierarchy (L2, L3 or main memory). Preliminary results from a set of policies tailored for MPI, show an overall improvement of 5% in the execution time of a parallel application (AMG from ASC Sequoia), and up to 15% improvement on specific stages of this code.

Edgar A. Leon is a doctoral candidate in computer science at the University of New Mexico. His research interests include operating systems and networking for large-scale, distributed-memory systems. Edgar's dissertation work includes addressing the memory wall with cache injection in collaboration with IBM Research and Sandia National Laboratories.
leon@cs.unm.edu

10:00-10:15 am Break

10:15 - 11:15 am

A Multi-Tasking, Tablet PC-based Approach to Teaching Introductory Statistics

Alexandre Probst, Colorado School of Mines

Detailed Conference Schedule

Wednesday, April 1, 2009

The Journal for Statistics Education cites a significant deficiency in the area of introductory statistics education and research suggests that a technological solution may be the most effective. Generational research suggests that an affinity for technology and for multi-tasking exists in the current generation. Gender research suggests that computer-based social networking may increase female participation in Computer Science. To address these findings, a Tablet-PC mediated, multi-tasking, classroom software system which facilitates peer to peer classroom interaction, participation in the lecture and student note-taking was developed and tested in introductory Statistics classes as a solution to the challenge of statistics education.

Alexandre Probst is an Assistant Professor at Colorado Christian University (CCU) and is completing a PhD under the supervision of Barb Moskal at Colorado School of Mines. Alexandre is CCU's chair of Mathematics and Computer Sciences and his research is focused on developing methods for improving Statistics instruction. aprobst@mines.edu

11:15 am - 12:15 pm

Uncertainty Quantification and Uncertainty Reduction Techniques for Large Scale Simulation Models

Haiyan Cheng, Virginia Polytechnic Institute and State University

This research work explores the computational methods for uncertainty quantification (UQ) and reduction, with application to air quality models. An efficient numerical algorithm for polynomial chaos (PC) Galerkin approach applied to stiff systems is developed. The non-intrusive PC least-squares collocation approach is proposed to simplify the UQ process. An innovative uncertainty apportionment (UA) approach is proposed to attribute uncertainties in model results to uncertain inputs. An adaptive observation scheme is explored to facilitate data assimilation through Ensemble Kalman filter. The results lead to a strategically placement of the observations to maximize the information gain between assimilation intervals to reduce uncertainties.

Haiyan Cheng is a PhD student in Virginia Tech CS department. Her research interests are uncertainty quantification and uncertainty reduction techniques for large-scale simulations. She loves to explore and solve challenging, interesting scientific problems. She loves to teach, and is passionate for a teaching career. hcheng04@vt.edu

12:10-1:30 pm Lunch

Portland Room

1:30 - 2:30 pm

Quantifying and Improving Wireless Privacy

Damon McCoy, University of Colorado at Boulder

It has been shown that current wireless device protocols leave users vulnerable to many privacy threats including: user tracking, profiling, and traffic analysis. For example, information leaked at the physical-layer can be used to link packets to a device even when no identifiers are included in the link-layer, this can lead to user tracking and profiling. Another example is that consistent network addresses in link-layers can be used to violate a user's location history. In this thesis we will quantify the privacy threat present in both the physical and link-layers, and present methods to remove these identifiers while maintaining performance.

Damon McCoy is currently a Doctoral Candidate in the Department of Computer Science at the University of Colorado at Boulder. He has also worked in a variety of industry and government positions. His research interests include practical privacy enhancing systems and more general network security issues. damon.mccoy@colorado.edu

2:30-2:45 pm Break

2:45 - 3:45 pm

Analysis of Motion Landscapes

Lydia Tapia, Texas A&M University

Molecular motions play a crucial role in many biochemical processes. For example, a misstep in the process of folding to a protein's native, functional state, has been associated with many diseases such as Alzheimer's. In this work, we have explored a novel and efficient computational technique for studying molecular motions originally developed for robotic motion planning. This method builds a graph corresponding to an approximate map of the molecule's folding landscape that relates all possible conformations to energy. Also, we present techniques that relate the unique features of a molecule's landscape, the hills and valleys, to its folding behavior.

Lydia Tapia is a PhD Candidate in Computer Science whose research is on intelligent motion planning for both robots and molecules. At Texas A&M she was a fellow in the Molecular Biophysics Training and GAANN programs. Before graduate school, she contributed to virtual reality simulations at Sandia National Laboratories. ltapia@cs.tamu.edu

3:45 - 4:45 pm

Kill the Winner in Four Aquatic Environments

Beltran Rodriguez-Mueller, San Diego State University and Claremont Graduate University

Thesis subject: Sampling viral and microbial community DNA in and modeling the composition, metabolism, and dynamics over time. Novel biology and novel biological analysis techniques were developed, validated, and used to interpret biology and ecology of a Solar Saltern.

Beltran Rodriguez-Mueller is a Ph.D. student at San Diego State University and Claremont Graduate University, where he is working with Prof. F. Rohwer. In 2005, received an MS in Computer Sciences from San Diego State University and his MS thesis work was in modeling a phage infection in a natural environment using two compartments models and differential equations.

4:45-5:30 pm

Wrap up: Questions from other students to the panelists

Scholarship Recipient Orientation and Student Welcome and Networking Session

Student Scholarship Recipient Orientation

6:00 - 6:30 pm

Student Welcome and Networking Session

6:30 - 8:00 pm

Salons A-C

Scholarships Co-Chairs

Cristina Villalobos, University of Texas - Pan American
Luis Melara, Shippensburg University

Scholarships Committee Members

Andras Balogh, University of Texas - Pan American

Theresa Chatman, Rice University

Cynthia Lanius, Empowering Leadership Alliance

Juan Hernandez, Lawrence Livermore National Laboratory

Jose Andre Morales, University of Texas - San Antonio

Don't miss the Scholarship Recipient Orientation and the Student Welcome and Networking Session. Experience and suggestions will be offered to students toward maximizing the benefits of their participation in the 2009 Tapia Conference and future professional activities. Right away, start getting to know one another or re-ignite relationships from past conferences.

Student Scholarship Recipient Orientation

6:00 - 6:30 pm

Salons A-C

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Student Welcome and Networking Session

6:30 - 8:00 pm

Salons A -C

All students are invited to attend this pre-conference information session, which is aimed at helping students make the most of their conference experience. Students will be introduced to colleagues, luminaries, leaders, and representatives from professional societies, academia, national laboratories, and industry. Students will also learn valuable networking skills that can be immediately put to use.

Opening Reception - 2009 Tapia Celebration

8:00 - 10:00 pm

Salon E

The Opening Reception offers a relaxed setting for the start of the conference. This is an opportune time to meet and network with colleagues, leaders in the field, and potential future collaborators. Conference participants will have an opportunity to meet honoree Richard Tapia, a host of speakers and panelists, representatives from our sponsors and supporters, conference organizers and other conference participants. The Tapia 2009 Opening Reception is supported by Google.

Celebration of Computing Career Opportunities Exhibits

8:00-10:00 pm

Level 1 and Level 2 Foyers

Conference attendees should be sure to visit the Celebration of Computing Career Opportunities Exhibits to learn more about the programs and potential career opportunities offered by the 2009 Tapia Celebration sponsor and supporters. These supporters, who represent academia, government, and industry, will have information on hand regarding graduate school, summer internships, faculty fellowships, post-doctoral positions, and employment opportunities, as well as general information about their organizations. The exhibits will be up throughout the conference.

Conference Schedule at a Glance for Thursday, April 2, 2009

7:00 a.m.-5:00 p.m.	Registration Open, Ballroom Level Registration Counter
7:30-8:15 a.m.	Continental Breakfast, Ballroom Level Foyer
8:15-8:30 a.m.	Opening Remarks & Announcements (Salons E & F)
8:30 a.m.-5:30 p.m.	Celebration of Computing Career Opportunities, Level 1 and Level 2 Foyers
8:30-9:30 a.m.	Plenary Session I: Dr. Ann Gates (Salons E & F)
9:30-10:00 a.m.	Break, Ballroom Level Foyer
10:00 a.m.-Noon	Workshop I - Resume Workshop Sponsored by Google (Salons A & B)
10:00 a.m.-Noon	Papers Session I - HCI/Security (Salons C & D) <ul style="list-style-type: none">• "A Knowledge-Based Database System for Visual Rating of fMRI Activation Pattern for Brain Language Network" (Magno Guillen, Malek Adjouadi, Byron Bernal, Melvin Ayala, Armando Barreto, Naphtali Rishe, Gabriel Lizarraga, Xiaozhen You, and William Gaillard).• "Computational Modeling Approaches Help Guide Early Design Efforts for Usability" (Maria Vicente Atas Bonto-Kane, and Robert St. Amant).• "Maximizing Network Security Given a Limited Budget" (Nwokedi Idika, Brandeis Marshall, and Bharat Bhargava).• "Summary of Work on Traffic Analysis against Wireless Identifier-Free Link Layers" (Damon McCoy, Kevin Bauer, Ben Greenstein, Dirk Grunwald, and Douglas Sicker).
10:00 a.m.-Noon	Panel Session I - "The Role of Department Chairs in Broadening Hispanic Participation in Computing" (John Fernandez, Ann Gates, Desh Ranjan, and Manuel Perez-Quinones). (Salons G & H)
Noon-1:30 pm	Lunch on Your Own
Noon - 12:40 p.m.	Robotics Participants Discussion - Brown Bag Lunch (Salons A & B)
12:45 - 1:15 p.m.	Special Presentation: Ruzena Bajcsy (Salons A & B)
1:30-2:30 p.m.	Plenary Session II: Charles Isbell (Salons E & F)
2:30-3:00 p.m.	Break, Ballroom Level Foyer
3:00-5:00 p.m.	Workshop II - "How to start a STARS Leadership Corps to improve retention and recruiting in computing." (Tiffany Barnes, Teresa Dahlberg, Marguerite Doman and Karen Bean). (Salons A & B)

3:00-5:00 p.m.	Papers Session II - Machine Learning/AI/ Data Mining (Salons C & D) <ul style="list-style-type: none">• "A Platform-Based Design Environment for Synthetic Biological Systems" (Douglas Densmore, Matthew Johnson, Nade Sritanyaratana, and Anne Van Devender).• "DANCING: Dance And Choreography; an Intelligent Nondeterministic Generator" (Mario Nakazawa and Andrea Paezold-Ruehl).• "An Initial Approach to Mining Multiple Perspectives of a Business Process" (Aubrey Rembert and Clarence Ellis).• "Predicting Cross-Country Results using Feature Selection and Evolutionary Computation" (Caio Soares and Juan Gilbert).
3:00-5:00 p.m.	Panel Session II - "Industry as Change Agent: Intel's Experiments to Retain Students in STEM and Expand the Ph.D. Market" (Karen Kim, Kimberly Sills, Sheila Humphreys, and Stephanie Wallach). (Salons G & H)
5:00-5:15 p.m.	Break
5:15-6:15 p.m.	BOF I "Developing, Recruiting, and Retaining Underrepresented Groups in the National Laboratory System", Rebecca Hartman-Baker and Arnold Tharrington. (Salons A & B)
5:15-6:15 p.m.	BOF II "Can Virtual Worlds bring a 'Second Life' to CS Education"? Jeanette Allen, Anja Remshagen, Li Yang, Brittany Burgey, Randle Copeland, Brittany Johnson, and Shimiell Small. (Salons C & D)
5:15-6:15 p.m.	BOF III "Access Computing and Accessibility Research" Richard Ladner. (Salons G & H)
6:15-6:30 p.m.	Break
6:30-9:00 p.m.	ACM Poster Competition and Reception (Mt. Hood Room)

Detailed Conference Schedule

Thursday, April 2, 2009

Registration

Open 7:00 am - 6:00 pm

Ballroom Level Registration Counter

Continental Breakfast

7:30 - 8:15 am

Ballroom Level Foyer

Celebration of Computing Career Opportunities Exhibits

8:30 am - 5:30 pm

Level 1 and Level 2 Foyers

Opening Remarks and Announcements

8:15 - 8:30 am

Salons E & F

Technical Program Co-Chair **Ron Metoyer**,
Oregon State University

Plenary Session 1

8:30 - 9:30 am

Salons E & F

The Patchwork Promise: Providing a Better Future

Ann Gates, Associate Vice President of Research,
University of Texas at El Paso

Ann Gates' introduction by **Manuel Perez-Quinones**,
Virginia Tech, Technical Program Co-Chair



Ann Quiroz Gates is the Associate Vice President for Research and Sponsored Projects at the University of Texas at El Paso and past chair of the Computer Science Department. Her research areas are requirements elicitation,

formal specifications, and workflow-driven ontologies. Gates directs the NSF-funded Cyber-ShARE Center that focuses on developing and sharing resources through cyber-infrastructure to advance research and education in science. She was a founding member of the NSF Advisory Committee for Cyberinfrastructure, and she serves on the Board of Governors of IEEE-Computer Society. She is the vice chair for the IEEE Technical Field Awards Committee. Gates leads the Computing Alliance for Hispanic-Serving Institutions (CAHSI), an NSF-funded consortium that is

focused on the recruitment, retention, and advancement of Hispanics in computing, and is a founding member of the Academic Alliance for the National Center for Women and Information Technology. She has served on the National Academy of Engineering's Committee on Engineering Education (2002-2004) and on the steering committee for the Frontiers in Education Conference (2000-2006). In 2003, she received the University of Texas's Chancellor's Council Award for Outstanding Teaching, and she was named to Hispanic Business magazine's 100 Influential Hispanics in 2006 for her work on the Affinity Research Group model that focuses on development of undergraduate students involved in research. agates@utep.edu

Break, 9:30 - 10:00 am

Ballroom Level Foyer

Parallel Sessions

10:00 am - Noon

Workshop, Papers, Panel

Workshop 1

10:00 am - Noon

Salons A & B

Resume Workshop

Supported by Google

You have the education, you have the skills, but how do you make sure your resume gets noticed among all the others? In this workshop, learn from experts from academia and leading companies about the best ways to get your foot in the door, land an interview and join the organization of your choice.

Technical Papers 1 - HCI/Security

10:00 am - Noon

Salons C & D

A Knowledge-Based Database System for Visual Rating of fMRI Activation Pattern for Brain Language Network

Presenters: Magno Guillen, FIU; Malek Adjouadi, FIU; Byron Bernal, Miami Children Hospital; Melvin Ayala, Florida International University; Armando Barreto, Florida International University; Naphtali Rishe, FIU; Gabriel Lizarraga, FIU; Xiaozhen You, FIU; William Davis

Gaillard, Children's National Medical Center
This paper describes a novel multimedia tool to facilitate visual assessment of Functional Magnetic Resonance Imaging (fMRI) activation patterns. A great effort is placed by radiologists and neurologists to present a consistent methodology to assess brain activation map images. Since each radiologist can perform the visual analysis and present the findings differently, rating a large and heterogeneous group of images becomes a challenging task. Although this tool is focused on assessing fMRI activation patterns related to brain language network paradigms, the tool can be extended to other brain activation maps, such as motor, reading, and working memory.

Magno Guillen earned his BS degree in Electrical Engineering in 1989 at Universidad Nacional de Ingenieria, Managua, Nicaragua. He obtained a Full-Bright Scholarship during his MS studies at Western Illinois University. Magno defended successfully his Ph.D. dissertation in the field of neuroimaging and will graduate in Fall 2008. magno.guillen@fiu.edu

Malek Adjouadi is a Professor with the Department of Electrical and Computer Engineering with a joint appointment in Biomedical Engineering. Adjouadi is the founding Director of the Center for Advanced Technology and Education, funded by NSF. He received his BS, MS and Ph.D. degrees in Electrical Engineering. malek.adjouadi@fiu.edu

Byron Bernal is the director of the functional neuroimaging section at the Radiology Department of Miami Children's Hospital, since 1998. Bernal is the author of several journal articles and fMRI books. Currently, Bernal is investigating language organization and connectivity in normal volunteers and children with refractory epilepsy. byron.bernal@mch.com

Melvin Ayala has a Bachelor's degree in Economic Engineering and a PhD. from the University of Applied Sciences (Germany). He has been a visiting professor and researcher at the State University of Sao Paulo. He has authored several publications related to software engineering, artificial intelligence and biomedical signal processing. melvin.ayala@fiu.edu

Armando Barreto is an Associate Professor in the departments of Electrical & Computer Engineering and Biomedical Engineering. He is the director of the Digital Signal Processing Laboratory. Armando's academic back-

ground is in electrical engineering: BS Degree from UNAM, Mexico, MS Degree from FIU, and PhD Degree from UF, Gainesville. armando.barreto@fiu.edu

Naphtali Rishe is the Author of 3 books on database design and geography; Editor of 5 books on database management; Inventor of 4 U.S. patents; Author of over 200 papers; Awardee of over \$35 million in research grants; the inaugural FIU Outstanding University Professor; Founder of TerraFly.com. Naphtali.Rishe@fiu.edu

Gabriel Lizarraga is an undergraduate student with the School of Computing and Information Sciences. Currently he is involved in software development of a 3D source localization method in brain research. He joined the Center for Advanced Technology and Education (CATE) at FIU in the summer of 2008. gliza002@fiu.edu

Xiaozhen You is a Ph.D. student with the Biomedical Engineering Department. She is the recipient of a FIU Presidential Fellowship. Her dissertation work is focused on using the Principal Component Analysis with nonlinear methods to functional Magnetic Resonance Imaging in language networks for pediatric epilepsy. xyou001@fiu.edu

William Davis Gaillard, Professor of Neurology and Pediatrics George Washington University and Professor of Neurology at Georgetown University, is the chief of Neurophysiology and Epilepsy at Children's National Medical Center. His directs research efforts that use advanced imaging methods to examine the effect of epilepsy on brain structure and function. wgaillard@cnmc.org

Computational Modeling Approaches Help Guide Early Design Efforts for Usability

Presenters: Maria Vicente Atas Bonto-Kane, North Carolina State University; Robert St. Amant, North Carolina State University

In this paper, we describe the innovative approach of using formal computational models to guide design efforts for usability. In this research, formal computational models were used to map sequences of operations for a chemical assay task and a history of usage patterns was represented using a probabilistic model. A candidate interface was then designed around the formal and probabilistic model recommendations for what would be a most facilitative interface layout for the task or activity. The result was an interface that performed optimally per model predictions.

Additionally, live user testing and empirical observations verified and reinforced the model predictions.

Maria Vicente Atas Bonto-Kane is a PhD candidate in the Department of Computer Science at North Carolina State University. Her research interests are in formal and probabilistic modeling, machine learning, and human-machine interaction. Marivic has some experience working in industry, academia, and the government sector, specifically, in defense related projects. mabonto@ncsu.edu

Robert St. Amant is an Associate Professor in the Department of Computer Science at North Carolina State University. He obtained his PhD from University of Massachusetts in Amherst. His research interests target formal and computational models of interaction drawing on concepts in artificial intelligence, human-computer interaction, and cognitive science. stamant@csc.ncsu.edu

Maximizing Network Security Given a Limited Budget

Presenters: Nwokedi Idika, Purdue University; Brandeis Marshall, Purdue University; Bharat Bhargava, Purdue University

In order to safeguard an organization's networked assets, a network administrator must decide how to harden the network. To aid the decision-making process, network administrators may use attack graphs, which, through analysis, yield network-hardening suggestions. A critical drawback of currently available analyses is not enough consideration has been given to the network administrator's defense budget. We overcome this shortcoming by modeling the problem of choosing security measures given a finite budget as a combinatorial optimization problem, a problem we call the Security Measures Choosing Problem (SMCP). Dynamic programming is used to provide optimal solutions.

Nwokedi Idika is a Ph.D. student in the Department of Computer Science. His research interests include vulnerability analysis, damage assessment and security metrics. His current research focuses on attack graphs. nidika@purdue.edu

Brandeis Marshall is an Assistant Professor of Computer and Information Technology in the Data Management area. Her research lies in the area of information and image retrieval, knowledge management and data mining. Her work centers on bettering the solution to the search

accuracy problem in Web and multimedia application domains. brandeis@purdue.edu

Bharat Bhargava is a professor of the Department of Computer Science with a courtesy appointment in the School of Electrical & Computer Engineering at Purdue University. Professor Bhargava is conducting research in security and privacy issues in distributed systems. bb@cs.purdue.edu

Summary of Work on Traffic Analysis against Wireless Identifier-Free Link Layers

Presenters: Damon McCoy, University of Colorado at Boulder; Kevin Bauer, University of Colorado at Boulder; Ben Greenstein, Intel Research Seattle; Dirk Grunwald, University of Colorado at Boulder; Douglas Sicker, University of Colorado at Boulder

Recent work has focused on removing identifiers from the wireless link-layer to protect users' privacy. However, we find that a straightforward attack on a physical-layer property yields information that aids in the profiling of users. In this paper, a technique is developed to associate packets with their respective transmitters solely using the signal strengths of packets. Through experiments conducted in an indoor environment, we demonstrate that packets with no identifiers can be grouped together by their respective transmitters with high accuracy. We next show that this technique is sufficiently accurate to allow an adversary to conduct a website fingerprinting attack.

Damon McCoy is currently a Doctoral Candidate in the Department of Computer Science at the University of Colorado at Boulder. He has also worked in a variety of industry and government positions. His research interests include practical privacy enhancing systems and more general network security issues. damon.mccoy@colorado.edu

Kevin Bauer is a Doctoral Candidate in the Department of Computer Science at the University of Colorado at Boulder. His research interests include distributed systems, privacy enhancing technologies, peer-to-peer networks, and network security. kevin.bauer@colorado.edu

Ben Greenstein works at Intel Research Seattle and leads Trustworthy Wireless, a project focused on improving privacy for users of wireless devices. He received his Ph.D. in Computer Science from UCLA, where he studied embedded networked sensing systems with Deborah Estrin and Eddie Kohler. benjamin.m.greenstein@intel.com

Dirk Grunwald is an Associate Professor in the Department of Computer Science at the University of Colorado at Boulder. He works in the area of computer systems, broadly defined. This includes computer architecture, operating systems, and wireless networks. grunwald@colorado.edu

Douglas Sicker an Associate Professor in the Department of Computer Science and Director of the Interdisciplinary Telecommunications Labs at the University of Colorado at Boulder. sicker@colorado.edu

Panel 1 - The Role of Department Chairs

10:00 am-Noon
Salons G & H

The Role of Department Chairs in Broadening Hispanic Participation in Computing

Presenters: John Fernandez, Texas A&M University - Corpus Christi; Ann Gates, Professor; Desh Ranjan, New Mexico State University, Las Cruces, New Mexico; Manuel A. Perez-Quinones, Virginia Tech

The small number of Hispanic faculty, combined with the need for Hispanic role models, perpetuates a troublesome cycle of underrepresentation, which is particularly acute in computing disciplines. Addressing the low representation of Hispanics in computing requires administrators, faculty and graduate students to be well informed of key issues and strategies to address the recruitment, retention, and advancement of Hispanics. The objectives of the panel are to: discuss the causes for underrepresentation of Hispanics in STEM fields; describe strategies and practices for addressing underrepresentation; and emphasize the role of the chair in creating a community to address these issues.

John Fernandez is the Chair of the Computing Sciences Department at Texas A&M University-Corpus Christi. He has a Ph.D. from Texas A&M and an M.S. from West Virginia University. After a career in the U.S. Air Force, he has held several executive positions in industry. john.fernandez@tamucc.edu

Ann Gates is the Associate Vice President of Research and Sponsored Projects at the University of Texas-El Paso. Gates directs the NSF-funded Cyber-ShARE Center (Sharing resources to Advance Research and Education through Cyberinfrastructure) and leads a consortium of HSIs focused on the recruitment, retention, and advancement of Hispanics in computing. agates@utep.edu

Desh Ranjan is Head of the Computer Science Department at New Mexico State University and directs the NSF-funded NMSU Center for Bioinformatics. He has a Ph.D. from Cornell University. He is one of the core group of computer scientists that helped establish the Computing Alliance of Hispanic Serving Institutions. dranjan@cs.nmsu.edu

Manuel A. Perez-Quinones is Associate Dean for the Graduate School and Associate Professor in Computer Science at Virginia Tech. He has a D.Sc. from George Washington University. His research is in applied areas of HCI. He is a member of the Coalition to Diversify Computing, ACM, and IEEE Computer Society. perez@cs.vt.edu

Lunch

Noon - 1:30 pm
Salons E & F

**By invitation only: Robotics Participants Discussion
Brown Bag Lunch for Robotics Teams**
Salons A & B

Special Presentation - Everyone is welcome to attend

12:45 - 1:15 pm
Salons A & B

Teleimmersion as a Means for Better Communication Between People

Ruzena Bajcsy, University of California, Berkeley

Tele-immersion is aimed to enable users in geographically distributed sites to collaborate in real time in a shared simulated environment as if they were in the same physical room. This enterprise has engaged the skills of researchers in a variety of disciplines, including computer vision, graphics and network communications. Tele-immersion is aimed to be used in different areas, such as 3D CAD design, ergonomics, entertainment (e.g. games), remote learning and training, coordination of activities (e.g. dancing, rehabilitation), and 3D motion capture of body segments.

Plenary Session 2

1:30 - 2:30 pm
Salons E & F

Adaptive Drama Management: Bringing Machine Learning to Interactive Entertainment

Charles Isbell, Georgia Institute of Technology
Charles Isbell's introduction by **Jeffrey Forbes**, Duke University, Robotics Competition Co-Chair



Charles Lee Isbell, Jr. received his BS degree in computer science in 1990 from the Georgia Institute of Technology, where the President named him its outstanding student. Awarded a fellowship from AT&T Bell Labs as well as an NSF fellowship, he continued his education at the Artificial Intelligence Laboratory at MIT. After earning his PhD from MIT in 1998, Charles joined AT&T Labs/Research. In 2002, he returned to Georgia Tech to join the faculty of the College of Computing. His research group is The Laboratory for Interactive Artificial Intelligence. The unifying theme of his work in recent years has been using statistical machine learning to enable autonomous agents to engage in life-long learning when in the presence of thousands of other intelligent agents, including humans. Since graduating from MIT, he has won two best paper awards and has been featured in several magazines and collections for technical contributions in working with agents who interact in social communities. Since returning to Georgia Tech, Charles has also pursued reform in computer science education. He has been awarded numerous teaching awards, and has been granted the Dean's Award for singular contribution to the College for his work on Threads, Georgia Tech's new structuring principle for computing curricula. This work has received international attention, and been presented in the academic and popular press. Recently, he has become the Interim Associate Dean of Academic Affairs and Undergraduate Education for the College of Computing. <http://www.cc.gatech.edu/~isbell/>. isbell@cc.gatech.edu

Break, 2:30 - 3:00 pm
Ballroom Level Foyer

Parallel Sessions

3:00 - 5:00 pm
Workshop, Papers, Panel

Workshop 2

3:00 - 5:00 pm
Salons A & B

How to start a STARS Leadership Corps to Improve Retention and Recruiting in Computing

Presenters: Tiffany Barnes, University of North Carolina at Charlotte; Teresa Dahlberg, UNC Charlotte; Marguerite Doman, University of North Carolina Charlotte; Karen Bean, UNC Charlotte

The STARS Leadership Corps is an innovative diversity initiative that integrates the research findings in effective practices for retention and recruiting of underrepresented minorities to make an impact in broadening participation in computing. The Corps builds a community of computing college students across the STARS Alliance, a consortium of colleges and universities, whose core value is to become responsible leaders who use computing for social benefit. The Corps builds partnerships with local K-12 schools, industry, community, and professional organizations. This workshop will provide hands-on training on how to begin and build a STARS Leadership Corps.

Tiffany Barnes, Assistant Professor of Computer Science at UNC Charlotte, directs the Game2Learn project, researching ways to use games and artificial intelligence to improve student learning and creativity in computing. Dr. Barnes is co-PI of the NSF STARS Alliance grants that engage college students in outreach, research, and service. tbarnes2@uncc.edu

Teresa Dahlberg, Associate Professor of Computer Science, directs the UNC Charlotte Diversity in Information Technology Institute, the NSF-funded STARS Alliance, the NSF Computing Research Experiences for Undergraduates Site, the DOE GAANN scholars program, and is co-PI for the NSF-UNC Charlotte ADVANCE: Institutional Transformation for the Future of the Faculty project. tdahlber@uncc.edu

Marguerite Doman is a Doctoral student in Computer Science at UNC Charlotte. She is an Academic Liaison for the Charlotte STARS Student Leadership Corps. Previously she was a software developer at IBM. mdoman@uncc.edu

Karen Bean, Program Coordinator of the Diversity in Information Technology Institute at UNC Charlotte, coordinates programming for the STARS Leadership Corps and Computing Research Experiences for Undergraduates. kbbbean@uncc.edu

**Technical Papers 2 -
Machine Learning/Data Mining**

3:00 - 5:00 pm
Salons C & D

A Platform-Based Design Environment for Synthetic Biological Systems

Presenters: Douglas Densmore, University of California, Berkeley; Matthew Johnson, UC Berkeley; Nade Sritanyaratana, UC Berkeley; Anne Van Devender, Washington and Lee

Genomics has reached the stage at which the amount of DNA sequence information in existing databases is quite large. Synthetic biology uses these databases to catalog sequences according to their functionality, thus creating standard biological parts. Tools are needed which not only permit access and modification to that data but also allow meaningful manipulation. A Platform-Based Design approach views genetic information as having a particular functionality and what is now needed is to assemble collections of DNA elements to perform this functionality. This paper presents the Clotho toolset, which creates a complete design environment for standardized biological parts.

Douglas Densmore is a UC Chancellor's Postdoctoral Fellow at the University of California, Berkeley. He received his B.S.E in Computer Engineering from the University of Michigan in 2001 and his M.S. and PhD degrees in Electrical Engineering from the University of California, Berkeley in 2004 and 2007 respectively. densmore@eecs.berkeley.edu

Matthew Laurence Earl Johnson is a student at the University of California, working on a bachelor's degree in Bioengineering. He is interested in the application of biological research to solving real world problems, especially in utilizing the potential of synthetic biology. He plans on continuing his studies after graduation." matthewjohnson@berkeley.edu

Nade Sritanyaratana is a 4th year undergraduate at the University of California, Berkeley. He is majoring in Bioengineering with a concentration in imaging. Nade has studied under Professor Steven Conolly constructing a device to treat bipolar depression. Currently, Nade works for Douglas Densmore, developing and visualizing Clotho. nadesri@berkeley.edu

Anne Van Devender is a 4th year undergraduate at Washington and Lee University where she is studying Computer Science. This past summer she participated in the Summer Undergraduate Program in Engineering Research at Berkeley (SUPERB) under the supervision of Douglas Densmore. Following graduation, she hopes to attend graduate school. vandevendera@wlu.edu

DANCING: Dance AND Choreography; an Intelligent Nondeterministic Generator

Presenters: Mario Nakazawa, Berea College; Andrea Paezold-Ruehl, Berea College

In this paper, we describe our proof of concept system that uses genetic algorithms to generate choreography for the waltz, a ballroom dance. We detail the representation of the dance steps and sequences our system manipulates, and our design of the fitness function to guide the algorithm. Preliminary results show that we have successfully incorporated several rudimentary choreography principles and that our system thus can generate effective waltz sequences. There are many potential areas of future development for our system, such as extending it to generate more sophisticated choreography for a variety of ballroom dances.

Mario Nakazawa is an Assistant Professor of Mathematics and Computer Science at Berea College in Berea, Kentucky, where he also occasionally teaches ballroom dancing. He received his PhD in computer science from the University of Georgia, where his thesis was on modeling parallel and distributed computing. mario_nakazawa@berea.edu

Andrea Paezold-Ruehl is an international student from Germany at Berea College, Kentucky, studying Business Administration, concentrating in Accounting, with a minor in Computer Science. She is a member in Phi Kappa Phi, Mortar Board, and helps with community and service learning projects for Habitat for Humanity and local events. andrea_paezold@berea.edu

An Initial Approach to Mining Multiple Perspectives of a Business Process

Presenters: Aubrey J. Rembert, researcher; Clarence Ellis, Professor of Computer Science

Process mining, to date, has been narrowly concerned with mining the control-flow of a business process. There are very few process mining algorithms aimed at mining different business process perspectives. We believe one of the primary reasons for the paucity of process mining algorithms in perspectives other than control-flow is that there has been no general definition of what a business process perspective is. With this work, we provide a formal and general definition of a business process perspective, and present an approach to mine other business process perspectives using this definition.

Aubrey J. Rembert is a Research Staff Member at IBM Research. His research is centered around human-centric workflow. He received his B.S. and M.S. in computing from FAMU, and his Ph.D. in Computer Science from the University of Colorado at Boulder. rembert@colorado.edu

Clarence (Skip) Ellis is Professor of Computer Science and Director of the Collaboration Technology Research Group at the University of Colorado. Ellis has worked as a researcher and developer at numerous labs. His academic experience includes teaching at Stanford University, MIT, and numerous sites around the world. skip@colorado.edu

Predicting Cross-Country Results using Feature Selection and Evolutionary Computation

Presenters: Caio Soares, Auburn University; Juan Gilbert, Auburn University

Although some work has been done to better predict the outcome of sporting events, it has focused on mainstream sports such as football and has typically employed forecasting or machine learning techniques. This work focuses on the sport of cross-country, and uses feature selection and evolutionary computation to better predict National Meet results. Feature Selection is utilized to find the most optimal feature set and a Particle Swarm Optimizer (PSO) to find the most optimal weight set. The best results are attained using the PSO, with an improvement over the current system of 2.5% for Women and 0.3% for Men.

Caio Soares is a Ph.D. student at Auburn University's Computer Science and Software Engineering Department. His research interests include Machine Learning, Data

Mining and Evolutionary Computation. He has earned B.S. degrees in Computer Science and Mathematics and is a SREB Fellow and a Google Hispanic Scholarship recipient. soarecv@auburn.edu

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished. gilbert@auburn.edu

Panel 2 - Industry As Change Agent

3:00 - 5:00 pm

Salons G & H

Industry as Change Agent: Intel's Experiments to Retain Students in STEM and Expand the Ph.D. Market

Presenters: Karen Kim, University of California, Los Angeles; Kimberly Sills, Intel; Sheila Humphreys, University of California, Berkeley; Stephanie Wallach, Carnegie Mellon University; Dawn Wiggin, University of Washington

This panel will highlight successful collaboration between Intel, a high-tech industry leader, and fourteen prominent universities designed to promote retention and pursuit of advanced degrees for women and underrepresented students by engaging undergraduates in research opportunities and graduate students in mentoring. This panel will include an overview of the partnership and programs, statistics on how the partnership is working, and perspectives of participants in the program. Panelists will include the higher education program manager at Intel who oversees the partnership, program managers from three campuses (Berkeley, CMU, and UCLA), an undergraduate participant and a Ph.D. graduate working at Intel.

Karen Kim is the Education Director for the Center for Embedded Networked Sensing (CENS) at UCLA. She oversees the education activities for this NSF Science & Technology Center, focused on graduate students, undergraduates, and pre-college students. The CENS Intel Scholars Program is a key component of these activities. karenkim@ucla.edu

Kimberly Sills is a Higher Education Program Manager for Intel, responsible for overseeing Intel's university engage-

ments and student programs with key universities and for managing the Intel Foundation Undergraduate Research Program, designed to retain students in STEM and increase graduate school participation in semiconductor and information technology related fields. kimberly.sills@intel.com

Sheila Humphreys, Director of Diversity, Department of Electrical Engineering and Computer Sciences, UC Berkeley, has been actively engaged in science intervention programs to promote diversity for three decades. In that role, she oversees academic support for women and underrepresented students, including research programs like the Intel Undergraduate Research Program. humphrys@EECS.Berkeley.EDU

Stephanie Wallach, Carnegie Mellon University, is Director of both the Undergraduate Research Office and the Fellowships and Scholarships Office. She oversees several undergraduate research support programs, including IFYRE, Intel's First Year Research Experience; an undergraduate research journal, Thought; and a campus-wide research symposium, "Meeting of the Minds". sw4s@andrew.cmu.edu

Dawn Wiggin is the Educational Program Manager, Engineering Cooperative Education Program, at the University of Washington, where she directs the Intel program and helps industry representatives connect with current students in the computer science and engineering departments. dwiggin@u.washington.edu

Break, 5:00 - 5:15 pm

Parallel Sessions

5:15 - 6:15 pm

Birds-of-a-Feather Sessions

Birds-of-a-Feather Session 1

5:15 - 6:15 pm

Salons A & B

Developing, Recruiting, and Retaining Underrepresented Groups in the National Laboratory System

Presenters: Rebecca Hartman-Baker, Oak Ridge National Laboratory, Arnold Tharrington, Oak Ridge National Laboratory

The United States Department of Energy National Laboratories face a shortage of qualified applicants for sensitive positions, which could be eased by increasing the participation of underrepresented groups in computing. In this BOF, we discuss the challenges faced by the national laboratories to recruit and retain members of underrepresented groups, including recruitment and retention through the educational pipeline as well as retention once they become employees. Through discussion, we will seek to answer the question of how the national laboratories can incorporate inclusive practices into their corporate culture in order to retain employees of all types.

Rebecca Hartman-Baker is a computational scientist at the National Center for Computational Sciences at Oak Ridge National Laboratory. She earned her Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign in 2005. Her research interests include optimization, ill-posed problems, load balancing, and petascale computing. hartmanbakrj@ornl.gov

Arnold Tharrington is a computational scientist at the National Center for Computational Sciences at Oak Ridge National Laboratory. He earned a Ph.D. from the University of Pittsburgh in computational physics. At NCCS he is a member of the team validating scientific applications on the petaflop supercomputer. arnoldt@ornl.gov

Birds-of-a-Feather Session 2

5:15 - 6:15 pm

Salons C & D

Can Virtual Worlds bring a 'Second Life' to CS Education?

Presenters: Jeanette Allen, University of West Georgia; Anja Remshagen, University of West Georgia; Li Yang, University of West Georgia

Virtual worlds such as Second Life are used in many educational settings. Second Life can convey content or aid with building networks among students. But it might also be used to teach computer science concepts. We want to discuss how best to take advantage of virtual world technology to excite and retain beginning students, especially minority students, in computer science. Furthermore, a virtual world may provide opportunities for interaction in which some

of the traditional barriers of race, gender, and disability can be removed or arbitrarily manipulated. We will debate how this feature can be utilized for retaining minority students.

Jeanette Allen received her Ph.D. in Computer Science in 1989 from the Georgia Institute of Technology. She is an Assistant Professor in the Department of Computer Science at the University of West Georgia. Her research interests include human-computer interaction, particularly in the area of wearable computing, and computer science education. jallen@westga.edu

Anja Remshagen received the M.S. in Mathematics in 1998 from the University of Cologne, Germany, and the Ph.D. in Computer Science in 2001 from the University of Texas at Dallas. Presently, she is teaching at the University of West Georgia. Her research interests include computational logic and computer science education. anja@westga.edu

Li Yang received her Ph.D. in Computer Science from Florida International University in 2003. She is an Associate Professor in the Department of Computer Science at the University of West Georgia (UWG). Her research interests include XML and database systems, web services and security, and Computer Science education. lyang@westga.edu

Birds-of-a-Feather Session 3

5:15 - 6:15 pm

Salons G & H

AccessComputing and Accessibility Research

Presenters: Richard Ladner, University of Washington

In this birds of a feather session, persons who are interested in disability issues and accessibility research will learn about and discuss how they can get involved in the NSF-funded AccessComputing Alliance. Students can become involved by becoming protégés with mentors and participating in research and industrial internships. Faculty can become involved by becoming mentors or joining communities of practice. There will also be a discussion of accessibility research which is a growing area in computer science. All students, faculty members, and others, disabled or not, are invited to the birds of a feather gathering.

Richard Ladner is Boeing Professor in Computer Science and Engineering at the University of Washington. He is Principal Investigator for the NSF-funded AccessComputing Alliance, which has the goal of increasing participation of persons with disabilities in computing. He is a well-known researcher in the accessibility field. ladner@cs.washington.edu

Break, 6:15 - 6:30 pm

ACM Poster Competition and Reception

6:30 - 9:00 pm

Mt. Hood Room - 2nd Floor, Restaurant Level
Supported by IBM

Poster abstracts and authors' biographies appear in the back of this conference program.

Students may put their posters up any time during the day on Thursday. The posters will remain on display for the remainder of the conference.

The Tapia 2009 poster session is an opportunity for students to present their latest research results and methodologies to a wide conference audience and to network at the same time. The posters competition is part of the ACM Student Research Competition (SRC). For the Poster Reception, each author of an accepted poster will be assigned a space to display a printed research poster. These posters will remain up for the duration of the conference.

On Thursday evening, authors will present their posters in a reception attended by conference attendees and judges. The judges will have the opportunity to view the posters and talk to entrants about their work. The judges will then select the top five posters in the graduate and undergraduate categories to present their work in a conference session the next morning. Authors of the top five undergraduate and graduate posters, as decided by judges during the Thursday night poster session, will each give a 10-minute oral presentation of their work during a special session Friday morning. From these semi-finalists, the top three posters in the graduate and undergraduate student categories will be chosen and entered into the ACM Grand Finals for the Student Research Competition to be held online.

Conference Schedule at a Glance for Friday, April 3, 2009

7:00 a.m.-5:00 p.m.	Registration Open, Ballroom Level Foyer at Registration Counter
7:30-8:15 a.m.	Continental Breakfast, Ballroom Level Foyer
8:15-8:30 a.m.	Opening Remarks & Announcements (Salons E & F)
8:30 a.m.-5:30 p.m.	Celebration of Computing Career Opportunities, Level 1 and Level 2 Foyers
8:30-9:30 a.m.	PlenarySession III: Dr. Jane Margolis (Salons E & F)
9:30-10:00 a.m.	Break, Ballroom Level Foyer
10:00-11:00 a.m.	BOF IV - "Reshaping the image of computing among college-bound teens, Ben Wiehle (Salon D)
10:00 a.m.-Noon	ACM Poster Competition Presentations (Salon A)
10:00 a.m.-Noon	Panel Session III - "What you need to know: Insights into the industry technical career track" (Caroline Simard, Andrea Davies Henderson, and Freada Kapor Klein) (Salons G & H)
10:00 a.m.-Noon	Papers Session III - Diversity (Salons B & C) <ul style="list-style-type: none">• "Broadening Participation: a Community College Strategy" (W. Richards Adrion and Renee Fall).• "INSPIRED Computing Academies for Middle School Students: Lessons Learned" (Peggy Doerschuk, Jiangjiang Liu, and Judith Mann).• "Building Information Assurance Education Partnerships with Minority Institutions" (Drew Hamilton, Steven Owor, and Khalil Dajani).• "Later Stages Support for Security Requirements" (Jose Romero-Mariona, Hadar Ziv, and Debra Richardson). 10:00 a.m.-Noon Panel Session III - "What you need to know: Insights into the industry technical career track" (Caroline Simard, Andrea Davies Henderson, and Freada Kapor Klein).
11:00- Noon	BOF V - "National Center on Cultural Diversity in Computer and Information Technology Valerie Taylor (Salon D)
Noon-1:30 p.m.	Lunch (Salons E & F)
1:30-2:30 p.m.	PlenarySession IV: Dr. Hector Garcia-Molina (Salons E & F)
2:30-3:00 p.m.	Break, Ballroom Level Foyer
3:00-5:00 p.m.	Robotics Competition (Salons A & B - or in Robotics Rooms)

3:00-4:50 p.m.	Papers Session IV - Parallel Computing (Salons A & B) <ul style="list-style-type: none">• "Characterizing the Association between Mobile Users Using Wireless Network Traces" (Pierrot Chery, Jiang (Leo) Li, and Legand Burge).• "Programming Efficiency in Parallel Computing" Keisha Cumber, Stephanie Diehl, Chuck Koelbel, and Vivek Sarkar).• "Exploring Multi-Core Limitations through Comparison of Contemporary Systems" (Ashley DeFlumere and Sadaf R. Alam)• "On the Efficacy of Present grid computing software for deploying a medical grid" (Javier Delgado and Malek Adjouadi).
3:00-4:50 p.m.	Panel Session IV - "Diversity Challenges and Opportunities in K-12" Joanna Goode, Chris Stephenson, Jane Margolis, and John Landa. (Salons G & H)
5:00-6:00 p.m.	BOF IV - "Student Recommendations for Increasing Participation in Science and Engineering" Quincy Brown, Christopher Harris, Jessica Rivas, Jose Romero-Mariona, Juan F. Sequeda, and Cynthia Lanius. (Salon A)
5:00-6:00 p.m.	BOF V - "Changing the World: Using Technology to Address Social Issues" Andrea Grimes and Sheena Lewis. (Salon D)
5:00-6:30 p.m.	Panel Session V - "Steps to a PhD: A Student's Perspective" Charles Lively, Lydia Tapia, Suzanne Matthews, and Tiffani Williams. (Salons G & H)
5:00-6:30 p.m.	Panel Session VI - "Giving Dilbert a makeover: Broadening participation in computer science through collaborations in ecology and natural resources" Julia Jones, Thomas Dietterich, Xiaoli Fern, Weng-Keen Wong, Ethan Dereszynski, Twinkle Lettkeman, Jonathan Palacios, Matthew Clothier, Liz Burrows, and Nicole Czarnomski. (Salons B & C)
6:00-6:45 p.m.	Break and VIP Reception
6:45-9:00 p.m.	Banquet and Awards (Salons E & F)

Detailed Conference Schedule

Friday, April 3, 2009

Registration

Open 7:00 am - 6:00 pm

Ballroom Level Registration Counter

Continental Breakfast

7:30 - 8:15 am

Ballroom Level Foyer

Celebration of Computing Career Opportunities Exhibits

8:30 am - 5:30 pm

Level 1 and Level 2 Foyers

Opening Remarks and Announcements

8:15 - 8:30 am

Salons E & F

Technical Program Co-Chair **Ron Metoyer**,
Oregon State University
Technical Papers Co-Chair **Debbi Howard**,
Kaplan University

Plenary Session 3

8:30 - 9:30 am

Salons E & F

Stuck in the Shallow End: Education, Race, and Computing

Jane Margolis, UCLA Graduate School of Education and Information Studies

Jane Margolis' introduction by **Telle Whitney**, Anita Borg Institute



Jane Margolis is a social scientist at the UCLA Graduate School of Education and Information Studies who studies educational inequities. She received the 2005 Computing Research Association Habermann award for her work on diversity in computing. She is the co-author of two books that focus on computer science - *Unlocking the Clubhouse: Women in Computing* (MIT Press, 2002) and *Stuck in the Shallow End: Education, Race, and Computing* (MIT Press, 2008). *Stuck in the Shallow End* was the winner of the 2009 Prose Award in Education from the Association of American Publishers. The book, which includes a powerful Forward by Shirley Malcom and

Afterword by Richard Tapia, is based on research done in three Los Angeles high schools, addressing why so few African-American and Latino students are learning computer science. Through the lens of computer science education, Margolis' work reveals not only the dynamics of the gender and race gap in computer science, but also the ways that inequality is produced in our society. Her work further addresses strategies and possibilities for institutional change. margolis@ucla.edu

Break, 9:30 -10:00 am

Ballroom Level Foyer

Parallel Sessions

10:00 am - noon

Posters, Papers, Panel, Birds-of-a-Feather

ACM Poster Competition Presentations

10:00 am - Noon

Salon A

Poster abstracts and authors' biographies appear in the back of this conference program.

The Tapia 2009 poster session is an opportunity for students to present their latest research results and methodologies to a wide conference audience and to network at the same time. The top three posters in both the graduate and undergraduate student categories will advance to the ACM Student Research Competition (SRC) Grand Finals.

The poster competition takes place in three stages. This conference session, at 10am - Noon on Friday, is the third stage, where each semi-finalist in the Poster Competition will give a 10-minute oral presentation of his or her work. Based on these presentations, the judges will select up to three graduates and three undergraduates as winners of the competition. Winners will receive certificates and a cash award. They will also be entered into the ACM Grand Finals for the Student Research Competition to be held online.

Technical Papers 3 - Diversity

10:00 am - Noon

Salons C & D

Broadening Participation: a Community College Strategy

Presenters: W. Richards Adrion, University of Massachusetts Amherst; Renee Fall, University of Massachusetts Amherst

The Commonwealth Alliance for Information Technology Education (CAITE) is an alliance of 15 Massachusetts public campuses that focuses on community colleges because of their role as a gateway to careers and further higher education for underserved populations. CAITE's outreach extends into four regions that have high percentages of students who are under-represented in the knowledge and innovation economy. Building on two years' experience and extensive data, we are strengthening our efforts to develop nurturing educational pathways and to ensure that students are adequately prepared to enter them. CAITE can serve as a transferable model for statewide collaborations.

W. Richards Adrion is the principal investigator for the Commonwealth Alliance for Information Technology Education and professor in Computer Science at the University of Massachusetts Amherst. Adrion received his B.S. and M.E.E. from Cornell and his Ph.D. from The University of Texas at Austin. adrion@cs.umass.edu

Renee Fall is project manager of the Commonwealth Alliance for Information Technology Education (CAITE). She has 15+ years experience in college administration, inter-institutional collaboration, fundraising, and communications. Fall holds a B.A. from Gustavus Adolphus College and a master's degree from Harvard Divinity School, with a focus in women's studies. rfall@cs.umass.edu

INSPIRED Computing Academies for Middle School Students: Lessons Learned

Presenters: Peggy Doerschuk, Lamar University; Jiangjiang Liu, Lamar University Computer Science Department; Judith Mann, Lamar University Psychology Department

If we are to attract more women and minorities to computing we must engage students at an early age. As part of its mission to increase participation of women and underrepresented minorities in computing, the Increasing Student Participation in Research Development Program

(INSPIRED) conducts computing academies for middle school students. University students from underrepresented groups organize, coordinate, and present the instructional materials. This provides role models for the kids and helps develop the skills of the university students, thus aiding in their retention. This paper describes the organization, coordination, content and assessment of the academies, as well as lessons learned.

Peggy Doerschuk is a Professor of Computer Science at Lamar University and Director of the INSPIRED Program. She has been actively directing mentoring, retention and outreach programs to increase participation of underrepresented groups in computing since 2002. Her current research areas include intelligent systems and robotics. peggy.doerschuk@lamar.edu

Jiangjiang Liu is an Assistant Professor at Lamar University. She is the co-director of INSPIRED program and has been actively participating in reaching out to underrepresented students at all levels in computer science. Her research interests are in computer architecture focusing on high-performance, low power, and cost-effective multi-core systems. jane.liu@lamar.edu

Judith Mann is an Assistant Professor at Lamar University with a Ph.D. in School Psychology from Texas A&M. She has taught psychometrics and assessment courses for twelve years. She has directed two retention programs: Student Support Services and Foundations of Excellence in the First Year Experience. jrmann@my.lamar.edu

Building Information Assurance Education Partnerships with Minority Institutions

Presenters: Drew Hamilton, Auburn University; Steven Owor, Albany State University; Khalil Dajani, Albany State University

This paper describes our successful leveraging of the National Security Agency / Department of Homeland Security Center of Academic Excellence in Information Assurance program and Auburn University's highly successful partnership with three (Historically Black College and Universities (HBCU)) universities through the National Science Foundation's Scholarship for Service Program. This paper will describe this ongoing and highly successful program that has been publicly praised by the NSF as "a model for innovative collaboration and community building.

It demonstrates how majority institutions and minority serving institutions can effectively build mutually beneficial partnerships which will increase diversity in the information assurance community.”

Drew Hamilton is an associate professor of computer science and software engineering with a joint appointment in management at Auburn University and director of Auburn's Information Assurance Center. He is the President of the Society for Modeling & Simulation, International (SCS), and Vice-Chair of ACM's Special Interest Group on Simulation. hamilton@auburn.edu

Steven Owor is an associate professor of Computer Science at Albany State University.. He received his PhD in Computer Science from Auburn University in 2003. He has taught at Makerere University and Alabama State Universities. He has received grants from the National Science Foundation in collaboration with Auburn University. Robert.Owor@asurams.edu

Khalil Dajani is an Associate Professor of Computer Science at Albany State University. He received his PhD from the University of Toledo and taught at University of Illinois, University of Toledo and West Virginia University. He is widely published and received an NSF Award in Information Assurance with Auburn University. Khalil.Dajani@asurams.edu

Later Stages Support for Security Requirements

Presenters: Jose Romero-Mariona, University of California, Irvine; Hadar Ziv, University of California, Irvine; Debra J. Richardson, University of California, Irvine

Software security concerns are frequent, widespread, and harmful. We believe that security concerns should be supported during later stages of development (architecture, design, implementation, testing, and maintenance). This paper focuses on security requirements and the support available for them past their creation. As part of ongoing research we surveyed 12 approaches to security requirements engineering and identified the level of support each approach provides on a variety of areas related to later stages support. We show that support for security requirements after they are specified is lacking at best, creating opportunities for significant improvement and further research in this area.

Jose Romero-Mariona is a Ph.D. Candidate at the University of California, Irvine in the Department of Informatics. His research focuses on the challenge of making security specifications useful past the requirements stage of development. He is developing an environment that will ultimately guide the specification-based testing of security-concerned software. jromerom@uci.edu

Hadar Ziv is a lecturer and researcher in Informatics at UC Irvine, with 25 years experience in academia and industry. He teaches the senior capstone project where students develop complete systems for customers such as Google and Experian, has published extensively and presented his research at Google, IBM, and RIM. ziv@ics.uci.edu

Debra J. Richardson, Professor of Informatics and Dean of the Donald Bren School of Information and Computer Sciences at UC Irvine. She pioneered research in “specification-based testing;” her current work focuses on enabling specification-based testing technology throughout the software lifecycle, from requirements and architecture analysis through operation and evolution. djr@ics.uci.edu

Panel 3 - What you need to know

10:00 am - Noon

Salons G & H

10:00 am-Noon Panel Session III

What you need to know: Insights into the industry technical career track

Presenters: Caroline Simard, Anita Borg Institute for Women and Technology; Andrea Davies Henderson, Clayman Institute for Gender Research Stanford and Cal State Northridge; Freada Kapor Klein, Level Playing Field Institute

Little is known about technical talent of color in industry. This panel identifies obstacles to the retention and advancement of underrepresented minority talent in high technology companies, and highlights the solutions that make a difference in their success. Based on two large-scale research projects conducted by the Anita Borg Institute, Stanford's Clayman Institute, and the Level Playing Field Institute, we will present new data on technical URM talent in the high-technology industry. We will discuss what technical professionals of color should know when looking for an employer and how companies can retain and advance their technical employees of color.

Caroline Simard, Ph.D., is Director of Research at the Anita Borg Institute for Women and Technology. Simard leads ABI's major research initiatives. Caroline holds a PhD from Stanford University and was a researcher at the Stanford Business School's Center for Social Innovation. carolines@anitaborg.org

Andrea Davies Henderson, Ph.D., is an Assistant Professor in the History Department at the California State University, Northridge. She recently served as Research Director for Stanford University's Clayman Institute. She holds an M.A. in Religious Studies, M.A. in History and Ph.D. in History from Stanford University andrea.henderson@stanford.edu

Freda Kapor Klein is the founder of the Level Playing Field Institute. Earlier, Freda co-founded the first organization to offer comprehensive services on sexual harassment. She was the first Director of Employee Relations for Lotus and later started her own consulting firm. Freda is the author of Giving Notice. fklein@kapor.com

Birds-of-a-Feather Session 4

10:00 - 11:00 am

Salon D

Reshaping the image of computing among college-bound teens

Presenter: Ben Wiehe, New Image of Computing

The New Image for Computing (NIC) project is a new initiative designed to increase enrollment and diversity in computing programs at American four-year colleges and universities. The project is designed as an outreach and communications campaign targeting college-bound teens. The first year of the project has focused on market research with this target audience. An overview of these findings will set up a discussion of the opportunities and challenges of attracting high-school students to the computing field. The goal of this session is to share research related to teens' perceptions of computing, and gather feedback that will inform efforts to help teens choose computing majors and careers.

Ben Wiehe is the Outreach Project Director for the New Image for Computing (NIC) project. NIC is primarily implemented by WGBH, the public television affiliate, and the ACM. ben_wiehe@wgbh.org

Birds-of-a-Feather Session 5

11:00 am - Noon

Salon D

National Center on Cultural Diversity in Computer and Information Technology

Presenter: Valerie Taylor, Texas A&M University

Valerie Taylor was a member of the faculty at Northwestern University from 1991 through 2002. Taylor joined the faculty of Texas A&M University as Head of the Department of Computer Science and Engineering in 2003. Her research interests are in the area of high performance computing taylor@cs.tamu.edu

Lunch, Noon - 1:30 pm

Salons E & F

Supported by Symantec

Plenary Session 4

1:30 - 2:30 pm

Salons E & F

Ken Kennedy Distinguished Lecture, 2009 Tapia Celebration

Web Information Management: From Search to Social Networks

Hector Garcia-Molina, Stanford University

Hector Garcia-Molina's introduction by **Richard Tapia**, Rice University



Hector Garcia-Molina is the Leonard Bosack and Sandra Lerner Professor in the Departments of Computer Science and Electrical Engineering at Stanford University, Stanford, California. He was the chairman of the Computer Science Department from January 2001 to December 2004. From 1997 to 2001 he was a member the President's Information Technology Advisory Committee (PITAC). From August 1994 to December 1997 he was the Director of the Computer Systems Laboratory at Stanford. From 1979 to 1991 he was on the faculty of the Computer Science Department at Princeton University, Princeton, New Jersey. His research interests include distributed computing systems, digital libraries and database systems. He received a BS in electrical engineering from the Instituto Tecnológico de Monterrey, Mexico, in 1974. From Stanford University, Stanford, California, he received in 1975 a MS in electrical engineering and a PhD in computer science in 1979. He holds an honorary PhD from ETH Zurich

(2007). Garcia-Molina is a Fellow of the Association for Computing Machinery and of the American Academy of Arts and Sciences; is a member of the National Academy of Engineering; received the 1999 ACM SIGMOD Innovations Award; is on the Technical Advisory Board of DoCoMo Labs USA, Yahoo Search & Marketplace; is a Venture Advisor for Diamondhead Ventures, and is a member of the Board of Directors of Oracle and Kintera. hector@cs.stanford.edu

Break, 2:30 - 3:00 pm
Ballroom Level Foyer

Parallel Sessions

3:00 - 5:00 pm

Papers, Panel, Robotics Competition

Papers 4 - Parallel Computing

3:00 - 5:00 pm

Salons C & D

Characterizing the Association between Mobile Users Using Wireless Network Traces

Presenters: Pierrot Chery, Howard University; Jiang (Leo) Li, Howard University; Legand Burge, Howard University

In Delay Tolerant Networks (DTN), the performance heavily depends on the association between mobile users, which decides how frequently the users meet with each other. It is therefore very important to understand the association. In this paper, by analyzing a number of wireless network traces, we verified the exponential distribution of the association of mobile users, which means that most mobile users are not closely associated. Furthermore, we examined the distribution of the inter-connectivity time of those mobile users more closely associated.

Pierrot Chery is a graduate student in the Department of Systems and Computer Science at Howard University. He received his M.S. degree in CS in 2006 at Howard University. As a certified network engineer, his research interests is in computer networking. He is presently conducting research on disruption tolerant networks. chery.peter@inbox.com

Jiang (Leo) Li is an Assistant Professor in the Department of Systems and Computer Science at Howard University, Washington, DC. In 2003, he received his Ph.D. degree in Computer Science from Rensselaer Polytechnic Institute. His research interests are in computer networking. He is now conducting research on disruption tolerant networks. lij@scs.howard.edu

Legand Burge is an Associate Professor and Chairman of the Department of Systems and Computer Science at Howard University. He received a Ph.D. in Computer Science from Oklahoma State University, Stillwater, OK. His research interests lie in distributed computing, namely, global resource management in large-scale distributed systems. blegand@scs.howard.edu

Programming Efficiency in Parallel Computing

Presenters: Keisha Cumber, Johnson C. Smith University; Stephanie Diehl, Case Western Reserve University; Charles Koelbel, Rice University; Vivek Sarkar, Rice University

A parallel computer is one with multiple processors. These machines are hard to program because they need different program constructs than conventional sequential computers. The purpose of this research is to make parallel computers easier to program while exploiting parallelism. A fundamental parallel programming concept is the task dependence graph. We investigate different ways to express task graphs in Rice University's Habanero language, and measure their performance. Finally, there may be better language features that can express more types of task dependence graphs, or can execute the same graphs more efficiently; we suggest extensions to Habanero along these lines.

Keisha Cumber is a sophomore at Johnson C. Smith University as a Computer Science/ Information System major with a 3.5 grade point average. She is a dedicated, hard working, and confident person with goals to attend graduate school and earn her Ph.D. kcumber@jcsu.edu

Stephanie Diehl is a sophomore at Case Western Reserve University majoring in Computer Engineering. Other subjects of interest include Physics, specifically electromagnetic fields and Maxwell's equations. Rice AGEP 2008 was Diehl's first research experience in computer programming. Before CWRU she attended Phillips Exeter Academy for four years. sad30@case.edu

Charles Koelbel is a Research Scientist at Rice University working on languages for parallel and distributed computing. His past projects range from developing High Performance Fortran (HPF) to being co-PI on the Virtual Grid Applications Development Software (VGrADS) project. From 1998 to 2001 he was a Program Director at NSF. chk@rice.edu

Vivek Sarkar is the E.D. Butcher Professor of Computer Science at Rice University, where he leads the Habanero Multicore Software project. Prior to joining Rice, he was Senior Manager of Programming Technologies at IBM Research. Vivek holds a Ph.D. from Stanford University. vsarkar@rice.edu

Exploring Multi-Core Limitations through Comparison of Contemporary Systems

Presenters: Ashley Deflumere, Mount Holyoke College; Sadaf R. Alam, Oak Ridge National Laboratory

Our research aims at evaluating performance of contemporary multi-core platforms, the quad-core AMD Barcelona and the dual-core Intel Woodcrest, for scientific applications. We used High Performance Computing Challenge (HPCC) benchmarks, which contains test cases for quantifying performance of HPC systems. Analyzing performance of multi-core devices allows us to identify system parameters and configurations that could yield optimal performance. Since these devices are building blocks of fastest supercomputing systems, insights into performance behavior provide guidance for designing future HPC resources. Our results demonstrate that without multi-core aware optimization the achievable performance decreases as the number of cores per socket increases.

Ashley Deflumere is a senior undergraduate at Mount Holyoke College in South Hadley, Massachusetts. Her research interests include performance evaluation, parallel processing, and high performance architectures. deflu20a@mtholyoke.edu

Sadaf R. Alam is a member of Scientific Computing group at the leadership supercomputing facility at the Oak Ridge National Laboratory (ORNL) and a researcher in the Future Technologies group. She earned her PhD in computer science from the University of Edinburgh, UK, in 2004. alamsr@ornl.gov

On the Efficacy of Present grid computing software for deploying a medical grid

Presenters: Javier Delgado, Florida International University; Malek Adjouadi, Florida International University

Grid computing promises improvements in collaboration. This includes sharing of computational resources as well as improved collaboration amongst professionals of different areas of expertise. Several mature software applications are

available for simplifying the deployment of an arbitrary grid. In this work, we share our experience with some of these applications for collaboration between a consortium of hospitals and our research lab, which specializes in neuroscience and image processing applications. We explain the suitability of the Grid tools through extensions and enhancements made to an existing Grid Computing Software platform and the visualization mechanisms of the display wall.

Javier Delgado is a Ph.D. student in electrical engineering at Florida International University. His research interests include grid computing and enhancing collaboration through visualization. He is currently researching specific applications for grid computing, including medical and hurricane mitigation applications. He is a fellow of the Global Cyberbridges program. javier.delgado@fiu.edu

Malek Adjouadi is a Professor with the Department of Electrical and Computer Engineering with a joint appointment in Biomedical Engineering. He is the founding Director of the Center for Advanced Technology and Education, funded by NSF. He holds BS, MS and Ph.D. degrees in Electrical Engineering. adjouadi@fiu.edu

Panel 4 - Diversity Challenges

3:00 - 5:00 pm

Salons G & H

Diversity Challenges & Opportunities in K-12 Computer Science

Presenters: Joanna Goode, University of Oregon; Chris Stephenson, Computer Science Teachers Association; Jane Margolis, UCLA; John Landa, Los Angeles Unified School District

The objective of this panel is to highlight the specific obstacles preventing more students of color from entering the computer science pipeline before college. Drawing from an NSF-funded research study and teacher narratives provided to the Computer Science Teachers Association, the panelists will discuss the unique challenges of maintaining a computer science program in schools which enroll primarily African American and Latino students. The panel will share successful strategies for strengthening K-12 computer science and will present ideas for K-12 outreach programs. The audience will be invited to participate in a discussion with the panelists about equity in K-12 education.

Joanna Goode researches equity issues in computer science education. She is a member of the ACM's Educational Policy Committee, the Computer Science Teachers Association Board of Directors, and formerly taught in an urban high school. Goode is a co-author of *Stuck in the Shallow End: Education, Race, and Computing*. goodej@uoregon.edu

Chris Stephenson is the Executive Director of the Computer Science Teachers Association (CSTA), a professional membership organization of more than 5300 educators dedicated to improving K-12 computing education. Stephenson has served as the chair of the annual Computer Science and Information Technology Symposia and the ACM K-12 Task Force. cstephenson@csta.acm.org

Jane Margolis is a social scientist at the UCLA Graduate School of Education and Information Studies who studies educational inequities. She is the co-author of two books that focus on computer science-*Unlocking the Clubhouse: Women in Computing* (MIT Press, 2002) and *Stuck in the Shallow End: Education, Race, and Computing* (MIT Press, 2008). Through the lens of computer science education, Margolis' work focuses on the ways that inequality is produced in our society and how to build an institutional response. margolis@ucla.edu

John Landa is a computer science teacher at a predominately Latino school in Los Angeles. Landa earned a BS in Computer Science from the University of California at Berkeley. He is a district leader in computer science education and has collaborated with UCLA to write curriculum and mentor his colleagues. mr.landa@yahoo.com

Robotics Competition

3:00 - 5:00 pm
Salons A & B

As part of the Robotics Competition, teams from around the country were required to qualify for entry. Prior to coming to the conference, each team has programmed an a robot to enable it to seek out objects in a rendered environment. During the competition on Friday, the robots will be required to locate objects in an environment created at the hotel expressly for this competition. The winner of the competition will be announced at the Friday night Gala Banquet and Awards Ceremony.

Harvey Mudd College (HMC)

Presenters: Zachary Dodds, Harvey Mudd College; Becky Green, Harvey Mudd College; Sabreen Lakhani, Harvey Mudd College; Pam Strom, Harvey Mudd College; Kate Burgers, Harvey Mudd College

Four first-year students completed HMC's entry into the Tapia robotics competition during the summer of 2008. Now all sophomores, the team chose not to leverage HMC's 2007 entry; instead, they started from scratch in designing their own sensor suite and software scaffolding. The Create's bump sensor, a servo-mounted camera, and three sonars provide raw sensor values to an on-board laptop; a Python client gathers those values from socket servers written by the team in Python, Java, and C. A finite-state machine arbitrates the platform's many behaviors. In August the robot succeed in a task mock-up at HMC.

Zachary Dodds is an associate professor of computer science at Harvey Mudd College; he served as the advisor on this project. He is too frightened to look at any of the source code, however. He is reachable at dodds@cs.hmc.edu. dodds@cs.hmc.edu

Becky Green is a sophomore computer science major from Orange County. She wrote the image-processing code and the vision server, along with many other portions of the HMC system, earning her the title of "code janitor." She is reachable at rgreen@hmc.edu. rgreen@hmc.edu

Sabreen Lakhani is a sophomore computer science major from Southern California. She led the development and integration of the platform's behaviors and is responsible for its choice in music clips. She is reachable at slakhani@hmc.edu. slakhani@hmc.edu

Pam Strom hails from the twin-cities area of Minnesota. She started writing the Java-based front end to the system before handing it off to Kate. She is reachable at pstrom@hmc.edu. pstrom@hmc.edu

Kate Burgers is a sophomore computer science major from Kansas City. She took over the graphical user interface from Pam and is now the only team member who understands how it works. she is reachable at kburgers@hmc.edu. kburgers@hmc.edu

Tapia 2009 Robotics Competition - Tennessee State

Presenters: Tamara Rogers, Tenn State; Justice Amankwah, Tenn State; Jeffrey D. Boyland, Tenn State; Harold Hockett, Tenn State; Gary Moore, Tenn State

A robot is set to wander autonomously to identify six markers and their colors. It wanders until it comes close to an obstacle and turns. The names of colors are printed when they are detected. The hardware we intend to use includes a Logitech digital camera, an Eee Pc laptop, and a laser rangefinder on an iRobot Create platform. At this point, we have don't have any of the hardware, except the laptop. So far we have simulated a robot using C++ with Player/Stage, but may investigate the use of Tekkotsu for further development with the hardware.

Justice G.T. Amankwah is a Junior Computer Science major at Tennessee State University. He joined the robotics club to learn more in the field of robotics. Justice feels that the future of surgery lies in the hands of robots with system improvements, which will be beneficial for patients. jamankwah@mytsu.tnstate.edu

Jeffrey D. Boyland is a senior Computer Science major at Tennessee State University. He has an interest in Artificial Intelligence and programming languages. He hopes to develop a natural-language programming language that will make it extremely easy for even computer illiterate people to develop simple applications for everyday devices. Jeffrey.boyland@gmail.com

Harold Hockett II is a young African-American student attending Tennessee State University. He is a goofy, fun, and kind person who just wants the best in life. He was blessed to have a good life with few struggles, along with family and friends who support him. harold7774@aol.com

Gary Moore Jr. is a junior electrical engineer major from Newport News, Va. He has an interest with robotics and plans to attend graduate school. His goals in life are to strive for excellence in all that he does and become a role model for future generations. gmoore1784@yahoo.com

Tamara Rogers is an assistant professor of computer science at Tennessee State University. Her interests include human-robot interaction and computer networking. She loves teaching and encouraging others to learn, take responsibility and reach for their dreams. trogers3@tnstate.edu

Tapia 2009 Robotics Competition Norfolk State - DaCirkus

Presenters: Thorna Humphries, Norfolk State; William Shellington, Norfolk State; Duane Wilder, Norfolk State; Krystal Belfield, Norfolk State; Jeffie Powell, Norfolk State.

In the Tapia search and rescue competition, we are using Tekkotsu as the programming platform to implement our solution. Our C++ implementation will be based on a state machine design that takes into consideration the constraints of the maze and the number of targets. Using the vision component, the robot will identify targets that consist of the three desired colors. Once each target has been identified, the robot will no longer identify that target's combination of colors. Using infrared sensors and knowledge of the environment, our robot will search the given maze.

Thorna Humphries is an associate professor of the Computer Science Department at Norfolk State University. Prior to this appointment, she was a professor at Florida A & M University. She is currently a co-principal investigator within the ARTSI Alliance.. thumphries@nsu.edu

William Shellington is a senior in Computer Science, w.a.shellington@nsu.edu

Duane Wilder is a senior in Computer Science, d.c.wilder@nsu.edu

Krystal Belfield is a graduate student in Computer Science, k.v.belfield@nsu.edu

Jeffie Powell is a graduate student in Computer Science, j.l.powell@nsu.edu

ARTSI: Advancing Robotics Technology for Societal Impact

Presenters: The ARTSI Alliance, supported by the National Science Foundation, held a robotics competition in March 2009 at its Student Research Conference and C.A.R.E. National Olympiad at Spelman College. ARTSI is sending two teams from its March event to the Tapia Celebration to compete in the Tapia Robotics Competition. <http://artsialliance.org/>

Parallel Sessions

Birds-of-a-Feather Sessions 5:00 - 5:45 pm
Panel Sessions 5:00 - 6:30 pm

Birds-of-a-Feather Session 6 5:00 - 5:45 pm Salon A

Student Recommendations for Increasing Participation in Science and Engineering

Presenters: Quincy Brown, Drexel University; Christopher Harris, University of California, Irvine; Jessica Rivas, Texas A & M University, College Station; Jose Romero-Mariona, University of California, Irvine; Juan F. Sequeda, Department of Computer Sciences, The University of Texas at Austin

In this session, computing students from universities across the country will lead both large and small group discussions to generate recommendations for increasing participation in S&E. What do students think? What recommendations would they make to increase participation, especially students from underrepresented groups? The primary goal of the session is to provide an opportunity for students to reflect on and discuss with their colleagues this serious national issue. Session leaders are all members of the Student Advisory board of the NSF Broadening Participation in Computing Alliance, "Empowering Leadership: Computing Scholars of Tomorrow," (EL) Alliance.

Quincy Brown is a PhD Candidate in the Computer Science Department at Drexel University. She was a NSF Bridge to the Doctorate Fellow for 2 years and is currently a second year NSF GK-12 Fellow. Her research interests include intelligent tutoring systems, mobile learning, educational games, and the digital divide. qb23@drexel.edu

Christopher Harris is a PhD student in Electrical Engineering at the University of California, Irvine. Harris holds a B.S. in Applied Mathematics from Oakwood College, a B.S. in Computer Engineering from University of Alabama in Huntsville, and M.S. in Electrical Engineering from the University of Notre Dame. Christopher.Harris@uci.edu

Jessica Rivas is an Electronics Engineering major at Texas A&M University. She is a member of the Institute of Electrical and Electronics Engineers, Society of Women Engineers, Engineers without Borders, El Salvadorian Student Association, and Empowering Leadership Alliance. She enjoys volunteering, traveling, and reading about new technologies. jessicacrivas@gmail.com

Jose Romero-Mariona is a Ph.D. Candidate at the University of California, Irvine in the Department of Informatics. His research focuses on the challenge of making security specifications useful past the requirements stage of development. He is developing an environment that will ultimately guide the specification-based testing of security-concerned software. jromerom@uci.edu

Juan F. Sequeda is a Ph.D. student at University of Texas at Austin researching on the Semantic Web and Databases. He is also the President of the ELA chapter, which encourages students to succeed in Computer Science at UT, gain interest in doing research and pursuing a graduate career. jsequeda@cs.utexas.edu

Birds-of-a-Feather Session 7 5:00 - 5:45 pm Salon D

Changing the World: Using Technology to Address Social Issues

Presenters: Sheena Lewis, Northwestern University; Andrea Grimes, Georgia Institute of Technology

As computing researchers, it is important that we understand how technology can facilitate positive social change in the world around us. In this session we will discuss currently researched social issues and brainstorm new areas of focus to 1) foster a community of underrepresented computer scientists that conduct research on social issues 2) encourage young scholars to utilize computing to affect positive social change 3) dispel myths about social justice research that deter people from studying such topics and 4) discuss the future direction of social computing.

Sheena Lewis is a Ph.D. student at Northwestern University in the Technology and Social Behavior program (a joint degree in Computer Science and Communications). She obtained a M.S. in Computer Science from Georgia Tech. Her doctoral work focuses on designing technology to decrease disparities faced by marginalized communities. sheena.lewis@gmail.com

Andrea Grimes is a Human-Centered Computing Ph.D. student at Georgia Institute of Technology. She has a B.S. in Computer Science from Northeastern University (2005). She conducts HCI research on designing culturally relevant systems to encourage healthy eating. Andrea is a Microsoft Research Fellow and an NSF Graduate Research Fellow. agrimes@cc.gatech.edu

Panel 5 - Steps to a PhD
5:00 - 6:30 pm
Salons G & H

Steps to a PhD: A Student's Perspective

Presenters: Charles Lively, Texas A&M University; Lydia Tapia, Texas A&M University; Suzanne Matthews, Texas A&M University; Tiffani Williams, Texas A&M University

Prospective and new PhD students are often aware of the tasks they must accomplish such as classes, picking an advisor, prelims, proposal, and thesis. However, accomplishing each task is not always straightforward or anticipatable. In this panel, students will explain the PhD process. Our panelists are at different points in their academic careers: a new graduate student who is picking a research area and advisor, a mid-career graduate student who is focusing his research, and a degree candidate who is leading publications. For each career stage, we will discuss the challenges and key steps to overcome these challenges.

Charles Lively is a third year Computer Engineering PhD student at Texas A&M University. He received his M.S. (August 2006) and B.S.E. (May 2004) from TAMU and Mercer University. His research interests are in the area of high-performance computing. clively@cs.tamu.edu

Lydia Tapia is a PhD Candidate in Computer Science whose research is on intelligent motion planning for both robots and molecules. At Texas A&M she was a fellow in the Molecular Biophysics Training and GAANN programs. Before graduate school, she contributed to virtual reality simulations at Sandia National Laboratories. ltapia@cs.tamu.edu

Suzanne Matthews is a PhD student in Computer Science at TAMU. She received her MS and BS in Computer Science from RPI. She was recognized by RPI as a Master Teaching Fellow, and is a former CRA-W DMP Awardee. Her research interests lie within the area of Computational Phylogenetics. sjm@cs.tamu.edu

Tiffani Williams is an Assistant Professor in the Department of Computer Science and Engineering at Texas A&M University. Her research interests are bioinformatics and high-performance computing. Her honors include a variety of fellowships from the Radcliffe Institute, Alfred P. Sloan Foundation, and the Florida Education Fund. tlw@cs.tamu.edu

Panel 6 - Giving Dilbert a Makeover
5:00 - 6:30 pm
Salons B & C

Giving Dilbert a makeover: Broadening participation in computer science through collaborations in ecology and natural resources

Presenters: Julia Jones, Oregon State University; Thomas Dietterich, Oregon State University; Xiaoli Fern, Oregon State University; Weng-Keen Wong, Oregon State University; Ethan Dereszynski, Oregon State University; Twinkle Lettkeman, Oregon State University; Jonathan Palacios, Oregon State University; Matthew Clothier, Oregon State University; Elizabeth Burrows, Oregon State University; Nicole Czarnomski, Oregon State University

Ecosystem Informatics is an emerging field that integrates ecosystem science, computer science, and mathematics. Computer science is central to major challenges faced in ecosystem sciences involving knowledge discovery, hypothesis testing, and model development from ecological datasets with unprecedented detail, derived from novel sensors and sensor networks. Ecosystem Informatics seeks to develop the novel algorithms, tools, and systems that ecosystem scientists need to analyze these data. This field is especially relevant for enhancing diversity in computer science, taking young computer scientists "out of the cubicle and into the forest" and preparing them for new careers that contribute to environmental sustainability.

Detailed Conference Schedule

Friday, April 3, 2009

Julia Jones is Professor of Geosciences; Director of the Ecosystem Informatics program at Oregon State University since 2003; co-investigator in the HJ Andrews Long-term Ecological Research program involving collaborations among ecologists and many other disciplines to study forest and stream ecosystems and their management. geojulia@comcast.net

Thomas Dieterich is Professor of Computer Science; co-Investigator on the Ecosystem Informatics IGERT program at Oregon State University since 2003. Leader of computer science collaborations with ecologists involving insect identification, species mapping, and fire management. tgd@cs.orst.edu

Xiaoli Fern is Assistant Professor of Computer Sciences and instructor of Ecosystem Informatics graduate course series at Oregon State University. Collaborating with ecologists on projects including bioacoustics and species mapping. xfern@eecs.oregonstate.edu

Weng-Keen Wong is an Assistant Professor of Computer Science at Oregon State University. His research interests are in machine learning and data mining. wong@eecs.oregonstate.edu

Ethan Dereszynski is a PhD student, Computer Sciences, Oregon State University. Participant in Ecosystem Informatics program since 2004. dereszet@eecs.oregonstate.edu

Twinkle Lettkeman is a PhD student, Computer Sciences, Oregon State University. Participant in Ecosystem Informatics program since 2006. arwentwinkle@gmail.com

Jonathon Palacios is a PhD student, Computer Sciences, Oregon State University. Participant in Ecosystem Informatics program since 2007. palacijo@eecs.oregonstate.edu

Matthew Clothier is a PhD student; Participant in Ecosystem Informatics program since 2005. Matt's primary research interests are in scientific visualization, augmented reality, and graphics shader (GPU) programming. At Oregon State University, Matt is also a researcher in the ecosystem informatics program which combines computer science, mathematics, and ecology. clothiem@eecs.oregonstate.edu

Elizabeth Burrows is a PhD candidate in the Biological and Ecological Engineering Department at Oregon State University. She has been a participant in the Ecosystem Informatics program since 2004. Her research focuses on production of hydrogen by photosynthetic bacteria as a future renewable energy source. burrowse@engr.orst.edu

Nicole Czarnomski is a PhD student, Water Resources Engineering, Oregon State University. Participant in Ecosystem Informatics program since 2005. czarnomn@geo.oregonstate.edu

Banquet and Awards Ceremony

6:45 - 9:00 pm

Salons E & F

Supported by Microsoft

Hostess

Phoebe E. Lenear, University of Illinois

Welcome

Pamela Williams, Coalition to Diversify Computing and Logistics Management Institute

Opening Remarks

Richard Tapia

University Professor and Maxfield-Oshman Professor
Department of Computational and Applied Mathematics,
Rice University

Dinner

Banquet Speaker

Imagine Your Future: Invent Your Career

Mario Pipkin, Microsoft Corporation

Introduction of Mario Pipkin by **Carla Faini**, Microsoft Corporation



Mario Pipkin is General Manager of the Enterprise Experience Division (ExD) within the Microsoft Information Technology (MSIT) Engineering organization. ExD is responsible for maintaining some of Microsoft's most critical business applications. The groups which comprise ExD span multiple continents and countries and are accountable for the SAP instance, Microsoft Business Solutions IT, Integration Center of Excellence, Dynamics AX Center of Excellence, Microsoft's Licensing and Original Equipment Manufactures business. During Mario's time at Microsoft, he has built several MS technology showcases. Since joining Microsoft in January 1995 Mario has served in almost every role in IT, ranging from Project Management to Production Support and now General Manager. Prior to joining Microsoft, Mario successfully ran his own IT consulting company, before that he worked for Boeing as a systems analyst, and for the Federal Government developing artificial intelligence systems. He graduated from the ITT Peterson School of Business in Seattle. In Mario's spare time he enjoys spending time with his wife and their five children, as well as driving and showcasing his many classic cars. mariop@microsoft.com

Awards Presentations

Student Poster

Presented by **Brandeis Marshall**, Purdue University

Robotics Competition

Presented by **Jeffrey Forbes**, Duke University, and **Monica Anderson**, University of Alabama

Ken Kennedy Distinguished Lecture Honor

Presented by **Richard Tapia**, Rice University

Tapia Achievement Award

Presented by **Roscoe Giles**, Boston University

Closing Remarks

Richard Tapia, Rice University

Dancing!

Conference Schedule at a Glance for Saturday, April 4, 2009

7:00-9:00 a.m.	Registration Open, Ballroom Level Foyer
7:30-8:30 a.m.	Continental Breakfast, Ballroom Level Foyer (Opening announcements will be given in each of the morning sessions)
8:45-10:45 a.m.	Workshop III - "Introduction to Petascale Computing" James Ferguson, Donald Frederick, and Bruce Loftis. (Salons A & B)
8:45-10:45 a.m.	Papers Session V - Education and Security (Salons C & D) <ul style="list-style-type: none">• "Engaging Students in Software Development Course Projects" (Jacqueline Hundley and Winard Britt).• "Research Experiences for Undergraduates: Autonomic Computing Research at FIU".• "Alice and Robotics in Introductory CS Courses" (Briana Wellman, James Davis and Monica Anderson).• "PIRE: A Global Living Laboratory for Cyberinfrastructure Application Enablement" (Seyed Masoud Sadjadi, Shu-Ching Chen, Borko Furht, Pete Martinez, Scott Graham, Steve Luis, Juan Carraballo, and Yi Deng).
8:45-10:45 a.m.	Panel Session VI - "Gaining Insight Into The Publication Disparity" Quincy Brown, Brian Blake, Cheryl Swanier, Ernest Cross, Rashida Davis, and Caio Soares. (Salons G & H)
10:45-11:45 a.m.	Town Hall Meeting - input from all attendees (Salons E & F)
11:45 a.m.	Adjourn Tapia 2009

Registration

Open 7:00 am - 9:00 am

Ballroom Level Registration Counter

Continental Breakfast

7:30 - 8:30 am

Ballroom Level Foyer

Opening Remarks and Announcements

8:30 - 8:45am

In the Parallel Sessions described below

Parallel Sessions

10:00 am - noon

Workshop, Papers, Panel

Workshop 3

8:45 - 10:45 am

Salons A & B

Introduction to Petascale Computing

Presenters: James Ferguson, National Institute for Computational Sciences; Donald Frederick, National Center for Computational Sciences, Oak Ridge National Lab; Bruce Loftis, National Institute for Computational Sciences

Capabilities of computer systems at the highest levels of speed, size, and cost continue to increase. Petascale computing, so named for computers that can calculate one quadrillion floating point operations per second (FLOPs), has arrived for some applications, and will soon be a reality for many others. The NSF and the Department of Energy are funding these petascale systems, available to any U.S. based researcher (both academic and industrial) via peer-review processes. This workshop will de-mystify the vocabulary of high-performance computing hardware, discuss how they are used efficiently, and highlight those applications that are currently using these large resources.

James Ferguson is the Director of Education, Outreach & Training at NICS, a U. Tennessee/Oak Ridge National Laboratory partnership. Jim worked previously at NCSA in a number of capacities, including user services, training, advanced networked applications, and technical project management. jwf@utk.edu

Donald Frederick is a computational physicist who is currently with the User Assistance and Outreach Group at the ORNL National Center for Computational Sciences, where he provides user support and training for their HPC systems, including the pet flop-capable Jaguar XT5 computer. dff@ornl.gov

Bruce Loftis is the Group Leader for Scientific Support at the National Institute for Computational Sciences at the University of Tennessee. He has 25 years of experience in all aspects of high-performance computing. Research interests include environmental modeling, mathematical optimization, and large-scale distributed applications. bloftis1@utk.edu

Papers Session 5 - Education and Security

8:45 - 10:45 am

Salons C & D

Engaging Students in Software Development Course Projects

Presenters: Jacqueline Hundley, Auburn University; Winard Britt, Auburn University

This work seeks to contribute to software development education by motivating the use of engaging in-class and laboratory assignments. Ideally, these assignments should involve considerable student buy-in and should also evolve throughout the course to mimic real-world software development. Prior research is discussed, as well as several specific examples from two introductory programming classes. The ultimate contribution is a convincing argument to spend the extra effort to design better student projects.

Jacqueline Hundley is pursuing the Doctor of Philosophy degree in Computer Science with a Software Engineering option at Auburn University. Her research focus is the introduction of software engineering principles and tools into the CS1/CS2 curriculum. She teaches Introduction to Computing for non-majors as a graduate teaching assistant. hundljh@auburn.edu

Winard Britt is pursuing the Doctor of Philosophy degree in Computer Science with an Information Assurance Option at Auburn University. He is a member of the Information Assurance Lab and GPS and Vehicle Lab at Auburn University and his research primarily focused on information assurance, machine learning, and evolutionary computation. brittwr@auburn.edu

Conference Schedule at a Glance for Saturday, April 4, 2009

Research Experiences for Undergraduates: Autonomic Computing Research at FIU

Presenters: Masoud Milani, Florida International University; Seyed Masoud Sadjadi, Florida International University; Raju Rangaswami, Florida International University; Peter J. Clarke, Florida International University; Tao Li, Florida International University

During the past three years, with support from the National Science Foundation's Research Experiences for Undergraduates program, we established a successful REU site at the School of Computing and Information Sciences at Florida International University and built upon our past experiences and infrastructure at FIU to provide world-class research opportunities to undergraduate students primarily recruited from Minority Serving Institutions. Our REU site has hosted 30 undergraduate students, 23 of them were underrepresented including 8 females, 16 Hispanics, and 4 African Americans, who published 13 technical papers. Six of the ten students who have already graduated, have started their graduate studies.

Masoud Milani joined Florida International University after receiving his Ph.D. in Computer Science from the University of Central Florida in 1986 and is currently the Associate Dean of the School of Computing and Information Sciences in FIU. His interests include Computer Science Education and Software Engineering Tools and Technique. milani@cs.fiu.edu

Seyed Masoud Sadjadi is an assistant professor in the School of Computing and Information Sciences, Florida International University. He received his BS in Hardware Engineering in 1995, MS in Software Engineering in 1999, and PhD in Computer Science from Michigan State University in 2004. His research is in autonomic computing. sadjadi@cs.fiu.edu

Raju Rangaswami received a Ph.D. in Computer Science from the University of California, Santa Barbara. He is an Assistant Professor of Computer Science at Florida International University. His research interest is in operating systems. He is a recipient of Early CAREER awards from the NSF and Department of Energy. raju@cs.fiu.edu

Peter J. Clarke is an Assistant Professor in the School of Computing and Information Sciences at Florida International University. He received his PhD in Computer Science from Clemson University in 2003. His research

includes software testing and model-driven software development. He is a member of ACM and IEEE Computer Society. clarkep@cis.fiu.edu

Tao Li is currently an assistant professor in the School of Computing and Information Sciences at Florida International University. He received his PhD in Computer Science in 2004 from the University of Rochester. His research interests are in data mining, machine learning, and information retrieval. taoli@cs.fiu.edu

Alice and Robotics In Introductory CS Courses

Presenters: Briana Lowe Wellman, The University of Alabama; James Davis, The University of Alabama; Monica Anderson, The University of Alabama

Statistics for underrepresented minority groups and women continue to show low numbers in enrollment and rates of retention in academic computer science programs. A new approach to increase student interests of computer science in a first year program is introduced. Laboratory modules for an introductory programming course have been developed at the University of Alabama with the goal to increase student motivation and understanding of fundamental programming concepts. The course utilizes robots and Alice, a 3D graphical programming environment. Students gain programming experience that is transferable to upper level courses by engaging in a simulating and less frustrating environment.

Briana Lowe Wellman received a M.S. degree in Computer Science in December 2003 and now pursuing a Ph.D. degree in Computer Science at The University of Alabama. Her research interests are cooperative multirobot systems and robotics in education. briana.wellman@gmail.com

James Davis is working on a B.S. in computer engineering from The University of Alabama. He worked on Carnegie-Mellon's version of Alice to include robot-programming functionality. His research interests are in robotics. jdavis@cs.ua.edu

Monica Anderson, Ph.D., is an assistant professor of Computer Science at The University of Alabama. Prof Anderson earned her B.S. in Computer Science at Chicago State University (1990) and her Ph.D at the University of Minnesota (2007). Her research focuses on bio-inspired multi-robot cooperation and robotics education. anderson@cs.ua.edu

PIRE: A Global Living Laboratory for Cyberinfrastructure Application Enablement

Presenters: Seyed Masoud Sadjadi, Florida International University; Shu-Ching Chen, Florida International University; Borko Furht, Florida Atlantic University; Pete Martinez, The Quantum Group; Nicholas Bowen, IBM; Scott Graham, Florida International University; Steve Luis, Florida International University; Juan F. Caraballo, IBM Research; Yi Deng, Florida International University

PIRE is a 5-year long project funded by NSF that aims to provide 196 international research and training experiences to top students, particularly underrepresented minorities, from FIU and FAU by leveraging the established programs, resources, and community of the LA Grid. In return, PIRE will take LA Grid to the next level of research and education excellence. Student participants will receive multiple perspectives in working with local and international researchers, in academic and industrial research labs, and on basic and applied research projects. During the first year, 18 students visited 7 international institutions, spanning 5 countries, and published 9 papers.

Seyed Masoud Sadjadi is an assistant professor in the School of Computing and Information Sciences, Florida International University. He received his BS in Hardware Engineering in 1995, MS in Software Engineering in 1999, and PhD in Computer Science from Michigan State University in 2004. His research is in autonomic computing. sadjadi@cs.fiu.edu

Shu-Ching Chen is an Associate Professor in the School of Computing and Information Sciences, Florida International University. He received the Master's degrees in computer science, electrical engineering, and civil engineering, and the Ph.D. degree in 1998, all from Purdue University. His main research interest is in multimedia database management systems. chens@cis.fiu.edu

Borko Furht is Chairman and Professor of computer science and engineering at Florida Atlantic University. He received his Ph.D. degree in electrical and computer engineering from University of Belgrade, Yugoslavia. His research interests include multimedia systems and applications, wireless multimedia, multimedia security, video and image databases, and Internet engineering. borko@cse.fau.edu

Pete Martinez is Senior Vice President, Chief Technology & Innovation Officer for The Quantum Group, Inc. An entrepreneurial leader in the healthcare industry, Martinez joined Quantum after a 32-year career with IBM, retiring as Vice President of Global Business Services and Senior Location Executive for IBM South Florida. PMartinez@QuantumMd.com

Nicholas Bowen, Ph.D., is VP of Technology at IBM and is responsible for driving assessments and studies that shape the technology strategy for IBM. He has held jobs in several IBM divisions including Microelectronics, PCD, Research, and STG where he managed software development for all server operating systems. bowenn@us.ibm.com

Scott Graham is Research Coordinator for FIU's School of Computing and Information Sciences. He serves as Program Coordinator for FIU SCIS's NSF PIRE and CREST awards. He received his Ph.D. in Computer Science from FIU and his BSE in Computer and Information Engineering Science from the University of Florida. grahams@cis.fiu.edu

Steven Luis is the Director for IT and Business Relations at FIU's School of Computing and Information Sciences and coordinates research, technical and marketing activities for the NSF PIRE and Latin American Grid. He oversees the school's IT infrastructure and support services and conducts business development and IT industry outreach. luis@cis.fiu.edu

Juan F. Caraballo is Program Director at IBM. He is Director of the Latin American Grid program. He has held various senior management positions in software and product development at IBM. He received his MS in Industrial Engineering, MBA and BS in Electrical Engineering from the University of Miami. jfc@us.ibm.com

Yi Deng is the Dean and Professor in the School of Computing and Information Sciences, Florida International University. He received his Ph.D. in Computer Science from University of Pittsburgh in 1992. He is the PI of the PIRE project and co-chairs the Board of Governors for the LA Grid Consortium. deng@cis.fiu.edu

**Panel 7 - Gaining Insight Into the
Publication Disparity**

8:45 - 10:45 am

Salons G & H

Gaining Insight Into the Publication Disparity

Presenters: Quincy Brown, Drexel University; Brian Blake, Georgetown University; Cheryl Swanier, Auburn University; E. Vincent Cross II, Auburn University; Rashida Davis, University of Delaware; Caio Soares, Auburn University

Increasing the throughput of underrepresented minorities in the STEM pipeline has been the focus of multiple organizations such as, the National Science Foundation and Computing Research Association. While emphasis has been placed on increasing the volume through the pipeline few entities examine the quality of scholarship of students exiting the pipeline. One measure of scholarship of increasing importance is the record of publication. This panel will investigate the experiences of current graduate students, new PhDs, and faculty members publishing in the field of computing. We will discuss the roadblocks and obstacles encountered as well as approaches leading to publication acceptance.

Quincy Brown is a PhD Candidate in the Computer Science Department at Drexel University. She was a NSF Bridge to the Doctorate Fellow for 2 years and is currently a second year NSF GK-12 Fellow. Her research interests include intelligent tutoring systems, mobile learning, educational games, and the digital divide. qb23@drexel.edu

Brian Blake is the Department Chair and Director of Graduate Studies in the Department of Computer Science at Georgetown University. Blake conducts applied research in intelligent agent approaches for the sharing of information and capabilities across organizational boundaries. He has published over 85 journal articles and refereed conference papers. mb7@georgetown.edu

Cheryl Swanier is a graduate student at Auburn University in the Department of Computer Science and Software Engineering. Cheryl currently holds an EdD in Educational Leadership from Auburn University and is pursuing a PhD in Computer Science and Software Engineering. Her research interests are Human Computer Interaction and End-User Programming. cswanier@msn.com

E. Vincent Cross II is a PhD candidate in the Computer Science and Software Engineering Department at Auburn University. He is a member of the Human Centered Computing Lab. His research interests are in Human Robot Interaction and Human Computer Interaction. crossev@auburn.edu

Rashida Davis is a Ph.D. candidate in the Department of Computer and Information Sciences at the University of Delaware. Her research interests include artificial intelligence, intelligent tutoring systems, and natural language generation. She was awarded a National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. Fellowship. rdavis@cis.udel.edu

Caio Soares is a Ph.D. student at Auburn University's Computer Science and Software Engineering Department. His research interests include Machine Learning, Data Mining and Evolutionary Computation. He has earned B.S. degrees in Computer Science and Mathematics and is a SREB Fellow and a Google Hispanic Scholarship recipient. soarecv@auburn.edu

Town Hall Meeting

10:45 - 11:45 am

Salons E & F

Input from all attendees

Remember to fill out your conference survey!

Adjourn Tapia 2009 - 11:45 am

2009 Tapia Celebration Posters

ACM Poster Competition

6:30 - 9:00pm

Thursday, April 2, 2009

Mt. Hood Room

Participants in the 2009 Tapia Celebration are invited to attend the poster competition session to learn about student research and talk with the presenters. Poster abstracts are numbered below to coincide with the numbers on the poster boards in the poster session.

The poster competition is part of the ACM Student Research Competition (SRC). The top three posters in the graduate and undergraduate student categories, which will be announced during the Banquet and Awards Ceremony on Friday, April 3, will advance to the ACM SRC Grand Finals.

The Poster Session is supported by IBM Corporation.

1) Issues about U, P, and U Star Matrix based self-organizing maps (SOM)

Presenters: Yun Tian, Auburn University; Juan Gilbert, Auburn University

Abstract: How to analyze the high dimensional data is really an important issue. We describe the issues about U, P, and U* Matrix based self-organizing maps (SOM) which is an efficient way to analyze and visualize the high dimensional data. First we introduce the basic concepts of self-organizing maps as an important data visualization technique, the reason of the development of SOM and its application field, then we give the description of U, P, and U* Matrix visualizations. At last we introduce the work we are doing using the methods to analyze our Undergraduate Admission Data and point out future work.

Yun Tian is a graduate student in the Computer Science and Software Engineering Department at Auburn University. She is a member of the Human Centered Computing Lab and is doing the research in the Human Centered Computing field and data-mining field. tianyuan@auburn.edu

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

2) C-CAL: Cultural-Based Computing for Adult Learners

Presenters: Wanda Eugene, Auburn University; Juan Gilbert, Auburn University

Abstract: Effective programming instruction should utilize the learner's cultural experience as an index of their prior knowledge to create a foundation for understanding. The goal of this poster is to present and discuss the design of a study of a research endeavor that will create a foundation for long term and adaptive solutions to adult learners' barriers to participation in computing education and open windows of opportunity that have not existed before. Wanda Eugene is a doctoral student in the Human Centered Computing Lab at Auburn University interested in how cultural, social, and personal surroundings affect the appropriation of computational artifacts and how they can serve as a resource for the design of new technologies to enhance the participation in engineering education. eugen-wa@auburn.edu

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

3) Software Security Risk Assessment Model (SSRAM)

Presenters: Idongesit Mkpog-Ruffin, Auburn University; David A. Umphress, Auburn University; Juan Gilbert, Auburn University

Abstract: Risk analysis is a process for considering possible risks and determining which are the most significant for any particular effort. Determining which risks to address and the optimum strategy for mitigating said risks is often an

intuitive and qualitative process. An objective view of the risks inherent in a development effort requires a quantitative risk model. Quantitative risk models used in determining which risk factors to focus on tend to use a traditional approach of annualized loss expectancy (ALE) based on frequency of occurrence and the exposure factor (EF) which is the percentage of asset loss due to the potential threat in question. This research uses empirical data that reflects the security posture of each vulnerability to calculate Loss Expectancy, a risk impact estimator. Data from open source vulnerability databases and results of predicted threat models are used as input to the risk model. Security factors that take into account the innate characteristics of each vulnerability are incorporated into the calculation of the risk model. The result of this model is an assessment of the potential threats to a development effort and a ranking of these threats based on the risk metric calculation.

Idongesit Mkpong-Ruffin is a Ph.D. student in the computer science and software engineering department at Auburn University. Her research interests are in information security and human centered computing. mkponio@auburn.edu

David A. Umphress is an associate professor of software engineering at Auburn University. His research interests are software processes, security, and mobile device software. david.umphress@auburn.edu

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

4) An Exploratory Study of Learning Styles in Technology

Presenters: Cheryl Swanier, Auburn University; Juan Gilbert, Auburn University

Abstract: The purpose of this research was to explore learning styles in technology and to demonstrate that learning styles can vary from lesson to lesson. Colleges and universities today realize that students learn in different ways. "Thus, they need to provide multiple strategies for learning," and also recognize that depending upon the lesson taught that learning styles can and will vary, (Dunn, Dunn, & Perrin, 1994, p.9). It is imperative that we show that one learning style is not the only learning style that is dominant with respect to an individual.

Cheryl Swanier is a graduate student at Auburn University in the Department of Computer Science and Software Engineering. Cheryl currently holds a EdD in Educational Leadership from Auburn University and is pursuing a PhD in Computer Science and Software Engineering. Her research interests are Human Computer Interaction and End-User Programming. cswanier@msn.com

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

5) Distributed System for Ad-Hoc Traffic Simulation

Presenters: Brandon Baker, North Carolina A&T State University; Kendra Jones, North Carolina A&T State University; Edward E. Hagler, North Carolina A&T State University; Toyon Harvey, North Carolina A&T State University; Benjamin Stensland, Georgia Tech; Eric Thompson, North Carolina A&T State University; Jewel Watts, North Carolina A&T State University; Javier Young, North Carolina A&T State University

Abstract: With the many technological advances in wireless networking, the mobility of computing has become essential for networks that require such compatibility. This poster introduces the concept of an application of a distributed system inside vehicles that act as a client, and a server that sends messages to the client. We want to collect information on current traffic based on data sent to the server and predict future traffic flows that we send back to the client. The goal is to have the highest measure of reliability of client/server message passing that will deliver accurate ad hoc traffic flow responses.

Brandon Baker is an undergraduate student at North Carolina A&T State University majoring in Computer Science. Not only is he focusing on his course work, he is actively involved in two different research endeavors, and is a supplemental instructor helping both students and professors. bdbaker@ncat.edu

Kendra Jones is an undergraduate student at North Carolina A&T State University with a concentration in Computer Science. She is a member of Broadening Participation in Computing, Empowering Leadership Alliance, Association for Computing Machinery, and the Alliance for the Advancement of African American Researchers in Computing. liltaurus05@yahoo.com

Edward E. Hagler is Graduate Student in Computer Science at North Carolina A&T State University, where his field of study is Information Assurance. He is also a member of A4RC, BPC Alliance, and ACM. ehagler@gmail.com

Toyhan Harvey is a Graduate Student at North Carolina A&T State University in the field of Computer Science. He is a member of the Alliance for the Advancement of African American Researchers in computing. j8by7@hotmail.com
Benjamin Stensland is Computer Science and Chemical and Biomolecular Engineering with a specialization in Computational Modeling at Georgia Tech. benjamin.stensland@cc.gatech.edu

Eric Thompson is the son of a programmer who decided to follow his father's footsteps by attending North Carolina A&T State University and major in Computer Science. While attending A&T, Eric has established himself as a teacher's assistant, researcher, and an outstanding award winning supplemental instructor. ethomps1@ncat.edu

Jewel Watts is a Graduate Student at North Carolina A&T State University who is involved in various research projects, is a teaching assistant, as well as a Computer Science mentor. Jewel is also a proud member of the Alliance for the Advancement of African American Researchers in Computing. jewel.watts@yahoo.com

Javier Young is a Graduate Student at North Carolina A&T State University. He is a Computer Science major with a concentration in Artificial Intelligence and a member of the Alliance for the Advancement of African American Researchers in Computing, the Empowering Leadership Alliance, Broadening Participation in Computing and ACM. jjyoung@ncat.edu

6) Protecting Location Privacy through Identity Diffusion

Presenters: Lingyan Wang, Auburn University; Juan Gilbert, Auburn University

Abstract: With the proliferation of location-based services and applications for mobile users being widespread in use today, the privacy of these users exposes to others increasingly in accessing those location based services. In this paper, we propose a new framework that mobile users can enjoy conveniently the services provided by location-based

server (LBS), and also protect their location information. This framework prevents mobile users' location information from exposing in two ways: providing the server with fake identities; two different ways of diffusing a number of fake queries with the real query hidden when and where it was issued.

Lingyan Wang is pursuing her master degree in the Computer Science and Software Engineering Department of Auburn University. She is interested in HCI, database and data mining. She graduated from Graduate School of the Chinese Academy of Sciences with M.S degree in Information Science. lingywa@auburn.edu

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

7) On Improving Performance and Reliability of Location Aware Routing in Asymmetric Networks

Presenters: Pramita Mitra, Department of Computer Science and Engineering, University of Notre Dame; Christian Poellabauer, Department of Computer Science and Engineering, University of Notre Dame

Abstract: Recent experimental research has revealed that the link conditions in realistic wireless networks vary drastically from the ideal disk model and a substantial percentage of links are asymmetric. Existing Geographic Forwarding (GF) algorithms fail to consider asymmetric links and thus discount a substantial number of potentially stable routes with good one-way reliability. In this poster, we introduce Asymmetric Geographic Forwarding (A-GF), which discovers asymmetric links in the network and exploits them for efficient routing. Comparisons of A-GF to the original GF protocol indicate a decrease in hop-count and an increase in successful routing, with only a small increase in overheads.

Pramita Mitra is a graduate student in the Computer Science and Engineering Department at the University of Notre Dame. Her research interest includes reliable routing mechanisms in mobile ad-hoc networks. She received her Bachelor of Engineering degree in Computer Science from Jadavpur University, India in 2006. pramita.mitra@gmail.com

Christian Poellabauer is an Assistant Professor in the Computer Science and Engineering Department at the University of Notre Dame. He received his Ph.D. degree in Computer Science from Georgia Tech in 2004. He has published over 50 refereed conference and journal papers and is a recipient of a 2006 NSF CAREER award. cpoellab@cse.nd.edu

8) Applications Quest: "Gaming the System"

Presenters: Micael S. George Jr., University of Connecticut; Juan Gilbert, Auburn University

Abstract: Obtaining diversity in university admissions can be a challenging task for institutions. Applications Quest software addresses this dilemma of achieving diversity while upholding institutional academic standards and objectives. To test the robustness of the Applications Quest, a study was designed with the hypothesis that a student would not be able to increase their chances of being admitted to an institution by lying on their application, when Applications Quest is used. After statistically analyzing the results, it was found that they were statistically trivial and insignificant; therefore the hypothesis could not be rejected.

Micael S. George Jr. is a senior in a dual major program at the University of Connecticut by the name of EUROtech, majoring in Computer Science Engineering and German Studies. His future goals include going to graduate school and expanding his knowledge on various aspects of the Computer Science Engineering. micael.george@gmail.com

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

9) Using Hierarchical Models to Identify Optimal Task Placement on Multi-core Cluster Systems

Presenters: Charles Lively, Texas A&M University; Valerie Taylor, Texas A&M University; Sadaf R. Alam, Oak Ridge National Laboratory; Heike Jagode, University of Tennessee, Oak Ridge National Laboratory; Jeffrey S. Vetter, Oak Ridge National Laboratory

Abstract: The MPI implementation on multi-core supercomputing systems is highly sensitive to MPI task mapping and placement schemes. We introduce a workload modeling methodology that allows application developers to represent hierarchical decomposition and distribution of their applications to identify optimal mapping of a workload on a target system. This enables users to project bottlenecks for application and architectural configurations prior to execution. We demonstrate our scheme using a Teraflops-scale fusion code, GYRO, which uses MPI sub-communicator based decomposition. Experimental results obtained on a variety of multi-core architectures, Bluegene/P, Cray XT4, and an IBM p655 cluster system, confirm our modeling projections.

Charles Lively is a third year Computer Engineering PhD student at Texas A&M University. He received his M.S. (August 2006) and B.S.E. (May 2004) from TAMU and Mercer University. His research interests are in the area of high-performance computing. clively@cs.tamu.edu

Valerie Taylor was a member of the faculty at Northwestern University from 1991 through 2002. Taylor joined the faculty of Texas A&M University as Head of the Department of Computer Science and Engineering in 2003. Her research interests are in the area of high performance computing taylor@cs.tamu.edu

Sadaf R. Alam is a member of Scientific Computing group at the leadership supercomputing facility at the Oak Ridge National Laboratory (ORNL) and a researcher in the Future Technologies group. She earned her PhD in computer science from the University of Edinburgh, UK, in 2004. alamr@ornl.gov

Heike Jagode is a senior research associate at the Innovative Computing Laboratory at the University of Tennessee and ORNL. She earned her first M.Sc. in Applied Mathematics at the University of Applied Sciences Mittweida in Germany (2001), and her second M.Sc. at the University of Edinburgh in Scotland (2006). jagode@eecs.utk.edu

Jeffrey S. Vetter is a computer scientist at Oak Ridge National Laboratory (ORNL), where he leads the Future Technologies Group and directs the Experimental Computing Laboratory. Vetter is a Joint Professor in the College of Computing at the Georgia Institute of Technology, where he earlier earned his PhD. vetter@ornl.gov

10) Uncertainty Quantification and Uncertainty Apportionment for Air Quality Models

Presenters: Haiyan Cheng, Virginia Polytechnic Institute and State University; Adrian Sandu, Virginia Polytechnic Institute and State University

Abstract: Current Air Quality Models (AQM) generate deterministic forecasts by assuming perfect model, perfectly known parameters, and exact input data. However, our knowledge of the physics is imperfect. It is of interest to extend the deterministic simulation results with "error bars" that quantify the degree of uncertainty, and analyze the impact of the uncertain inputs on the simulation results. This work explores the polynomial chaos (PC) method as a uncertainty quantification (UQ) approach for AQM, and propose a uncertainty apportionment (UA) approach to attribute the total uncertainty in the model prediction towards the uncertainty sources.

Haiyan Cheng is a PhD student in Virginia Tech CS department. Her research interests are uncertainty quantification and uncertainty reduction techniques for large-scale simulations. She loves to explore and solve challenging, interesting scientific problems. She loves to teach, and is passionate for a teaching career. hcheng04@vt.edu
Adrian Sandu is an associate professor in the department of Computer Science at Virginia Tech, his research interests include Numerical Methods, High Performance Computing, Sensitivity Analysis, Inverse Modeling, and Applications of Computational Science. sandu@cs.vt.edu

11) Distributed Listening: A Parallel Processing Approach to Automatic Speech Recognition

Presenters: Yolanda McMillian, Auburn University; Juan Gilbert, Auburn University

Abstract: While speech recognition systems have come a long way in the last thirty years, there is still room for improvement. Although readily available, these systems are

sometimes inaccurate and insufficient. This research outlines a technique called Distributed Listening, which demonstrates noticeable improvements to existing speech recognition methods. The Distributed Listening architecture introduces the idea of multiple, parallel, yet physically separate automatic speech recognizers called listeners. Distributed Listening also uses a piece of middleware, called an interpreter, which resolves multiple interpretations using the Phrase Resolution Algorithm (PRA). These efforts work together to increase the accuracy of the transcription of spoken utterances.

Yolanda McMillian is a Ph.D. Candidate in the Computer Science and Software Engineering Department at Auburn University. She performs research with the Human Centered Computing Lab, under the direction of Juan E. Gilbert. Her research focus is with Spoken Language Systems. mcmilym@auburn.edu

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

12) XenLoop: A Transparent High Performance Inter-VM Network Loopback

Presenters: Kwame-Lante Wright, The Cooper Union; Jian Wang, State University of New York at Binghamton; Kartik Gopalan, State University of New York at Binghamton

Abstract: Advances in virtualization technology have focused mainly on strengthening the isolation barrier between virtual machines (VMs) that are co-resident within a single physical machine. At the same time, a wide variety of communication intensive applications, such as web services and high performance grid applications, often wish to communicate across this isolation barrier with other endpoints on co-resident VMs. State of the art inter-VM communication mechanisms do not adequately address the requirements of such applications. We present the design and implementation of a fully transparent and high performance inter-VM network loopback channel, called XenLoop, for the Xen virtual machine environment.

Kwame-Lante Wright is an Electrical Engineering student at The Cooper Union for the Advancement of Science and Art. He joined the XenLoop project through a Research Experience for Undergraduates (REU) program hosted by Binghamton University and funded by the National Science Foundation (NSF). wright2@cooper.edu

Jian Wang graduated from Beijing University of Posts and Telecommunications with an M.S. in Computer Science and worked at Sun Microsystems before joining the Ph.D. program at Binghamton University. His current research work is on inter-VM communication mechanisms in virtual machines. jianwang@cs.binghamton.edu

Kartik Gopalan is an Assistant Professor in Computer Science at Binghamton University. He received his Ph.D. in CS from Stony Brook University (2003), M.S. from Indian Institute of Technology at Chennai (1996), and B.E. from Delhi Institute of Technology (1994). His interests include Resource Virtualization, Wireless Networks, and Real-Time Systems. kartik@cs.binghamton.edu

13) An Authentication and Validation Mechanism for Analyzing Syslogs Forensically

Presenters: Steena D.S. Monteiro, Utah State University; Robert F. Erbacher, Utah State University

Abstract: This research proposes a novel technique for authenticating and validating syslogs for forensic analysis. Digital evidence needs to be admissible, authentic, believable, and reliable. The proposed technique uses a modification of the Needham-Schroeder protocol and ties together all the entities involved in the generation of a syslog entry through the assignment of digital fingerprints. The assigned fingerprints and the incorporated challenge response mechanism forensically validate the generated syslogs.

Steena D.S. Monteiro is a Ph.D. student at Utah State University. Her research focuses on developing techniques that will enable computer evidence to be used and analyzed forensically. Her other research interests include statistical algorithms, data mining, attack/threat analysis, and computer science education. steena.m@aggiemail.usu.edu

Robert F. Erbacher is an assistant professor at Utah State University. His areas of specialization include digital forensics, computer security, intrusion and attack detection, database security, computer graphics, and visualization. Robert.Erbacher@usu.edu

14) Improving the Privacy Settings Interface of Online Social Networks

Presenter: Charisse Cotton, Tufts University

Abstract: Maintaining a sense of privacy while participating in online social networking can be very challenging. Social network sites like Facebook enable users to create and manage their own profile, while openly sharing large amounts of personal information among friends and strangers, leaving them subject to a range of risks. We propose a new prototype that presents a visual-based privacy settings interface. Our prototype will allow users to configure their privacy settings relatively easily and with greater understanding. Our research compares Facebook's current privacy settings interface to the prototype.

Charisse Cotton is an undergraduate at Tufts University, majoring in Chinese and Computer Science. During her sophomore year, Charisse became interested in pursuing computer science after taking an introductory course in web design. She has recently participated in the Computing Undergraduate Scholars Program and the Distributed Mentor Project. Charisse.Cotton@tufts.edu

15) A Multimodal User Interface for a Rehabilitation Robot

Presenters: Jayadevan Radhakrishnan, Rochester Institute of Technology; Glenn D. Snyder Jr., Rochester Institute of Technology; Edward E. Brown, Jr., Rochester Institute of Technology

Abstract: Rehabilitation robotics is a growing area of research in biomedical engineering and is expected to contribute to improving the way of life for people with physical disabilities and various neuromuscular diseases. The present study is aimed at developing a rehabilitation robotic system that captures surface electromyographic signals from the upper extremity muscles of a person's arm. These sEMG signals act as control inputs for a six degree of freedom robotic manipulator. The objective of this research is to develop a multimodal, rehabilitation robotic system that provides individuals with diseases such as muscular dystrophy assistance in performing simple arm movements.

Jayadevan Radhakrishnan is currently pursuing his Master's degree in Electrical Engineering at Rochester Institute of Technology. His area of expertise involves Digital Signal Processing, Control Systems, and Embedded Systems. His recent research ventures involve Fuzzy EMG based robotic control and EMG based wireless assistive control of a RC Car. jxr6107@rit.edu

Glenn D. Snyder Jr. is a graduate student at Rochester Institute of Technology in the Kate Gleason College of Engineering Electrical Engineering Department. His current research in the Biomechatronic Learning Laboratory (BLL) involves robotic modeling and control systems for rehabilitation robotics. gds4752@rit.edu

Edward E. Brown, Jr. is an assistant faculty member in the Department of Electrical Engineering at Rochester Institute of Technology. His research is in Rehabilitation Robotics and Engineering Education. Brown received his B.S. from the University of Pennsylvania and his Ph.D. in electrical engineering from Vanderbilt University. eebeee@rit.edu

16) Performance Modeling Tools for Parallel Linear Algebra Computations

Presenter: Pietro Cicotti, University of California San Diego

Abstract: For algorithms solving irregular problems, such as sparse linear algebra operations, performance depends on system and input characteristics. These characteristics are hard to represent analytically but can be modeled with simulations. We developed Performance Modeling Tools (PMT), a library for simulation-based performance models. We used PMT to model parallel sparse LU factorization. On our test suite, the model predicts the factorization time with less than 10% error in most of the cases. We used the model to predict the optimal processor grid shape and to motivate an optimization strategy. The optimized implementation resulted in 10.5% speedup on our test suite.

Pietro Cicotti is a graduate student and a member of the Scientific Computation Group at UC San Diego. His research focuses on run-time support for data-flow semantics and optimizations based on tasks dependencies. He also worked at LBNL studying and modeling the performance of a parallel sparse LU factorization software. pcicotti@lbl.gov

17) MapReduce for Evolutionary Trees on Multicore Platforms

Presenters: Suzanne Matthews, Texas A&M University; Tiffani Williams, Texas A&M University

Abstract: A phylogeny is a family tree that represents the relationships between a set of species. Often, it is useful to compare these trees by constructing an all-to-all dissimilarity matrix. We introduce Mrs. RF, a parallel algorithm based on the MapReduce framework that is capable of generating the dissimilarity matrix between large groups of trees. Mrs. RF's advantage over previous approaches is its ability to exploit multiple cores and efficiently handle large tree sets. Preliminary results show that Mrs. RF is at least 2.5 times faster than its fastest-known sequential competitor on an 8-core Apple MacPro platform.

Suzanne Matthews is a PhD student in Computer Science at TAMU. She received her MS and BS in Computer Science from RPI. She was recognized by RPI as a Master Teaching Fellow, and is a former CRA-W DMP Awardee. Her research interests lie within the area of Computational Phylogenetics. sjm@cs.tamu.edu

Tiffani Williams is an Assistant Professor in the Department of Computer Science and Engineering at Texas A&M University. Her research interests are bioinformatics and high-performance computing. Her honors include a variety of fellowships from the Radcliffe Institute, Alfred P. Sloan Foundation, and the Florida Education Fund. tlw@cs.tamu.edu

18) Hyperspectral Face Recognition using PCA and ICA

Presenters: Shawna Ruff, Gonzaga University; Andrew LaChance, Appalachian State University; Stefan Robila, Montclair State University

Abstract: The goal of the research was to find out whether hyperspectral images could be better used for face recognition than grayscale images using Principal Component Analysis and Independent Component Analysis. We designed and collected a database of hyperspectral images of nine subjects each having five poses. An RGB image was also created using three of the bands from the hyperspectral images and then saved as a grayscale image. After running PCA and ICA we found that overall the hyperspectral images had the highest accuracy. Our findings show that using hyperspectral images may be a better path for facial recognition.

Shawna Ruff attends Gonzaga University planning to graduate in May with a B.S. in Computer Science and Mathematics. Ruff grew up in Gillette, WY and later moved to Arizona to attend high school. She's a devoted sports fan and follows college basketball religiously, Gonzaga being her favorite team. sruff@gonzaga.edu

Andrew LaChance is a senior at Appalachian State University of Boone, North Carolina, majoring in Computer Science. He enjoys learning about most areas of Computer Science, especially parallelism, imaging, and audio. He plans to get his Masters in Computer Science. al69440@appstate.edu

Stefan Robila is Associate Professor of Computer Science at Montclair State University. Robila received a B.S. from University of Iasi (1997), M.S. and PhD from Syracuse University (2000, and 2002). His research interests are computer security, remote sensing and parallel computing. He is ACM, and SPIE member and IEEE senior member. robilas@mail.montclair.edu

19) Improving Wireless Privacy with an Identifier-Free Link Layer Protocol

Presenters: Ben Greenstein, Intel Research Seattle; Damon McCoy, University of Colorado at Boulder; Jeffrey Pang, Carnegie Mellon University; Tadayoshi Kohno, University of Washington; Srinivasan Seshan, Carnegie Mellon University; David Wetherall, Intel Research / University of Washington

Abstract: We present the design and evaluation of an 802.11-like wireless link-layer protocol that obfuscates all transmitted bits to increase privacy. This includes explicit identifiers such as MAC addresses and other protocol fields that the existing 802.11 protocol relies on to be sent in the clear. By obscuring these fields, we greatly increase the difficulty of identifying users from their transmissions in ways that are otherwise straightforward. Our design is nearly as efficient as existing schemes for discovery, link setup, and data delivery despite its heightened protections; transmission requires only symmetric-key encryption and reception requires a table lookup followed by symmetric-key decryption.

Ben Greenstein works at Intel Research Seattle and leads Trustworthy Wireless, a project focused on improving privacy for users of wireless devices. He received his Ph.D. in Computer Science from UCLA, where he studied embedded networked sensing systems with Deborah Estrin and Eddie Kohler. benjamin.m.greenstein@intel.com

Damon McCoy is currently a Doctoral Candidate in the Department of Computer Science at the University of Colorado at Boulder. He has also worked in a variety of industry and government positions. His research interests include practical privacy enhancing systems and more general network security issues. damon.mccoy@colorado.edu

Jeffrey Pang is a doctoral student in the Computer Science Department at Carnegie Mellon University. He received his BA in Computer Science from U.C. Berkeley. His primary research interests include the security and privacy of wireless protocols, peer-to-peer systems, and network games. jeffpang@cs.cmu.edu

Tadayoshi Kohno is an assistant professor of computer science and engineering at the University of Washington. His research focuses on assessing and improving the security and privacy properties of current and future technologies. Kohno received his Ph.D. in computer science from the University of California at San Diego. yoshi@cs.washington.edu

Srinivasan Seshan is an Associate Professor of Computer Science at Carnegie Mellon University. Seshan received his Ph.D. in Computer Science in 1995 at the University of California, Berkeley. His primary interests are in the broad areas of network protocols and distributed network applications. srini@cmu.edu

David Wetherall is Director of Intel Research Seattle and an Associate Professor in the Department of Computer Science and Engineering at the University of Washington. He has Ph.D., E.E. and S.M. degrees in computer science from MIT. His research interests are concentrated in networking and systems. david.wetherall@intel.com

20) Lifelong Learning: Seniors in Second Life

Presenters: Cheryl Seals, Auburn University; Ravikant Agarwal, Hope College; Albanie T. Bolton, Auburn University; Kelley Clanton, Auburn University; Chippewa M. Thomas, Auburn University; Felicia Doswell, Norfolk State University.

Abstract: Senior citizens represent the fastest growing demographic worldwide. As indicated in the Year 2000 U.S. Census, there are 35 million people 65 or older in the United States (U.S.). By 2030, it is estimated that there will be about 70 million older adults in the U.S. alone (Chadwick-Dias, McNulty, & Tullis, 2003). With the older population growing rapidly and being increasingly exposed to computer technology, it is important that they become informed of what computers can do for them, (e.g., e-mail, document creation, games, and access to information via the Internet) (Shapira, Barak, & Gal, 2007; White, McConnell, Clipp, Branch, Sloane et al., 2002).

Cheryl Seals is Assistant Professor in the Computer Science and Software Engineering Department at Auburn University. She conducts research in Human Computer Interaction with an emphasis in visual programming of educational simulations with end user programming, intelligent agent, usability, computer supported collaborative work, minimalism. Additionally involved in software engineering projects. sealscd@auburn.edu

Ravikant Agarwal is an Assistant Professor in the Department of Computer Science at Hope College. His main research areas include software engineering, usability study, modeling and simulation of software process, agent directed simulations and project simulations. agarwal@hope.edu

Albanie T. Bolton is a 1st year Master Software Engineering major at Auburn University. She received her Bachelors in Computer Science from Alcorn State University. Her research is in Human Computer Interaction, Usability Studying, Gaming, and Autonomous Technologies. albanie_bolton@yahoo.com

Kelley Clanton is an IT Specialist III at Auburn's College of Veterinary Medicine and a matriculating graduate student in the Computer Science and Software Engineering Department at Auburn University. Kelley will receive her Master's in spring 2009 and her research is in computer supported collaborative work in senior populations. clan-
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Chippewa M. Thomas is an Assistant Professor in the department of Special Education, Rehabilitation, Counseling/School Psychology. She conducts counselor education research (programming, preparation and ethics) that emphasizes technology and diversity related issues. She has a background instructing human/lifespan development courses, which includes research on older adult populations. thoma07@auburn.edu

Felicia Doswell is an Assistant Professor in the Computer Science Department at Norfolk State University. She conducts research in the areas of Networking, Location-Aware Computing, and Information Assurance. She has interest in increasing access to computer technology among underrepresented groups and strives to engage all users in secure computer usage. fdoswell@nsu.edu

21) Computer Gaming at Every Age: A Comparative Evaluation of Alice

Presenters: Kenneth Rouse, Auburn University; Cheryl Seals, Auburn University; Andrea Johnson, Auburn University; Yolanda McMillian, Auburn University

Abstract: The goal of this work was to provide challenging interactive activities for young students that involve computer technology. The authors utilize game development and interactive storytelling as a motivator for introductory programming training. The authors identified that many of our young fifth grade students showed much promise and ingenuity in programming. Our hypothesis was that our young students would fare as well as introductory college students when completing introductory programming tasks. This work discusses the outcome of a college introductory assignment that we would give to both elementary school and college students enrolled in an introductory computer science course.

Kenneth Rouse is a Ph.D. Candidate in the Computer Science and Software Engineering Department at Auburn University, where he is the coordinator/instructor of Intro to Programming for Engineering Students. His area of research is in Voice Biometrics and he is a member of the Human Centered Computing Lab. rouseka@auburn.edu

Cheryl Seals is Assistant Professor in the Computer Science and Software Engineering Department at Auburn University. She conducts research in Human Computer Interaction with an emphasis in visual programming of educational simulations with end user programming,

intelligent agent, usability, computer supported collaborative work, minimalism. Additionally involved in software engineering projects. sealscd@auburn.edu

Andrea Johnson is a graduate of Auburn's M.S. Program in Computer Science. As a researcher I am particularly interested in finding ways to facilitate STEM learning in women and minorities. My goal is to help underrepresented groups gain access to the technical knowledge necessary in today's working world. willia2@auburn.edu

Yolanda McMillian is a Ph.D. Candidate in the Computer Science and Software Engineering Department at Auburn University. She performs research with the Human Centered Computing Lab, under the direction of Juan E. Gilbert. Her research focus is with Spoken Language Systems. mcmilym@auburn.edu

22) EleMental: The Recurrence

Presenter: Katelyn Doran, Student - UNC Charlotte

Abstract: Existing serious games can serve as a supplement to traditional introductory programming assignments, but are unable to replace them entirely. Our project seeks to correct this problem through the integration of a compiler within a game environment. This compiler allows the students to enter functional code in order to complete challenges. In this way we bridge the gap between game-play and assignment by eliminating use of fill in the blank and multiple choice questions. Incorporating the subject matter into a game makes these topics more approachable, potentially enabling improved recruitment and retention rates for the field.

Katelyn Doran is an undergraduate researcher at the University of North Carolina at Charlotte. Katelyn's current research revolves around the creation of serious games to replace traditional programming assignments. doran.katelyn@gmail.com

23) cMotion: Using Emotion Recognition to Teach Autistic Children Programming Syntax

Presenters: Samantha Finkelstein, UNC Charlotte; Andrea Nickel, UNC Charlotte; Lane Harrison, UNC-Charlotte; Tiffany Barnes, University of North Carolina at Charlotte

Abstract: This paper presents a new type of game, entitled cMotion, which is currently in development for children. Having multiple facets, cMotion is designed to teach the intended users how to recognize emotions, logic that is involved with computer programming, and how to use an interface we've developed to write pseudo-code that will illustrate a face on the screen with specific emotions. By creating a game which contextualizes social situations, we hope to foster learning of both emotions in a cultural context and computer programming concepts in young children, as well as children with autism.

Samantha Finkelstein is a freshman at UNC Charlotte who began working on this project last summer during an REU under the supervision of Tiffany Barnes. She has an interest in serious gaming and virtual reality, and enjoys participating in computer science outreach as part of the STARS Alliance. SamanthaLFinkelstein@gmail.com

Andrea Nickel is a 1st year Ph.D. Computer Science student at the University of North Carolina in Charlotte, after graduating from Bethel College, KS. Currently working in UNCC's Games + Learning Lab with Tiffany Barnes, enjoys the chance to apply her interests in gaming and digital entertainment to research. anickel1@uncc.edu

Lane Harrison is a fourth-year Computer Science student at the University of North Carolina at Charlotte. He has participated in two Research Experience for Undergraduates sites at UNC-C working in the Charlotte Visualization Center. He also leads a computing-focused high school outreach group. ltharri1@uncc.edu

Tiffany Barnes, Assistant Professor of Computer Science at UNC Charlotte, directs the Game2Learn project, researching ways to use games and artificial intelligence to improve student learning and creativity in computing. Dr. Barnes is co-PI of the NSF STARS Alliance grants that engage college students in outreach, research, and service. tbarnes2@uncc.edu

24) How Formal Computational Models Can Guide Initial Design Efforts on Usability

Presenters: Maria Vicente Atas Bonto-Kane, North Carolina State University; Robert St. Amant, North Carolina State University

Abstract: This research describes an innovative approach to using formal computational models to guide design efforts for usability. Formal computational and probabilistic models were used to map sequences of operations and a history of usage patterns for a chemical assay task. A candidate interface was then designed around the formal and probabilistic model recommendations for what would be a most facilitative interface layout for the task. The result was an interface that performed optimally per model predictions. This research demonstrates how formal modeling can guide early design efforts and how several model iterations can be done to help optimize for usability.

Maria Vicente Atas Bonto-Kane is a PhD candidate in the Department of Computer Science at North Carolina State University. Her research interests are in formal and probabilistic modeling, machine learning, and human-machine interaction. Marivic has some experience working in industry, academia, and the government sector, specifically, in defense related projects. mabonto@ncsu.edu

Robert St. Amant is an Associate Professor in the Department of Computer Science at North Carolina State University. He obtained his PhD from University of Massachusetts in Amherst. His research interests target formal and computational models of interaction drawing on concepts in artificial intelligence, human-computer interaction, and cognitive science. stamant@csc.ncsu.edu

25) Combinatorial Testing of Access Control Policies

Presenters: Bellanov Apilli, North Carolina State University; Tao Xie, North Carolina State University; JeeHyun Hwang, North Carolina State University

Abstract: Access control policies are widely used to determine an access for sensitive information in critical security environments. To ensure the correctness of a policy, policy testers often generate test requests and check their responses against the policy. In this paper, we propose combinatorial test generation, where test requests are generated on t-way combinations of attribute values considering their

interactions. We compare combinatorial and random test generation techniques in terms of fault detection effectiveness. For single-valued requests, our results show that our approach can either match or outperform random test generation.

Bellanov Apilli is an undergraduate student in the Department of Computer Science at North Carolina State University. He is a member of the Automated Software Engineering Research Group led by Tao Xie. He aspires to pursue a PhD in Computer Science and a MBA in Information Technology Entrepreneurship. bellanovapilli@gmail.com

Tao Xie is an Assistant Professor in the Department of Computer Science at North Carolina State University. He received his Ph.D. in Computer Science from the University of Washington in 2005. His research interests are in software engineering, with an emphasis on improving software dependability and productivity. xie@csc.ncsu.edu
JeeHyun Hwang is a PhD student in the Department of Computer Science at North Carolina State University. He is a member of the Automated Software Engineering Research Group led by Tao Xie. His research interests include testing and verifying access control policies. jhwang4@ncsu.edu

26) Using LEGOs to Teach Security Protocols

Presenter: Lane Harrison, UNC-Charlotte

Abstract: At the undergraduate level, computer security courses usually begin with a set of fundamental concepts such as confidentiality, authentication, integrity, and non-repudiation. Such a set can be viewed as containing the “building blocks” of information assurance, and students are expected to learn the various security protocols associated with each fundamental concept. To help make the connection between security primitives and protocols, we design exercises involving physical and digital Legos. By using Lego bricks, students are able to construct both classic and new protocols, as well as explore how the interactions between the entities will affect the protocol's outcome.

Lane Harrison is a fourth-year Computer Science student at the University of North Carolina at Charlotte. He has participated in two Research Experience for Undergraduates sites at UNC-C working in the Charlotte Visualization Center. He also leads a computing-focused high school outreach group. ltharri1@uncc.edu

27) Comparison of Blackbox and Whitebox Fuzzers in Finding Software Vulnerabilities

Presenters: Eduardo Segura, San Jose State University; Kristen Gates, University of California, Berkeley; Nichole Alvarez, University of Puerto Rico

Abstract: Both blackbox and whitebox fuzzing techniques have been widely used to uncover security vulnerabilities in software, but there have been few studies comparing the efficiency of each technique. Our approach was to use Zzuf, a blackbox fuzzer, and Catchconv, a whitebox fuzzer, to generate test cases that were then run on open source software to compare both fuzzers' efficiency in terms of bugs found per test case. Analysis of our results showed that Zzuf had marginally higher average of unique errors per test case than Catchconv, while Catchconv had a higher percentage of unique errors per total errors found.

Eduardo Segura was a graduate mentor for the TRUST center at San Jose State University. He currently holds a senior software engineering position at the lead provider of Enterprise Secure File Exchange. Eduardo received a MSc. degree from San Jose State University and a B.S. degree from UNCPBA, Argentina. segura.eduardo@gmail.com
Kristen Gates is the Executive Director of Education for TRUST at the University of California, Berkeley. She is responsible for the continued development and implementation of TRUST's education and diversity programs in cyber security fields. Kristen has a Doctorate in Education from the University of Southern California. kgates@eecs.berkeley.edu

Nichole Alvarez Estrella is a junior student in Electrical Engineering at the Polytechnic University of Puerto Rico. She participated in the Summer Undergraduate Program in Engineering Research at Berkeley. Nichole is an active member of SWE Society of Women Engineering. Within her department, she specializes in Signals and Systems. nicholenae@gmail.com

28) Understanding Computer Security Knowledge and Usage among Novice Computer Users

Presenters: Tamira S. Ortiz, Norfolk State University; Felicia Doswell, Norfolk State University.

Abstract: Computer security is a major concern for the personal computer owner. Many are not aware of the need for neither security nor the damage made possible by intruders. The purpose of this research was to determine the level of naiveté about computer security and to heighten the awareness of intrusive behavior and solutions for the novice computer user. A survey was created to assess the current knowledge and to educate the user. The compiled data from the survey was used to create a novice-friendly interface to aid in securing and protecting the home computer using existing security features installed.

Tamira S. Ortiz is a first semester Master of Science student in the Computer Science Graduate School at Norfolk State University located in Norfolk, Virginia. She has recently received a Bachelor of Science degree in Computer Science with emphasis in Computer Science on July 2008 from Norfolk State University in Virginia. t.s.ortiz@nsu.edu
Felicia Doswell is an Assistant Professor in the Computer Science Department at Norfolk State University. She conducts research in the areas of Networking, Location-Aware Computing, and Information Assurance. She has interest in increasing access to computer technology among underrepresented groups and strives to engage all users in secure computer usage. fdoswell@nsu.edu

29) Promoting and Retaining Minorities in Technology

Presenters: Deanna Miller, Johnson C Smith University; Lucretta Harris, Johnson C Smith University; Soumia Ichoua, Johnson C Smith University

Abstract: This paper presents an on-going research project, which is motivated by the lack of minorities in technology fields. This shortage typically results in stereotypes amongst minority students and is likely to prevent them from effectively competing with others. The problem motivated us to encourage middle school students to dispel stereotypes and embrace technology fields by engaging them in hands-on activities that initiate them to programming and Robotics. Students are also introduced to various aspects of the IT field including HTML and Microsoft Office. Surveys are used to measure the students' attitudes and knowledge about technology before and after the program.

Deanna Miller is a senior majoring in Computer Engineering at JCSU with a minor in mathematics. Her love for helping others using technology has sparked her research in Human-Computer Interaction and Learning Technologies. Upon graduation in May, Deanna plans to obtain a Master's degree in Human-Computer Interaction. dmiller2@jcsu.edu

Lucretta Harris is a senior attending Johnson C. Smith University majoring in Computer Science/ Information Systems. Her interest in computing has been the driving source of her undergraduate research experience and journey towards a graduate degree in Management Information Systems. lharris2@jcsu.edu

Soumia Ichoua is an assistant Professor of Computer Science at JCSU. Her research interests lie in the application of dynamic-stochastic optimization techniques and parallel algorithms to supply chain networks, logistics, industrial scheduling and distribution systems. Some of her research papers have been published in leading journals in her field. sichoua@jcsu.edu

30) Cost Benefits of Thin Client Voting Systems

Presenters: Tony Sullivan, Auburn University; Juan Gilbert, Auburn University

Abstract: While a large amount of research has gone into answering the security and usability concerns with electronic voting, the outrageous expenses often accrued due to these systems remain largely unanswered. This research presents a thin client model for electronic voting and compares the predicted hardware costs to that of both optical scan and current computerized systems. The thin client model drastically reduces hardware and maintenance expenses, offering the possibility of an electronic voting system that is cheaper than a paper system from day one.

Tony Sullivan is an undergraduate student at Auburn University in Auburn, Alabama, and a member of the Human Centered Computing Lab under the direction of Juan Gilbert. I participated in the NSF-REU program at Auburn University during the Summer 2008 semester. sullitf@auburn.edu

Juan Gilbert is the TSYS Distinguished Associate Professor in the Computer Science and Software Engineering Department at Auburn University. He leads the Human Centered Computing Lab and he is a National Associate of the National Research Council of the National Academies and an ACM Distinguished speaker. gilbert@auburn.edu

31) Design of Progressive Visual and Haptic Guidance for Training in a Virtual Dynamic Task

Presenters: Joel C. Huegel, Rice University; Marcia K O'Malley, Rice University

Abstract: The implementation of training virtual environments (TVEs) is intended to accelerate learning over traditional training methods, thereby transferring what is learned in the simulation to the targeted real world task. One type of TVE employs haptic (robotic) guidance to assist the trainee in performing the critical components of the task. Prior work suggests that training guidance schemes perform best when the guidance level progressively decreases as the trainee's performance increases. In this work, we design and test a guidance scheme for training in a dynamic task. In future work, we will compare this guidance scheme to traditional visual guidance.

Joel Huegel is a Ph.D. candidate in Mechanical Engineering at Rice University. He earned a BS in Mechanical Engineering Technology from LeTourneau University, Texas and a MSME from the University of Washington. Huegel is a member of ASME, IEEE and ASEE and has taught in the USA and Mexico. jhuegel@rice.edu

Marcia O'Malley is Assistant Professor in Mechanical Engineering at Rice University. Her interests focus on physical human-robot interaction. She is an ONR Young Investigator and NSF CAREER Award winner. O'Malley chairs the ASME-DSC Division Robotics Technical Committee and serves as Associate Editor for the IEEE Transactions on Haptics. omalley@rice.edu

2009 Tapia Conference Committees

The Tapia Conference would not be possible without the dedication and energy of its committee members, all of whom are leaders in their respective fields. The committee members' photos and short bios follow the list below. Conference participants are encouraged to network with the committee members and consider volunteering for the 2011 Tapia Celebration Conference Committee.

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2009 Tapia Conference Committee Members

Get to know your 2009 Tapia Conference Committee members! Either meet with them during the Tapia Celebration, or follow up with them via email (email addresses are provided below) after our 2009 event.

Monica Anderson

University of Alabama
Robotics Competition Co-Chair, Technical Papers
Committee Member
Monica Anderson is an Assistant Professor in the Department of Computer Science at the University of Alabama, and a faculty member in the university's Distributed Autonomy Lab, which makes use of software engineering, behavioral science, and networking to focus on using teams of robots to accomplish high-level tasks. In the lab, appropriate shared representations and communications paradigms are tested in simulation and in a lab environment. Currently, the lab contains two different robot platforms: K-TEAM KOALA and the iRobot iCreate. These robots are interfaced with single board computers running Linux. Player, an open source device interface, provides robot services. Anderson has a B.S. in Computer Science from Chicago State University and a Ph.D. in Computer Science and Engineering from the University of Minnesota. anderson@cs.ua.edu

Andras Balogh

University of Texas - Pan American
Scholarships Committee
Andras Balogh received the B.S. degree in mathematics from the University of Szeged, Hungary, the M.S. degree in applied mathematics from the University of Texas at Dallas, and the Ph.D. degree in mathematics from Texas Tech University in 1989, 1994, and 1997, respectively. From 1997 to 1998, he was a Visiting Assistant Professor in the Mathematics Department at Idaho State University, Pocatello. Currently he is Associate Professor in the Department of Mathematics at the University of Texas - Pan American, Edinburg (UTPA). Prior to moving to UTPA he was an Assistant Project Scientist in the Department of Mechanical and Aerospace Engineering at the University of California, San Diego from 1998 to 2002. His research interests include control of distributed parameter systems and computational mathematics. Balogh is serving as a Subject Editor for the International Journal of

Robust and Nonlinear Control and he is a member of the Conference Editorial Board of the IEEE Control Systems Society. abalogh@utpa.edu

Valerie Barr

Union College

Workshops Co-Chair, Technical Papers Committee Member

Valerie Barr is a professor and chair of the Computer Science Department at Union College. Before coming to Union, she was on the faculty at Hofstra University. During her graduate studies she also taught at Pratt Institute, Rutgers University, Mount Holyoke College, and Polytechnic University. Valerie received her Masters degree from New York University and her Ph.D. from Rutgers University. Her research interests are primarily in software testing, particularly applied to various kinds of artificial intelligence and language processing systems, computer science education, particularly new curricula that will engage an increasingly diverse group of students in CS. In winter 2008, taught Creative Computing and a Scholars Research Seminar entitled "Brilliant Mind, Embattled Soul". She has also lately become very interested in issues of identity and technology, and what the Net Generation is really all about. She is currently teaching a course on this. barrv@union.edu

Tony Baylis

Lawrence Livermore National Laboratory
Registration Chair

Tony Baylis is an Assistant Department Manager for the Computing Applications and Research (CAR) Department in the Computation Directorate at Lawrence Livermore National Laboratory (LLNL). His responsibilities as the Assistant Department Manager include management and coordination of workforce efforts that meet the programmatic needs of the department's customer base. Before he began his career at LLNL, he had an 18-year career at the University of Illinois, and 15 years at the National Center for Supercomputing Applications (NCSA). Tony has been a volunteer for various organizations, including ACM/IEEE Supercomputing conferences, ACM SIGGRAPH, and the Richard Tapia Diversity in Computing Conference. He recently served as the Broader Engagement (BE) Program chair for the SC08 conference in Austin, Texas. The Broader Engagement Program strives to identify and involve individuals from underrepresented communities who have an interest in high performance computing. baylis3@llnl.gov

Nina Berry

Sandia National Laboratories

Conference Chair

Nina Berry received a B.S. in Computer Science at Mary Washington College. She went on to receive a M.S. in Computer Science and a Ph.D. in Industrial and Manufacturing Engineering at Penn State. Berry is currently a Principal Member of Technical Staff at Sandia National Laboratories. She researches software entities known as intelligent agents. In recognition of her outstanding accomplishments, Berry has received a Women of Color Technology Award in Government and Defense for Educational Leadership in Government. Finally, she is the chair of the Coalition to Diversify Computing. nmberry@sandia.gov

M. Brian Blake

Georgetown University

Fundraising Co-Chair

M. Brian Blake is the Department Chair and the Director of Graduate Studies in the Department of Computer Science at Georgetown University. Dr. Blake conducts applied research in the development of intelligent agent approaches for the sharing of information and capabilities across organizational boundaries. His investigations cover the spectrum of software engineering: design, specification, and proof of correctness, implementation, experimentation, performance evaluation, and application. He has published over 85 journal articles and refereed conference papers in the areas of intelligent agents and workflow, service-oriented computing, component-based software engineering, distributed data management, and software engineering education. He is the recipient of several best paper awards and was selected the Most Promising Engineer by the Career Communications Group in 2003. He received his Bachelor of Electrical Engineering from Georgia Institute of Technology and has a PhD of Information and Software Engineering from George Mason University, Fairfax, Virginia. Dr. Blake loves running, playing basketball, and spending time with his wife and son. <http://www.cs.georgetown.edu/~blakeb/> mb7@georgetown.edu

Joel Branch

IBM

Fundraising Committee Member

Joel W. Branch got his B.S. in Systems and Computer Science from Howard University, and his M.S. and Ph.D.'s in Computer Science from Rensselaer Polytechnic Institute. He works for IBM Research where his current research interests lie in developing techniques for semi-automated

discover y and modeling of business transaction processes from heterogeneous data sources in a semantically and structurally agnostic manner. His interests in wireless sensor networks entail distributed microeconomic approaches to network and sensor information management as well as discovering novel approaches to both information overload and quality of information management. Branch's primary hobbies include photography, art, gourmet cooking and traveling - all pursued with his lovely wife. For added recreation, he also enjoys video games, exercise, and various competitive sports.

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Carlton Bruett

CarltonBruettDesign

Designer, 2009 Tapia Celebration

Carlton Bruett's designs have influenced numerous organizations and events, including National Science Foundation-supported supercomputing programs, international conferences, and private clients. A long-standing member of the computing community, Bruett has made significant contributions to programs that help broaden the participation of minorities in computing. He has been the designer for all of the Richard Tapia Celebration in Computing Conferences, including those hosted in Houston, Texas (2001); Atlanta, Georgia (2003); Albuquerque, New Mexico (2005); Orlando, Florida (2007), and now Portland, Oregon (2009). cb@carltonbruett.com

Jamika D. Burge

The Pennsylvania State University

Fundraising Co-Chair, Birds-of-a-Feather Co-Chair,

Technical Papers Committee Member

Jamika D. Burge, PhD is a Postdoctoral Research Scholar in the College of Information Sciences and Technology at Pennsylvania State University (University Park). She is also affiliated with Penn State's Center for Human-Computer Interaction. Burge completed her PhD in Computer Science from Virginia Polytechnic Institute and State University (Blacksburg, VA). Her research interests include human-computer-interaction, computer-mediated communication, and social computing. She holds an MS in Computer Science from North Carolina A&T State University (Greensboro, NC), and she earned her BS in Computer Science from Fisk University (Nashville, TN). She has received several awards, including IBM PhD Research Fellow, and she has served in several leadership positions, including president of the Computer Science Graduate Student Council while at Virginia Tech. Burge is

affiliated with several professional organizations, including the Association for Computing Machinery (ACM), and the CSE (Computer Science Education) and CHI (Computer-Human Interaction) Special Interest Groups. She is a research mentor to undergraduate and graduate students. She also enjoys meeting dynamic people and traveling nationally and internationally.

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Theresa Chatman

Rice University

Scholarships Committee

Theresa Chatman manages numerous activities at Rice University focused on the recruitment, mentoring, and retention of minority students in science, technology, engineering, and mathematics (STEM). She has also been instrumental in many national partnerships and events designed to support minority students. Her work has enabled and inspired hundreds of students to focus on their academic programs and achieve their personal and professional goals. Through outreach programs that Theresa has helped orchestrate for several organizations and activities, such as the Rice-Houston Alliance for Graduate Education and the Professoriate, the Center for Research on Parallel Computation, and others, Rice University has been recognized as having an outstanding percentage of minority Ph.D. graduates in STEM. After graduating from Rice, these students have gone on to make their own mark in their respective fields at universities, national laboratories, and in industry. Theresa has served on several national committees to further the accomplishments of minorities in STEM disciplines, including the Richard Tapia Celebration of Diversity in Computing and the Houston Louis Stokes Alliance for Minority Participation. tlc@rice.edu

Felicia Doswell

Norfolk State University

Panels Co-Chair, Technical Papers Committee Member

Felicia Doswell is an Assistant Professor in the Department of Computer Science at Norfolk State University. Her research interests are in the areas of information assurance, networking, and human computer interaction. She is currently investigating location-aware computing techniques and solutions for mobile devices and development of support applications to enhance human interaction in educational settings. Through her work in interface design, usability, and computer security, she strives to engage all users in trustworthy computing practices including the elderly, visually impaired, and physically challenged. She has interest in addressing the challenges of increasing access to

computer technology among underrepresented groups and is devoted to raising community awareness of and participation in computing to groups such as K-12 youth. She is also an active participant in graduate and undergraduate research initiatives to ensure that students have a comprehensive educational experience. fdoswell@nsu.edu

L. A. (Tony) Drummond

Lawrence Berkeley National Laboratory
Doctoral Consortium Co-Chair

Drummond is a staff scientist at the Lawrence Berkeley National Laboratory. He is working on scientific applications that could potentially benefit from the use of the ACTS Collection, supporting the tools installed in the NERSC HPC computers, promoting interoperability of the tools, and marketing them to researchers at DOE labs and universities. He is also a member of the scientific team working on the Greenflash project. His work in Greenflash focuses on performance profiling and modeling, and optimization of atmospheric codes. Tony spent five years as a postdoc and research assistant at the UCLA Department of Atmospheric Science, optimizing numerical models of the atmosphere. He received his M.S. in Computer Sciences from the University of Tulsa and his Ph.D. in Computer Sciences from the National Polytechnical Institute of Toulouse, France. His graduate work was in parallel iterative solver solutions to large linear systems of equations. ladrummond@lbl.gov

Jeffrey Forbes

Duke University
Robotics Competition Co-Chair, Technical Papers
Committee Member

Jeffrey Forbes is an assistant professor of the Practice of Computer Science at Duke University in Durham, North Carolina. His research interests include computer science education, intelligent control and robotics, reinforcement learning, and social networks. He received a B. S. in Computer Science from Stanford University and a Ph.D. in Computer Science from the University of California, Berkeley. Prof. Forbes holds memberships in the Association for Computing Machinery (ACM), American Association for Artificial Intelligence (AAAI), and the Coalition to Diversify Computing. forbes@cs.duke.edu

Juan Gilbert

Auburn University
Panels Co-Chair, Technical Papers Committee Member
Juan E. Gilbert is the T-SYS Distinguished Professor in the Computer Science and Software Engineering Department and a Fellow in the Center for Governmental Services at

Auburn University where he directs the Human-Centered Computing (HCC) Lab. He is also a National Associate of the National Research Council of the National Academies, an ACM Distinguished Speaker and a Senior Member of the IEEE Computer Society. In August 2009, Gilbert will Chair the Human Centered Computing Division in the School of Computing at Clemson University. gilbert@auburn.edu

Roscoe Giles

Boston University
Richard A. Tapia Achievement Award Chair
Roscoe Giles is a Professor in the Department of Electrical and Computer Engineering at Boston University (BU); the Deputy Director of the Center for Computational Science, Boston University; past Chair of the BU Faculty Council; past chair of the SC2002 Supercomputing Conference; and a Co-PI of the Empowering Leadership Alliance. For his work in increasing the participation of minorities in computer and computational science, in 2000 Giles received the A. Nico Habermann award from the Computing Research Association. Giles' research focuses on the application of high performance and parallel computing to physics and materials problems. As an outgrowth of these computational science research efforts, he has become committed to prototyping and building computational and educational infrastructure that will enable broad participation of scholars and students in high-performance computing. Professor Giles received his PhD in Physics from Stanford University in 1975 and Bachelor of Arts in Physics from the University of Chicago in 1970. roscoe@bu.edu

Juan José Hernández

Lawrence Livermore National Laboratory
Scholarships Committee
Juan Hernández is a Computer Scientist at Lawrence Livermore National Laboratory, one of the premier science laboratories that are part of the Department of Energy. Mr. Hernández is involved in the area of Software Quality and works with a team of researchers and physicists in modeling natural phenomena using high performance computers. Juan is a Certified Software Quality Assurance Engineer by the American Society of Quality (ASQ). He earned his B.S. in Applied Mathematics (1989) from the University of California at Santa Barbara and his Masters in Business Administration (MBA, 1994) from National University in San Diego, California. Juan has been at LLNL since September 2001. He is actively involved in fundraising events to provide scholarships to Hispanic students from the local communities.

James Hill

Vanderbilt University

Fundraising Committee Member

James Hill is a Research Scientist at the Institute of Software Integrated Systems (ISIS), Vanderbilt University in Nashville, TN. He received his Ph.D. in Computer Science from Vanderbilt University in March 2009, his M.S. in Computer Science from Vanderbilt University in May 2006, and his B.S. in Computer Science from Morehouse College in May 2004. Previously, James was a visiting Research Scientist at several industrial partners, such as eBay, Raytheon, and NASA JPL. James's research focuses on algorithms, analytics, patterns, and techniques to facilitate quality-of-service evaluation continuously throughout the software lifecycle. Currently, he is focusing on agile development techniques for developing and evaluating component-based distributed systems. James's research has led to the development of an open source research tool named CUTS, which is used by several industrial partners, such as Australian DoD, BBN Technologies, Boeing, General Electric Research, Raytheon, and Lockheed Martin. j.hill@vanderbilt.edu

Debbi Howard

Kaplan University

Technical Papers Co-Chair

Debbi Howard is an adjunct faculty member of computer information systems and technology at Kaplan University. She received her MBA from Texas A&M University-Commerce and is currently pursuing her Ph.D. in Information Assurance and Security at the University of Fairfax. Her research interests include cyber ethics and law, information assurance and security education and curriculum development, and adoption of enterprise privacy protection tools by businesses to protect employee Internet browsing. She teaches courses in networking, ethics, critical thinking and information security. Debbi is also interested in promoting diversity and equal access in computing and online. debbi_howard@tamu-commerce.edu

Charles Isbell

Plenary Speaker, Doctoral Consortium Co-Chair, Doctoral Consortium Panelist, Technical Papers Committee Member
Charles L Isbell, Jr. received his BS degree in computer science in 1990 from the Georgia Institute of Technology, where he was named the outstanding student by the President. Awarded a fellowship from AT&T Bell Labs as well as an NSF fellowship, he continued his education at the Artificial Intelligence Laboratory at MIT. After earning his PhD from MIT in 1998, Charles joined AT&T

Labs/Research. In 2002, he returned to Georgia Tech to join the faculty of the College of Computing. His research group is The Laboratory for Interactive Artificial Intelligence. The unifying theme of his work in recent years has been using statistical machine learning to enable autonomous agents to engage in life-long learning when in the presence of thousands of other intelligent agents, including humans. Since graduating from MIT, he has won two best paper awards and has been featured in several magazines and collections for technical contributions in working with agents who interact in social communities. Since returning to Georgia Tech, Charles has also pursued reform in computer science education. He has been awarded numerous teaching awards, and has been granted the Dean's Award for singular contribution to the College for his work on Threads, Georgia Tech's new structuring principle for computing curricula. This work has received international attention, and been presented in the academic and popular press. Recently, he has become the Interim Associate Dean of Academic Affairs and Undergraduate Education for the College of Computing.
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Chuck Koelbel

Rice University

Posters Co-Chair, Technical Papers Committee Member

Charles Koelbel is a Research Scientist at Rice University, where he works on various projects involving Grid computing, parallel languages, and supercomputing. Most of his current work is devoted to the Virtual Grid Applications Development Software (VGrADS) project, featured in a Tapia 2005 panel. He is perhaps better known, however for his work defining High Performance Fortran in the early 1990s. He has been at Rice since 1990, except for 1998-2001 when he was a Program Director at NSF, with responsibilities for the Advanced Computational Research and Information Technology Research programs. He received his PhD in Computer Science from Purdue University in 1990. chk@rice.edu

Cynthia Lanus

Empowering Leadership Alliance

Supporter Benefits Chair

Cynthia Lanus is a Co-Program Manager in the Empowering Leadership: Computing Scholars of Tomorrow Alliance (<http://empoweringleadership.org>), an NSF Broadening Participation in Computing Alliance headquartered at Rice University. For many years Cynthia was a high school mathematics teacher. In 1992, she was appointed as a Master Teacher by the Rice University

School Mathematics Project where she trained other mathematics teachers. In connection with this, she met Richard Tapia and began to work with him in his outreach programs. In 1998, she left teaching and joined Tapia at Rice full time where they started the Center for Excellence and Equity in Education. From 1998-2003, Cynthia helped to develop and maintain Rice's NSF AGEP program, the GirlTECH and TeacherTECH programs, and numerous other programs designed to increase the participation of underrepresented minorities and women in science and engineering. In 2003 because her family relocated, Cynthia left Rice. She went to the Math Forum at Drexel University where she supported several online mathematics programs, telecommuting fulltime for the first time. Cynthia now is an independent consultant, where from her home in Lawrenceburg, Kentucky, she works for several clients managing educational projects, with the most significant one being the Empowering Leadership Alliance. clanius@bell-south.net

Phoebe Lenear

University of Illinois

Awards Banquet Chair

Phoebe Lenear has more than 18 years of experience in the workplace as a program manager, systems developer, and a coordinator of testing, training, and integration projects. Her positions in academia and the research sector have required extensive communication, collaboration and technical skills. She has consulted with military personnel to integrate voice technology into their work environments, helped software vendors define their user requirements and meet contract specifications, and conducted and facilitated training for military personnel and university faculty and staff. Lenear holds B.S. and M.S. degrees in general engineering (mathematics and human-computer interaction), and a Ph.D. in human resource education (technology education) from UIUC. She currently serves as the coordinator of instructor services at the University of Illinois Global Campus. Her research interests are E-mentoring, Online Learning and Social Networking; and her hobbies include singing, skating, bowling, and spending time with her family. You may even hear an encore performance of Wind Beneath My Wings at the Gala and Awards Banquet. :-)
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Mary Ann Leung

Krell Institute

Doctoral Consortium Panelist

Mary Ann Leung currently works for the Krell Institute where she serves as the Program Manager for the Computational Science Graduate Fellowship program. She supports top scientists across the nation as they pursue their Ph.D. degrees in science, technology, engineering, and math (STEM) disciplines that also involve computational science research. Prior to joining Krell, Leung was the Project Director for the Tools for Success program at Miami Dade College (MDC). Before that, she started and ran diversity in science program at the University of Washington (UW) that included collaborations with the NSF funded ADVANCE program. She was an invited delegate at the National Conference on Graduate Student Leadership, was an invited steering committee member for the Preparing Chemical Leaders of Tomorrow program, and an invited speaker for the President's Advisory Council on Women. She earned her Ph.D. and M.S. degrees from the Chemistry department at the University of Washington and her bachelor's degree at Mills College with a major in chemistry and a minor in mathematics. leung@krellinst.org

Brandeis Marshall

Purdue University

Posters Co-Chair, Technical Papers Committee Member

Brandeis Marshall is an Assistant Professor of Computer and Information Technology in the Data Management area. Her research lies in the area of information and image retrieval, knowledge management and data mining. Her work centers on bettering the solution to the search accuracy problem in Web and image/video application domains. Her ongoing research involves the development of new data mining techniques and theories for applications in various problem domains such as web and image search. brandeis@purdue.edu

Luis Melara

Shippensburg University

Scholarships Co-Chair

Luis Melara is an Assistant Professor in the Department of Mathematics at Shippensburg University of Pennsylvania. His research interests include numerical solutions to partial differential equations, continuous optimization and applications of mathematics. Melara earned his B.S in Applied Mathematics from UCLA (1996), his M.A. (2001) and Ph.D. (2003) from Rice University in Computational and Applied Mathematics. Prior to arriving at Shippensburg University, she was at NIST, Colorado College and the

University of Colorado at Boulder. Dr. Melara enjoys mentoring undergraduate students and working with them on undergraduate research projects. He is a 2002-2004 National Research Council Postdoctoral Research Fellow. In his free time, he enjoys listening to music, reading books and whenever possible, traveling. lamelara@ship.edu

Ronald Metoyer

Oregon State University
Technical Program Co-Chair, Technical Papers Committee Member

Ronald Metoyer is currently an associate professor in the Computer Science department at Oregon State University. He received his Ph.D. from the College of Computing at the Georgia Institute of Technology in 2001 where he was a member of the Graphics, Visualization and Usability Center. His research goal is to develop techniques that allow novice users to create compelling interactive character content for training, education, games, and visualization. As a test bed for research in character motion generation and character interaction methods, Metoyer is building an immersive training environment for quarterbacks in the game of American football. Current research projects include methods for real-time motion captures data resequencing, tangible interfaces for character manipulation, and pose-distance metrics for comparing motion poses. metoyer@eecs.oregonstate.edu

Jose Andre Morales

University of Texas - San Antonio
Scholarships Committee Member

Jose Andre Morales is currently a Postdoctoral Research Fellow for the Institute of Cyber Security in the University of Texas at San Antonio. His research involves prevention, detection, recovery and removal of malware, wireless security and host behavior based security solutions. He is co-founder of the Hispanic PhD Mailing List and is a member of Sigma Xi, ACM and IEEE. In his past time he enjoys great food, wine and cigars.

Linda Morales

University of Texas, Dallas
Technical Papers Co-Chair

Linda Morales is a Research Assistant Professor with the Computer Science Department at the University of Texas at Dallas. Her research interests include the design and analysis of algorithms, security for networks and multicast groups, information security education, and ethics in computing and information security. She has a Ph.D. in Computer Science from the University of Texas at Dallas. She teaches

courses in algorithms and information security and is very interested in promoting diversity in computing. lmorales@utdallas.edu

Manuel A. Pérez-Quíñones

Virginia Tech
Technical Program Co-Chair, Technical Papers Committee Member

Manuel A. Pérez-Quíñones is an associate professor in the Department of Computer Science and a member of the Center for Human-Computer Interaction at Virginia Tech. His research interests include human-computer interaction, personal information management, multiplatform user interfaces, user interface software, and educational uses of computers. He received a DSc in computer science from The George Washington University, and a B.A. and M.S. in computer science from Ball State University. He is a member of the ACM, and IEEE-CS. Professionally, he serves as a member of the Coalition to Diversify Computing and as member of the editorial board for ACM JERIC. He is co-director of the Collaborative Research Experience for Undergraduates in Computer Science and Engineering (CREU); and is Director of the Personal Information Management (PIM) Research lab, which studies how individuals use technology to organize and use their information to satisfy their day to day needs. His research group has also explored the issue of culture and multi-language interfaces for communities that live within a different culture. He is also a member of the Digital Government Research group. His hobbies include baseball, volleyball, salsa music, computing, and technology. <http://perez.cs.vt.edu/perez@cs.vt.edu>

Ann Redelfs

Empowering Leadership Alliance
Public Relations Chair

Ann Redelfs' career has included positions at the Cornell Theory Center, Center for Research on Parallel Computation (CRPC), and the San Diego Supercomputer Center (SDSC), where she directed external relations and education/outreach programs focused on increasing the participation of women, minorities, and persons with disabilities in science, technology, engineering, and mathematics disciplines. At SDSC, Redelfs served as a member of the Leadership Team for the Education, Outreach, and Training Partnership for Advanced Computational Infrastructure (EOT-PACI), which had more than 30 partners nationwide. Also at SDSC, she was the original Diversity Officer, developing an organization-wide diversity plan. She served on the Leadership Team of the Engaging People in

Cyberinfrastructure (EPIC) program, which continued the momentum of EOT-PACI, engaging a wider community. She is a program manager for the Empowering Leadership: Computing Scholars of Tomorrow Alliance (EL Alliance, <http://www.empoweringleadership.org>), an NSF-supported Broadening Participation in Computing program. The EL Alliance is focused on providing tailored opportunities for minority students in computing to help ensure their success. Redelfs has been active with the Computing Research Association's Committee on the Status of Women (CRA-W), the Anita Borg Institute for Women and Technology, and the Coalition to Diversify Computing. She has served on the steering committees of numerous conferences, including the Grace Hopper and Richard Tapia Celebration conferences, the SC conference series, and GridToday conferences. ann@redelfs.us

Cheryl Seals

Auburn University
Workshops Co-Chair, Technical Papers Committee
Member

Cheryl Seals is an Associate Professor in the Computer Science and Software Engineering Department at Auburn University. She conducts research in Human Computer Interaction with an emphasis in visual programming techniques for education, user interface design & evaluation, and educational gaming technologies. Seals performs broad participation in computing research at all levels and works with innovative programs focused on increasing the computing pipeline by getting students interested in STEM disciplines and technology careers. Dr. Seals is the Auburn Academic Liaison of the NSF BPC sponsored STARS (Students & Technology in Academia, Research & Service) Alliance with the mission to increase participation of women, under-represented minorities, and persons with disabilities in computing disciplines through multifaceted interventions. Auburn's local area has been supported with computer clubs for K-12 students. Over the last three years, AU CSSE STARS have provided computer experiences to Auburn City Schools with over 300 K-12 students and teachers. sealscd@auburn.edu

Michael Sirois

Rice University
2009 Tapia Celebration Webmaster
Michael Sirois grew up wanting to be an actor - or a writer - or maybe a drummer. He did pursue those during high school and college, and then added a three-year stint as a disc jockey to the mix. In the late 1970's, armed with degrees in Drama and English, he still wanted all of those

careers, but couldn't decide how to go about it. He did it by teaching middle school for twenty-three years in the Houston ISD, teaching English, reading, journalism, drama and - eventually - technology. He began teaching summer workshops at Rice for Richard Tapia's TeacherTECH program, and in 2002, became a program manager for his Center for Excellence and Equity in Education. He has since served on committees for Grace Hopper, Tapia, Supercomputing and others, and has evolved into a geek who wrangles websites (Tapia, Coalition to Diversify Computing, Empowering Leadership Alliance, and others), manages educational outreach programs, travels, records audiobooks, still writes (his novel might be finished before the century ends), and loves photography. If you see him at the conference with a camera, ask him to take your picture. You could end up in the conference photo album. (8^)
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Juan Vargas

Google
Doctoral Consortium Panelist
Juan Vargas joined Google's University Relations in October 2007. He was a Sr. Academic Relations Manager for Microsoft from May 2004 to September 2007. He is a professor of Computer Science & Engineering at the University of South Carolina, where he was full-time from 1988 to 2004, teaching data mining, Bayesian networks, embedded and distributed systems, data structures & algorithms, programming languages, and operating systems. Dr. Vargas research interests include data mining, embedded systems, sensor networks, distributed systems and biomedical engineering. His research is published in more than 60 articles, several book chapters, and many conferences. Dr. Vargas received his BSEE from the University of Texas at El Paso, his MS from CINVESTAV-IPN, and his PhD from Vanderbilt University.

Cristina Villalobos

University of Texas - Pan American
Scholarships Co-Chair
Cristina Villalobos is an Associate Professor in the Department of Mathematics at the University of Texas-Pan American. Her research interests include linear and nonlinear optimization, applications of optimization, and mathematics education. Dr. Villalobos earned her B.S. in Mathematics (1994) from the University of Texas-Austin and her M.S. and Ph.D. (2000) from Rice University in Computational and Applied Mathematics. Prior to arriving at UTPA, she was at St. Mary's University and the University of Texas-El Paso. Dr. Villalobos is actively

involved in mentoring undergraduate students from under-represented groups onto graduate school. She is a 1994 Ford Foundation Predoctoral fellow. Dr. Villalobos tries to get a balance between work and family life. Her spouse is a mechanical engineering professor at UTPA. They share the responsibilities of raising 2 children, ages 4 and 6. Between juggling work, family, and soccer games (and now karate!), she enjoys spending time with her family, cooking new recipes, and gardening. <http://math.utpa.edu/mcvilla.html>
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Pamela Williams

Logistics Management Institute
Coalition to Diversify Computing Chair
Pamela J. Williams is a Research Fellow in the Supply Management Group at LMI, a government consulting company. Her research interests include large-scale optimization, mathematical software design, and data analysis. Williams earned a B.S. in Mathematics from the University of Kentucky and her Ph.D. in Computational and Applied Mathematics from Rice University. Williams' honors and awards include an Otis A. Singletary Scholarship, National Society of Black Engineers Fellow, and AT&T Cooperative Research Fellowship. Williams is president of the INFORMS Minority Issues Forum and chair of the Coalition to Diversify computing.
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Dale-Marie Wilson

University of North Carolina, Charlotte
Birds-of-a-Feather Co-Chair, Technical Papers Committee Member
Dale-Marie was born on the island of Trinidad, where she spent her childhood and teen years. She migrated to the United States in 1991 and became a citizen in 2000. She received her Bachelor of Science Degree from New York University in 1995, where she majored in Mathematics and minored in Computer Science. Her Master of Science and Doctor of Philosophy Degrees were from Auburn University, in 2003 and 2006 respectively. Dr. Wilson is currently an Assistant Professor in the Computer Science Department at the University of North Carolina at Charlotte. Her research interests include Human Centered Computing (HCC), Virtual Agents and Speech Technologies. dwilso1@email.uncc.edu

2009 Sponsors and Supporting Organizations

The 2009 Richard Tapia Celebration of Diversity in Computing Conference would not have been possible without the tremendous dedication and contributions of our sponsor, the Association for Computing Machinery, in cooperation with the Computing Research Association and the IEEE Computer Society, as well as our supporting organizations and our committee members. The Coalition to Diversify Computing, which organizes the Tapia Celebrations, extends a sincere thank you to everyone, including the participants, who made this event possible.

Coalition to Diversify Computing (CDC)

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<http://www.cdc-computing.org/>

The Coalition to Diversify Computing is a joint organization of the ACM, IEEE-CS and CRA. The goal of CDC is to address the shortfall of highly trained workforce of scientists and engineers capable of meeting the needs in the broad area of computing. CDC projects target students, faculty and professionals with expressed intent of increasing the number of minorities successfully transitioning into computing-related careers in academia, industry, and national laboratories. The diverse membership of CDC from academia, industry, and national laboratories enables a variety of different perspectives and approaches to be utilized in achieving the aforementioned goals. The mission of the Coalition to Diversify Computing is addressing the shortfall in computing professionals through the development of a diverse community that can effectively meet the computing demands of an evolving society. Their members are volunteers from academia, industry and federal laboratories.

Association for Computing Machinery (ACM)

<http://www.acm.org>

ACM, the Association for Computing Machinery, is the world's largest educational and scientific computing society, uniting educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking. With over 92,000 members from over 100 countries, ACM works to advance computing as a science and a profession.

IEEE Computer Society

Dick Price, dprice@computer.org

<http://www.computer.org>

With nearly 85,000 members, the IEEE Computer Society is the world's leading organization of computing professionals. Founded in 1946, and the largest IEEE society, the Computer Society serves the information and career-development needs of today's computing researchers and practitioners with journals, magazines, conferences, books, certifications, online courses, standards and networking activities.

Computing Research Association (CRA)

Carla Romero, carla@cra.org

<http://www.cra.org>

The Computing Research Association (CRA) is an association of more than 200 North American academic departments of computer science, computer engineering, and related fields; laboratories and centers in industry government, and academia engaging in basic computing research; and affiliated professional societies. CRA's mission is to strengthen research and advanced education in the computing fields, expand opportunities for women and minorities, and improve public and policymaker understanding of the importance of computing and computing research in our society.

Gold Supporters

The Empowering Leadership Alliance: Computing Scholars of Tomorrow

Richard Tapia, rtapia@rice.edu

<http://empoweringleadership.org/>

Begun in early 2007, the Empowering Leadership (EL) Alliance is building a vibrant nationwide network engaging underrepresented minority students in computing disciplines at research universities. Students, faculty members, and other professionals are developing a supportive community critical to students scattered sparsely across the country with significantly smaller and less robust networks than more established student support networks. Taking full advantage of the resources in the national computing community, the EL Alliance provides students with mentoring by some of the most successful computing researchers in the country in-person meetings with national leaders, and online support. The EL Alliance, currently made up of hundreds of members and dozens of institutional partners--research universities, government labs, professional societies, and industry and business organizations - is led by Richard Tapia at Rice University and funded by the National Science Foundation's Broadening Participation in Computing program. Visit our Website and join the network!

The EL Alliance is supporting the 2009 Tapia Celebration Opening Reception on Wednesday, April 1.

Rice-Houston Alliance for Graduate Education and the Professoriate (AGEP)

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<http://agep.rice.edu/>

Situated in one of the nation's largest, most culturally diverse cities, the Rice-Houston AGEP unites many of the city's research and teaching universities in the common mission of significantly increasing the number of underrepresented students earning the Ph.D. in science, technology, engineering and mathematics (STEM) fields. The Rice-Houston AGEP program offers a summer research program for undergraduates across the country, and support for minority graduate students at Rice University. The summer program includes a \$4000 stipend and housing and travel support. The undergraduates participate in mentoring, community-building, and professional development activities that are designed to encourage them to pursue doctorate degrees. The year-round graduate program at Rice

includes stipends, tuition coverage, and a health insurance supplement, as well as a summer stipend. Students are encouraged to participate in national conferences to present their research, and are provided with professional development activities.

Silver Supporters

Google

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<http://www.google.com/jobs/students>

Never judge a search engine by its interface. Behind that simple search window is one of the most complex technology infrastructures in the world. And it's run by an equally diverse group of people. At Google, we don't just accept difference—we thrive on it. We celebrate it. And we support it, for the benefit of our employees, our products and our community. Meet us at our booth to learn more.

Google is supporting the 2009 Tapia Celebration Doctoral Consortium and the 2009 Tapia Celebration Resume Workshop.

Microsoft

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We work hard at Microsoft to think inclusively, value differences, and provide the necessary tools to give each employee a chance to do his or her best work. This approach has resulted in a wealth of fresh ideas and creative problem solving as we focus on the customers and markets we serve, the business processes and practices we use, the products and services we develop, and our growing workforce. And we're not finished. We know that diversity at Microsoft, like the rest of our business, is a work in progress—one that we are very optimistic about. By fully pursuing the company's mission in all parts of the globe and in keeping with what we value and what the citizens in each country value, Microsoft has established a comprehensive plan to promote and integrate diversity at every level within our organization and in everything we do.

Microsoft is supporting the 2009 Tapia Celebration Gala Banquet on Friday, April 3.

National Center for Atmospheric Research (NCAR)

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NCAR provides the university science and teaching community with the tools, facilities, and support required to perform innovative research. Through NCAR, scientists gain access to high-performance computational and observational facilities, such as supercomputers, aircraft and radar - resources researchers need to improve human understanding of atmospheric and Earth system processes. NCAR and university scientists work together on research topics in atmospheric chemistry, climate, cloud physics and storms, weather hazards to aviation, and interactions between the sun and Earth. In all of these areas, scientists are looking closely at the role of humans in both creating climate change and responding to severe weather occurrences.

Oak Ridge National Laboratory, Research Alliance in Math and Science

Debbie McCoy, mccoydd@ornl.gov

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The Research Alliance in Math and Science (RAMS)

Program is based on the belief that national laboratories and universities, working hand in hand, offer the best opportunity to make a positive impact on the quality of a diverse workforce. The RAMS program is designed to provide collaborative research experiences among faculty and students at colleges or universities and Oak Ridge National Laboratory researchers. These experiences will improve the U.S. competitive research edge while encouraging and promoting Science, Technology, Engineering, and Mathematics (STEM) research throughout the academic year. Students majoring in computer science, the computational sciences (computational biology, computational chemistry, computational materials sciences, and so forth), engineering technologies, and mathematics are placed primarily in the Computing and Computational Sciences Directorate at the Oak Ridge National Laboratory. The RAMS program is supported by the Office of Advanced Scientific Computing Research, Office of Science, U. S. Department of Energy.

Virginia Tech Department of Computer Science

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Virginia Tech is a comprehensive research university with the largest full-time student population in Virginia. The Department of Computer Science is a member of the highly ranked College of Engineering, and currently enrolls over 300 undergraduate majors and nearly 200 graduate students. The graduate program in computer science is on its way to becoming one of the top programs in the country, with state-of-the-art facilities for research in areas such as human-computer interaction, bioinformatics, and high-end computing systems. With nearly 40 faculty members, including 11 NSF CAREER award winners, the program offers students a wide variety of options to concentrate their research. Graduate students periodically garner national level recognitions, including NSF fellowships, best paper awards, and coverage of their research in major news outlets. The graduate program was named a top-10 program to watch by Computerworld in 2008, and ranks in the top 30 nationally in terms of PhD production.

Bronze Supporters

Georgetown University Department of Computer Science

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Georgetown University is one of the nation's most prestigious universities, ranked 23rd among national universities by the U.S. News 2008 report. The Computer Science Department was officially formed in 1985. In embracing Georgetown's tradition, the department has been a leader in undergraduate education and research. We pride ourselves in establishing rich personal relationships between our faculty and students. With small class sizes and spacious research facilities, our undergraduate students have the opportunity to work on cutting edge research with faculty members. The 2007-2008 academic year realized a turning point in the department. That fall, we opened our doors to a new graduate program. Offering a new Master of Science degree in Computer Science, we are leveraging the teaching and research strength of our faculty in the areas of algorithms, artificial intelligence and data mining, security and software engineering.

Harvey Mudd College

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Harvey Mudd College is a unique liberal arts college of engineering, science and mathematics. A member of The Claremont Colleges consortium, HMC combines an intimate learning community of 725 students and 85 faculty members with the larger-scale resources of a university. Since its founding in 1955, HMC has led the way in innovative undergraduate engineering and science education. We provide hands-on research opportunities, a strong focus on the humanities and social sciences, and an exceptional faculty. We are renowned for our gifted students, our rigorous curriculum, and our sense of humor. We strive for excellence without arrogance.

IBM Corporation

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<http://www.research.ibm.com/>

IBM researchers in our eight labs around the world are working with each other and with clients, universities and other partners on projects that vary from optimizing business processes to inquiring into the Big Bang and the origins of the universe. Our focus is to continue to be a critical part of IBM's success by balancing projects that have an immediate impact with those that are long-term investments.

IBM is supporting the 2009 Tapia Celebration Poster Session.

Indiana University - School of Informatics and Pervasive Technology Institutes

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<http://www.researchtechnologies.uits.iu.edu>

Indiana University is a proud sponsor of the Richard Tapia Celebration of Diversity in Computing. IU's School of Informatics, the first of its kind in the nation, offers a range of educational opportunities - from traditional computer science to health informatics, network security and robotics. At the conference, we hope to meet students interested in possible graduate studies or undergraduate internships. IU is also a leader in advanced cyberinfrastructure to support the scientific research community, serving as a member of the TeraGrid and Open Science Grid national research networks. Pervasive Technology Institutes at IU are leading in the development of science gateways that facilitate use of supercomputers in scientific research.

Lawrence Berkeley National Laboratory

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Founded in 1931, Lawrence Berkeley National Laboratory (LBNL) is the oldest of America's national laboratories and home to 11 Nobel laureates. Home to the Department of Energy's National Research Scientific Computing Center (NERSC) and the Energy Sciences Network (ESnet), LBNL is a world leader in scientific computing and networking. Berkeley Lab's HPC and networking capabilities and facilities are advancing DOE's scientific research programs by providing computational resources and expertise across all scientific disciplines. The men and women of Berkeley Lab are dedicated to solving the most pressing scientific challenges, from designing new materials to studying global climate change, from developing new and sustainable sources of energy to unraveling the secrets of the universe. Achieving these goals requires teamwork built upon an appreciation of diverse perspectives, knowledge and expertise. We invite you to help us create a better world for everyone.

Lawrence Livermore National Laboratory

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Lawrence Livermore National Laboratory (LLNL) is a premier research and development laboratory. For more than half a century, we have applied cutting-edge science and engineering to enhance the nation's security. When LLNL was founded in 1952, the consuming security threat to the U.S. was the nuclear arsenal of the Soviet Union. For years, our energies, talents and resources were dedicated to checking that menace. Today, new perils have arisen that are radically different and vastly more complex, and we are directing our world-class scientific and technological resources against these threats. At the same time, we are pushing the frontiers of science and technology to make breakthroughs in areas such as energy research, bioterrorism, environmental science, chemistry, computer science and basic science. The Laboratory serves as a resource to the U.S. government and is a partner with industry and academia.

Oregon State University

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Oregon State is the only Oregon university to hold the Carnegie Foundation's prestigious designation reserved for universities with "very high research activity." OSU also is Oregon's land, sea, sun and space grant university. OSU programs in Engineering, Environmental Sciences, Forestry, Pharmacy, and a variety of other areas are nationally recognized for high quality. All OSU undergraduates participate in the core curriculum, which emphasizes creative thinking, writing, world cultures, the arts, sciences, diversity, literature, and global awareness. An innovative International Degree program allows undergraduate students to add an international component to any major program. With graduate degree programs in more than 80 areas, OSU offers exceptional opportunities for study and research.

Rochester Institute of Technology - B. Thomas Golisano College of Computing and Information Sciences

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The Golisano College includes the departments of Computer Science; Information Technology; Software Engineering; Networking, Security, and Systems Administration and Interactive Games and Media, as well as the Centers for Computational Research and innovation, the research arm of the College. This mixture of applied computing disciplines is unique and allows the College to offer a strong, diverse series of programs centered around computing, from infrastructure to the end user. The Golisano College, the largest of RIT's eight colleges, is one of the most comprehensive computing colleges in the nation offering eight (8) BS and nine (9) MS programs plus the Ph.D. in Computing and Information Sciences. The College has garnered accolades and recognition as a premier computing education and applied research facility. Housed in a +155,000 sq. ft. state-of-the-art building, the College showcases cutting-edge innovation and world-class faculty who are passionate about their work.

Symantec Corporation

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Symantec was founded in 1982 by visionary computer scientists, and has evolved to become one of the world's largest software companies with more than 17,500 employees in more than 40 countries. We provide security, storage and systems management solutions to help our customers - from

consumers and small businesses to the largest global organizations - secure and manage their information-driven world against more risks at more points, more completely and efficiently than any other company. In FY08, Symantec's primary philanthropic focus was on education. We identified several special interest areas, including: eliminating the achievement gap between affluent and economically challenged school districts; encouraging more students to pursue careers in math and science; and increasing the diversity of our future workforce by helping to build a pipeline of women and minorities who are interested in and have access to quality programs in science, technology, engineering, and mathematics.

Symantec is supporting the 2009 Tapia Celebration lunch on Friday, April 3.

Tufts University

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The mission of Tufts' computer science department is to provide undergraduates and graduate students with the durable knowledge necessary to become future leaders in the rapidly evolving discipline of Computer Science. In particular we give each graduate a solid foundation in theory, programming, systems and in interdisciplinary applications of computer science. Computer science majors at Tufts are involved in machine learning, computational biology, operating systems and networks, programming languages, graphics, computer security, software engineering and many other computer applications that allow others to manage, understand and display vast amounts of information productively and effectively. Many become industry leaders in technology; others work in interdisciplinary teams to create products and design solutions for the future in many areas of science, engineering and medicine.

University of Notre Dame Department of Computer Science & Engineering

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The Department of Computer Science and Engineering at the University of Notre Dame offers programs of study leading to BS, MS, and PhD degrees. Potential applicants to our PhD program should check the department web site for additional information. Research assistant positions for PhD students are available in a variety of exciting, cutting-edge areas, including medical algorithmics, biometrics, computational biology, wireless and network security, nanotechnology, distributed systems, bioinformatics, data mining, and other areas.

Contributors

The Anita Borg Institute (ABI)

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The Anita Borg Institute provides resources and programs to help industry, academia, and government recruit, retain, and advance women in high-tech fields, resulting in higher levels of technological innovation. ABI programs serve technical women by creating a community and providing tools to help them develop their careers. Programs include the Grace Hopper Celebration of Women in Computing; Anita Borg Institute's Women of Vision Awards, TechLeaders workshops. ABI publishes industry-leading research including *Climbing the Technical Ladder: Obstacles and Solutions for Mid-Level Women in Technology*. ABI is a not-for-profit 501(c) 3 charitable organization.

Indiana University-Purdue University Indianapolis

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The Indiana University School of Informatics at Indiana University Purdue University Indianapolis [IUPUI] offers undergraduate degrees in Health Information Administration, Media Arts and Science, and Informatics. Master of Science and PhD degrees are offered in bioinformatics, health informatics, human computer interaction, and media arts and science. IUPUI, located in the thriving urban core of Indianapolis, is an outstanding research university - a 21st century model for urban higher education. Indianapolis is the 13th largest city in the United States with the sixth largest African-American population in the Midwest and a growing Latino population. Anchored by a robust life sciences core, Indianapolis and IUPUI is at the intersection of ideas, innovations, and inspiration.

National Center for Women and Information Technology

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NCWIT is a capacity-building coalition of over 170 prominent corporations, academic institutions, government agencies and non-profits working aggressively to increase women's participation in information technology (IT). NCWIT believes that women's participation is a compelling issue of innovation, competitiveness, and workforce sustainability, and its work connects efforts along the entire pipeline, from K-12 and higher education through industry and academic careers.

The University of Texas at Austin

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UT Austin is one of the largest public universities in the United States. Founded in 1883, the university has grown from a single building, eight teachers, two departments and 221 students to a 350-acre main campus with 21,000 faculty and staff, 16 colleges and schools and almost 50,000 students. The university's reach goes far beyond the borders of the main campus with satellite campuses and research centers across Texas, including the J.J. Pickle Research Campus, the Marine Science Institute, the McDonald Observatory, the Montopolis Research Center and the Brackenridge tract. With an enrollment of 11,000 students and more than 3,500 master's and doctor's degrees awarded annually, the graduate school is a national leader in graduate degrees awarded and one of the largest graduate schools in the nation. More than 8,700 bachelor's degrees are awarded annually in more than 170 fields of study and 100 majors. The university has one of the most diverse student populations in the country and is a national leader in the number of undergraduate degrees awarded to minority students.

Portland Marriott Downtown Waterfront Hotel Floor Plan

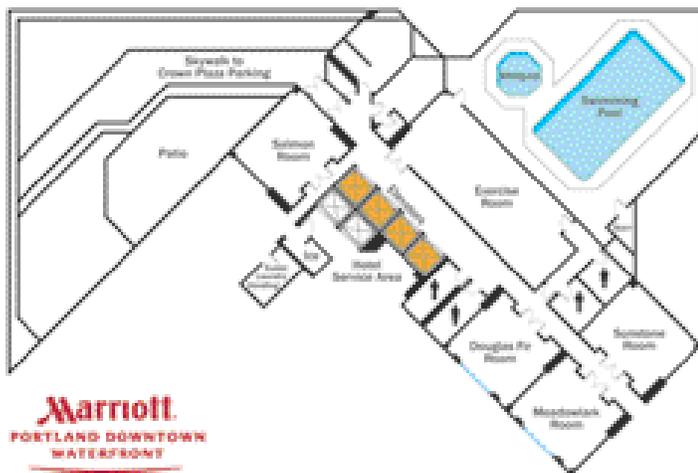
Lower Level 1



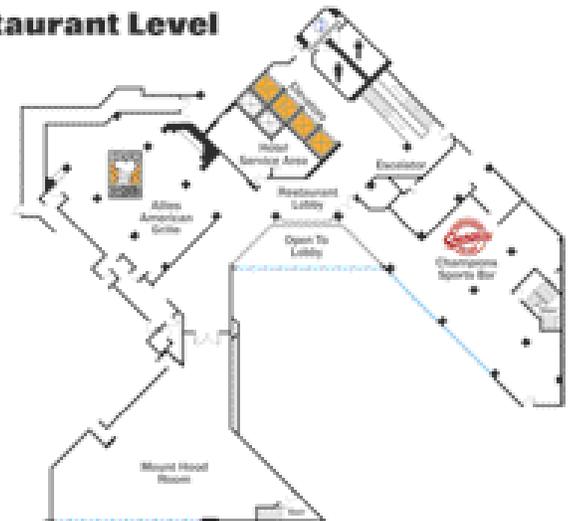
Main Lobby



3rd Floor



Restaurant Level



Keynote

Dr. Peter Dinklage is currently the Chairman of the Computing 2010
 Committee of the National Science Foundation.



Keynote

Dr. Peter Dinklage is currently the Chairman of the Computing 2010
 Committee of the National Science Foundation.




Co-Chair: Robert Taylor
 Co-Chair: Robert Taylor

For more information, please contact: www.cdm2010.org

Keynote




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Keynote




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2009 Richard Tapia Celebration of Diversity in Computing Conference

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 In cooperation with the Computing Research Association and the IEEE Computer Society