

2015 ACM RICHARD TAPIA

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

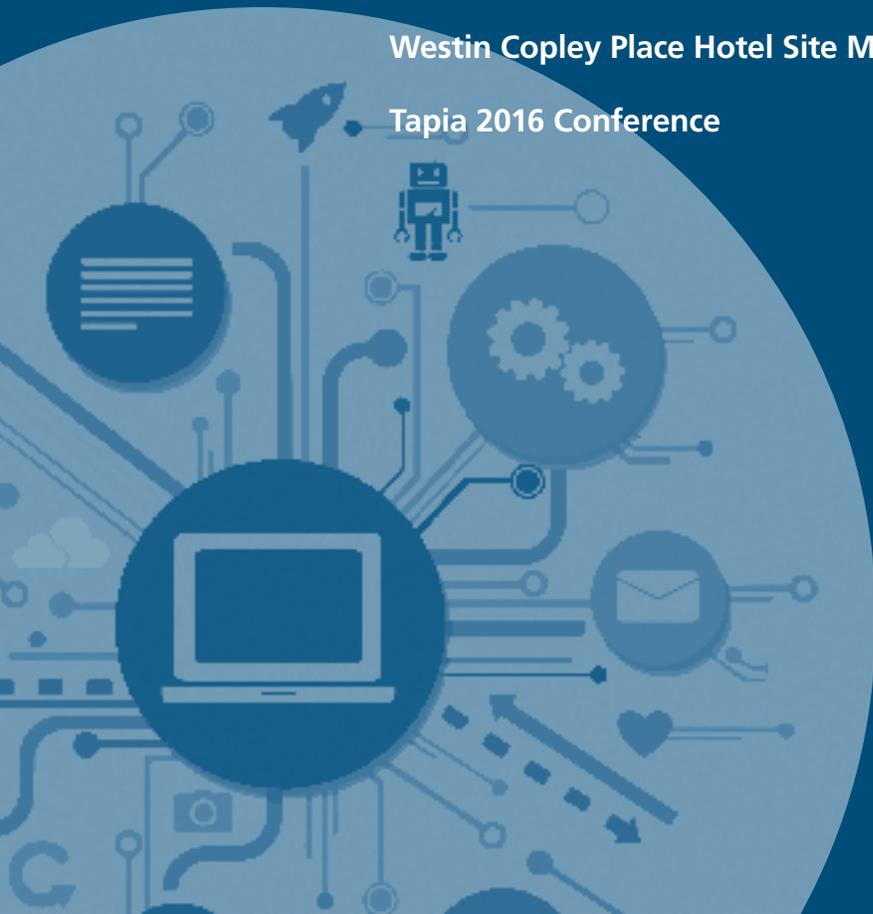
DIVERSITY AT SCALE



February 18-21, 2015 | Boston, MA

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Welcome to the 9th **Richard Tapia Celebration of Diversity in Computing Conference** and to Boston, Massachusetts. Once again, we gather in February to celebrate our differences, reinvigorate one another, and share in the accomplishments of our friends and colleagues. As always, our conference contributors and participants reflect the many races, ethnicities, genders, abilities, and experiences of our community and we welcome you all.

While we originally feared that the Boston winter might deter some members of the community, you came through and we had a tremendous response in submissions to the conference. There were 46 submissions for BOFs, Workshops and Panels. We received 21 applications for the DC, 72 Poster submissions, and 499 applications for scholarships, 174 of which were supported to attend the conference. This participation rate is fantastic and we are excited to continue to push the limits of participation and grow the conference.

The theme of this year's conference is "Diversity at Scale" and we have put together a program to emphasize the importance of the many efforts to increase diversity in computing and to push these efforts out into practice at a large scale. We start the week with a collection of professional development opportunities on Wednesday that are sure to offer something for all attendees. Thursday and Friday are packed with a group of extraordinary plenary speakers and the incredible submissions that you all bring to the conference. We end on Saturday with opportunities to flex your technical skills at the Doctoral Consortium, the ARTSI Robotics competition, and the Security Code-a-thon.

Saturday also includes the timely CMD-IT Tech Industry Summit that brings together industry and academia to discuss recent headlines regarding the lack of diversity in technical fields and to plan a path forward. As we explore Diversity at Scale, it is important that we seize opportunities like this to work together to solve one of the most important problems of our time in the computing field.

There are many people and organizations that come together to make this conference happen. We would like to thank our 2015 platinum supporters—Boston University, Georgia Tech, Google, iAAMCS, Lawrence Livermore National Labs, the National Science Foundation, Northeastern University, Stanford University, and TRUST—as well as our 2015 gold supporters—Blue Waters, Microsoft, MIT Lincoln Labs, the National Security Agency, Tufts University, University of California – Berkeley, University of Massachusetts-Boston, University of Maryland-Baltimore County, University of Southern California, Virginia Tech, and Xsede. It is through their generous help that we have been able provide scholarships and support for so many.

We would be remiss if we did not give special thanks to CMD-IT for really making this conference happen, providing the kind of all-year support and infrastructure that makes it possible to bring everything together. A lot of what they do is invisible but absolutely essential.

Finally, we'd like to thank the members of the Infrastructure and Program Committees for their hard work, dedication, and attention to detail. You can find their names listed at the end of the program. These people represent the tremendous effort necessary to put this conference together and we all owe them a big thank you — so please be sure to thank them as you encounter them throughout the conference.

We hope that you enjoy the conference, are inspired by the many wonderful speakers, connect with old friends and colleagues, make new connections, and are reinvigorated by the energy you all bring to this conference.

Sincerely,

Charles Isbell
Tapia 2015 General Chair

Ronald Metoyer
Tapia 2015 Program Chair



Charles Isbell
*Senior Associate
Dean, College
of Computing
Georgia Institute
of Technology*



Ronald Metoyer
*Associate Professor
School of EECS
Oregon State
University*



PLENARY



Jack Dongarra
University
Distinguished
Professor, EECS,
University of
Tennessee



Dilma DaSilva
Professor and
Department Head,
Department of
Computer Science
and Engineering,
Texas A & M
University



**Odest Chadwicke
Jenkins**
Associate Professor,
Brown University



Shaun Kane
Assistant Professor,
University of
Colorado Boulder



Jacky Wright
Vice President,
Microsoft IT
Strategic Enterprise
Services

BANQUET



**Freeman A.
Hrabowski, III**
President, University
of Maryland –
Baltimore County

2015 ACM RICHARD TAPIA

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

FEBRUARY 18–21, 2015 | BOSTON, MASSACHUSETTS

The **2015 ACM Richard Tapia Celebration of Diversity in Computing Conference** is organized by the Coalition to Diversify Computing (CDC), sponsored by the Association for Computing Machinery (ACM), and presented by the Center for Minorities and People with Disabilities in Information Technology (CMD-IT). The conference is in cooperation with the IEEE Computer Society and the Computing Research Association.

This year's conference, the ninth meeting in a conference series that began in 2001, celebrates the technical contributions and career interests of diverse people in computing fields. Additionally, the conference strives to help all attendees—especially students—build vital connections that will serve them well both professionally and personally. The conference aims to provide an educational and supportive networking environment for underrepresented groups across the broad range of computing and information technology, from science to business to the arts to infrastructure.

The 2015 conference theme is ***Diversity at Scale*** as the Tapia Conference celebrates efforts to move diversity in all aspects of computing beyond conversation and study into full practice and implementation. As a community, we recognize that we must scale our diversity efforts to fully utilize computing to address the larger problems faced by today's society.

As we move from research to practice, it is incredibly important that the benefits of diversity, on a large scale, be uncovered and disseminated. We celebrate the push to diversify computing and to quantify the value of diversity, and we highlight researchers, companies, and agencies that build and benefit from a diverse workforce.

Some of the nation's leading researchers from industry, government and academia will give plenary presentations looking at the technical, social and global impacts of computing. Attendees will also have a chance to explore opportunities for both near-term research possibilities as well as long-term career paths from companies and research institutions at the forefront of computing. In the student research poster session, representatives from the next generation of computer scientists will showcase their interests and accomplishments. Other sessions will help both undergraduate and graduate students develop and hone their skills for success. There will also be time set aside for informal conversations, community building and networking.



The conference honors the many contributions of **Dr. Richard A. Tapia**, mathematician and professor in the Department of Computational and Applied Mathematics at Rice University in Houston, Texas. Dr. Tapia is internationally known for his research in computational and mathematical sciences and is a national leader in education and outreach programs.

He has authored or co-authored two books and more than 100 mathematical research papers. In addition to his faculty positions, he is also Director of the Center for Excellence and Equity in Education. Richard Tapia was born in Los Angeles to parents who emigrated from Mexico when they were children, seeking educational opportunities. He was the first in his family to attend college, earning his B.A., M.A., and Ph.D. degrees in mathematics from the University of California, Los Angeles. Due to his efforts, Rice University has received national recognition for its educational outreach programs, and the Rice Computational and Applied Mathematics Department has become a national leader in producing women and underrepresented minority Ph.D.s in the mathematical sciences.

In May 2014 Prof. Tapia was awarded the prestigious Vannevar Bush award. The National Science Board, governing board of the National Science Foundation and policy advisers to the president and Congress, presents the award each year to exceptional, lifelong leaders in science and technology who have made substantial contributions to the welfare of the nation through public service activities in science, technology and public policy. In October 2011, Prof. Tapia received the National Medal of Science from President Barack Obama during a special ceremony at the White



House. The medal is the highest national honor for a U.S. scientist, but it was not the first White House honor for Tapia. He received the inaugural Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring from President Bill Clinton in 1996, the same year he earned a presidential appointment to the National Science Board, the nation's highest scientific governing body.

Tapia's other honors include: election to the National Academy of Engineering (1992) for his seminal work in interior point methods; being the first recipient of the A. Nico Habermann Award from the Computing Research Association (1994) for outstanding contributions in aiding members of underrepresented groups within the computing community; the Lifetime Mentor Award from the American Association for the Advancement

of Science (1997); and the establishment of a lecture series to honor Tapia and African-American mathematician David Blackwell at Cornell University (2000). He received the Hispanic Engineer of the Year Award from Hispanic Engineer Magazine in 1996, and was inducted into the Hispanic Engineer National Achievement Awards Conference Hall of Fame in 1997. Hispanic Engineer & Informational Technology Magazine also selected him as one of the 50 Most Important Hispanics in Technology and Business for 2004. That same year Dr. Tapia was inducted into the Texas Science Hall of Fame.

Dr. Tapia has been named one of 20 most influential leaders in minority math education by the National Research Council; listed as one of the 100 most influential Hispanics in the U.S. by Hispanic Business magazine (2008); and given the "Professor of the Year" award by the Association of Hispanic School Administrators, Houston Independent School District, Houston, Texas. In 2005, Tapia was elected to the Board of Directors for The Academy of Medicine, Engineering, and Science in Texas, or TAMEST, comprising the Texas members of the National Academy of Engineering, National Academy of Sciences and the Institute of Medicine. In 2009, Tapia received the Hispanic Heritage Award for Math and Science.



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

Richard E. Ladner is a Professor in the Department of Computer Science and Engineering at the University of Washington. He earned his PhD at the University of California, Berkeley in mathematics in 1971. His current research is in accessible computing which is an important subarea of human-computer interaction (HCI). He entered this research area relatively late in his career after working in theoretical computer science for more than 30 years.

His NSF-funded MobileAccessibility project is exploring mobile applications to improve the lives of blind, low-vision, and deaf-blind



people. He is the creator of the ASL-STEM Forum which is an on-line community for uploading and discussing sign language for terms in STEM fields. He has supervised or co-supervised 26 Ph.D. students, 9 of whom were women and several with disabilities. He is the PI for AccessComputing, now in its 10th year, that has the goal of increasing participation of students with disabilities in computing fields. He is also the PI for AccessCS10K that has the goal of getting more students with disabilities into K-12 computing courses. From 2007 – 2013, he directed the Summer Academy for Advancing Deaf and Hard of Hearing in Computing.

He is a recipient of the 2004 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM), the 2008 A. Nico Habermann Award, and a 2008 Purpose Prize. He is the winner of the 2014 SIGCHI Social Impact Award. He is a member of the Board of Trustees of Gallaudet University.

SCHEDULE AT A GLANCE

WEDNESDAY, FEB. 18, 2015

10:00 AM – 9:00 PM

Conference Registration

Location: American Foyer

12:00 PM – 2:00 PM

Resume Writing Workshop Sponsored by Google

Location: Staffordshire

12:00 PM – 5:00 PM

**IAAMCS Distinguished Fellowship Writing Workshop
Sponsored by IAAMCS**

By invitation only

Location: Parliament

1:00 PM – 4:00 PM

CRA-W/CDC Mentoring Workshops

Undergraduate Career Mentoring

Location: St. George

Graduate Career Mentoring

Location: Essex North

Academic Career Mentoring

Location: Gloucester/Newberry

1:00 PM – 5:00 PM

**Industry Workshop on Preparing for Leadership:
Managing Self to Managing Others**

Professional attendees only

Location: Adams

3:00 PM – 6:00 PM

Exhibitor Set-Up

Location: Essex Center South

5:00 PM – 6:00 PM

Scholarship Orientation & Newcomer Meeting

Location: St. George

6:00 PM – 7:30 PM

Welcome Reception & Fireside Chat

Location: American Foyer

7:30 PM – 10:00 PM

Dessert & Career Fair

Location: Essex Foyer

THURSDAY, FEB. 19, 2015

7:00 AM – 5:00 PM

Conference Registration

Location: American Foyer

7:00 AM – 8:00 AM

National Lab Breakfast

By invitation only

Location: St. George

General Breakfast

Location: American Foyer

8:00 AM – 8:30 AM

Welcome & Announcements

Location: American Ballroom

8:30 AM – 9:15 AM

Plenary Speaker

Challenges in Mobile Cloud Computing

Dilma Da Silva, Professor and Department Head, Department of Computer Science and Engineering, Texas A&M University

Location: American Ballroom

9:15 AM – 9:45 AM

Break

9:45 AM – 10:30 AM

Plenary Speaker

Robotics to Reach Out and Change the World

Odest Chadwicke Jenkins, Associate Professor, Brown University

Location: American Ballroom

10:30 – 11:00 AM

Meal Break

Location: American Ballroom

11:00 AM – 12:30 PM

Panels & Workshops

State-Level Education Reform for Diversity

Location: St. George

Multidisciplinary Computer Science: Solving the Important Questions of Today and Tomorrow

Location: American North-Center

Diversity Tales from the Trenches: Experiences of Underrepresented Minorities in Computing

Location: Staffordshire

Opportunities in Open Source

Location: American South

Resume Writing Workshop Sponsored by Google (Repeat)

Location: Adams/Parliament/Baltic

SCHEDULE AT A GLANCE

THURSDAY CONTINUED

12:45 PM – 2:00 PM

Lunch with Supporters

Location: American Ballroom

2:00 PM – 3:00 PM

Ken Kennedy Distinguished Lecture

Jack Dongarra, University Distinguished Professor, University of Tennessee

Location: American Ballroom

3:00 PM – 3:30 PM

Refreshment Break

Location: Essex Foyer

3:00 PM – 7:30 PM

Career Fair & Networking

Location: Essex Center-South

5:00 PM – 5:30 PM

Private Reception for Poster Presenters

By invitation only

Location: Staffordshire

5:30 PM – 7:30 PM

Poster Session & Reception

Location: Essex North

7:30 PM – 8:15 PM

Birds of a Feather Sessions

Coalition to Diversify Computing: Looking for a Few Good Partners

Location: American North-Center

Using Twitter to Empower Minority Women in STEM

Location: Gloucester/Newberry

Disability: Celebrating a Face of Diversity

Location: St. George

Pathways to STEM: A Model for Implementing Engaging Workshops for Youth in Your Community

Location: Parliament/Adams/Baltic

How to Make A Million Dollars in Five Years or Less

Location: American South

8:15 PM – 9:00 PM

Birds of a Feather Sessions

Cryptocurrency Creation and Verification

Location: Gloucester/Newberry

Taking Action to Increase Diversity

Location: Parliament/Adams/Baltic

Hispanics in Computing Community

Location: American North-Center

Exploring Cybersecurity Experimentation with Linux and DETER

Location: American South

Scaling Up Diversity in REUs: Broadening Participation of Underrepresented Groups in Undergraduate Research Experiences

Location: St. George

FRIDAY, FEB. 20, 2015

7:00 AM – 5:00 PM

Conference Registration

Location: American Foyer

7:00 AM – 8:00 AM

Sponsor Breakfast

By invitation only

Location: Adams

7:00 AM – 8:00 AM

General Breakfast

Location: American Foyer

8:00 AM – 8:30 AM

Announcements

Location: American Ballroom

8:30 AM – 9:15 AM

Plenary Speaker

Superhuman Computing: Designing Custom Software and Hardware Interfaces to Support Our Natural Abilities

Shaun Kane, Assistant Professor, University of Colorado Boulder

Location: American Ballroom

9:15 AM – 9:45 AM

Break

9:45 AM – 10:30 AM

Plenary Speaker

Putting the Power of Data into User's Hands:

Launching BI@Microsoft

Jacky Wright, Vice President, Microsoft IT Strategic Enterprise Services

Location: American Ballroom

10:30 AM – 11:00 AM

Meal Break

Location: American Foyer

11:00 AM – 12:30 PM

Panels & Workshops

Industry Perspectives of Diversity in K-12 Education

Location: Staffordshire

A Beginner's Guide to Visualization

Location: Essex North

SCHEDULE AT A GLANCE

FRIDAY CONTINUED

When Working for Diversity in CS Becomes Your Day Job

Location: St. George

A Programming Approach to the CS Principles Data Task

Location: Adams/Parliament/Baltic

12:30 PM – 2:00 PM

Lunch & Networking

Location: American Ballroom

2:00 – 3:30 PM

Panels & Workshops

Data Privacy Tools in the Age of Ubiquitous Data Collection

Location: Essex North

Increasing Diversity in the K-20 Computing Pipeline: Sharing Strategies & Best Practices

Location: Staffordshire

Artbotics with Lego Mindstorms EV3

Session limited to 30 hands on participants

Location: Adams/Parliament/Baltic

Social Computing: Perspectives from Industry

Location: American Ballroom

Using Humanitarian Free and Open Source Software (HFOSS) to Attract the Underrepresented to Computer Science

Location: St. George

3:30 PM – 4:00 PM

Refreshment Break

Location: Essex Foyer

3:30 PM – 5:00 PM

Career Fair & Networking

Location: Essex Center-South

4:30 PM – 5:00 PM

Town Hall Discussion

Location: Staffordshire

5:30 PM – 6:30 PM

VIP Reception

By invitation only

Location: Adams/Parliament/Baltic

6:30 PM – 11:00 PM

Banquet & Dancing

Keynote Speaker

Freeman A. Hrabowski, III, President, University of Maryland-Baltimore County

Location: American Ballroom

SATURDAY, FEB. 21, 2015

8:00 AM – 12:00 PM

ARTSI Robotics Competition Sponsored by IAAMCS

Conference participants are invited to watch the competition

Location: Essex Center-South

8:00 AM – 4:00 PM

CMD-IT Tech Industry Summit: Partnering to Develop Solutions on Increasing Diversity

By invitation only

Location: Staffordshire

8:00 AM – 5:00 PM

Trust CyberSecurity Code-a-thon

By invitation only

Location: Essex North-West & North Center

Doctoral Consortium

By invitation only

Location: Adams

9:00 AM – 2:00 PM

Computing Tour at Harvard University

Confirmed conference attendees only

Location: Tour leaves from American Foyer

Computing Tour at Northeastern University

Confirmed conference attendees only

Location: Tour leaves from Essex Foyer

**12:00 PM – 3:00 PM****Resume Writing Workshop Sponsored by Google***Location: Staffordshire*Presenters: **Meron Tamrat**, Google; **Eric Yurko**, Google

This workshop will give attendees advice on best practices for crafting technical resumes for internships and jobs in industry.

12:00 PM – 5:00 PM**IAAMCS Distinguished Fellowship Writing Workshop Sponsored by IAAMCS***By invitation only**Location: Parliament*

During this half-day workshop, the Distinguished Fellowships Writing Workshop will guide students through the process of writing a competitive application for summer internships, graduate school, and/or external funding. The targeted audience is junior and senior-level undergraduate students and first and second year graduate students.

1:00 PM – 4:00PM**CRA-W/CDC Mentoring Workshops****Undergraduate Career Mentoring***Location: St. George***Graduate Career Mentoring***Location: Essex North***Academic Career Mentoring***Location: Gloucester/Newberry*

The Coalition to Diversify Computing (CDC), lead organizer for the Tapia Conference, is collaborating with the Computing Research Association Committee on Women in Computing (CRA-W) to provide development activities for Tapia Conference participants. All conference attendees are invited to participate in these workshops, as there are activities designed to appeal to everyone. Undergraduate and Graduate students will obtain resources that will help them succeed throughout their studies, and beyond, and career professionals (from universities, industry, and government organizations), will also have an opportunity to participate in hands-on professional development activities.

1:00 PM – 5:00 PM**Industry Workshop on Preparing for Leadership: Managing Self to Managing Others***Professional Conference attendees only**Location: Adams*

In this workshop we will examine the critical leadership passage of transitioning from an individual contributor to a first-time manager, helping you to better understand the fundamental skills, time application and values required with this shift; providing you with the opportunity to make an informed decision when considering this transition and once there,

understanding the essential success criteria.

Through this workshop, participants will gain a better understanding of the following:

- Key skills, values and time application required to transition from an individual contributor to successful manager/leader
- Role of a manager
- Key fundamental skills of successful managers
- Ascertain their readiness to make this transition through a greater level of awareness and practice.

Facilitator: **Sabrina Coleman**, President & Founder, Mahoghany Coaching and Development

Sabrina Coleman is a seasoned, multi-cultural leadership/team coach and consultant who began her career as an IT Leader. She has lived and worked in three countries partnering with global leaders, diverse and cross-cultural teams to deliver scalable solutions in more than 20 countries. Her practical, hands-on experience has provided her with an insight which enables her to design interventions at every level of an organization; helping them to realize their vision, achieve their goals and create healthier, more inclusive environments. Ms. Coleman holds an M.A. in Psychology/OD, BA in Management/MIS, and is certified as a Corporate Coach (CCC), Interpersonal Skills-Building Trainer and Project Management Professional (PMP).

6:00 PM – 7:30 PM**Fireside Chat: Exploring Big Data***Location: American Ballroom*

Moderator: **Valerie Taylor**, CMD-IT and Texas A&M University
 Panelists: **Alan Bivens**, IBM T.J. Watson Research Center; **Jennifer Tour Chayes**, Microsoft Research New England and Microsoft Research New York; **Stuart Feldman**, Google; **David Martinez**, MIT Lincoln Labs; **Adam Wolf**, Bloomberg

The current rate of digital data production is stunning. In 2009, the rate for some scientific fields was estimated to be as high as a thousand-fold increase over the prior ten years due to access to more powerful data collection mechanisms and simulation algorithms than ever before. This astounding number does not include the production of data by individuals and enterprise entities which was estimated by the McKinsey global institute to be around 13 exabytes (EB) of new data (7 EB enterprise, 6 EB individual) in 2010 alone. This explosion in data collection has led to the need for more sophisticated tools for managing and leveraging this "Big Data" which is often described in terms of the "3Vs": volume, velocity, and variety which refer to the amount of data, the rate at which it is acquired, and the complexity of the data respectively.

This panel will discuss the issues surrounding the use of Big Data in enterprise organizations. More specifically, how does each define big data, how is big data used for decision making and/or prediction in their organizations, and what are the biggest future challenges in gaining insight from Big Data?



BIOGRAPHIES:

Alan Bivens, PhD. is Principal Research Staff Member and Senior Manager of Cloud Systems and Analytics at the IBM T.J. Watson Research Center. In this role he leads a number



of global teams to drive optimization and advanced features in IBM's cloud systems and build analytic capabilities into IBM offerings and services. While Alan's current role primarily drives capability with IBM Services Division, he has also had roles focused on driving advanced analytics into IBM's Systems and Software products including roles which drove relationships with both standards and academic organizations. Alan is an alumni of Rensselaer Polytechnic Institute and has over 25 filed patents and over 40 publications in the areas of distributed systems, systems management, and machine learning technologies.

Jennifer Tour Chayes, Cofounder and Managing Director of Microsoft Research New England and Microsoft Research New York City, is a world-renowned leader in the emerging



field of network science. She has made deep contributions to the modeling and study of networks, including the development of algorithms, with applications in computer and information science, economics, social science, computational biology and mathematics. Chayes

is the Cofounder and Managing Director of Microsoft Research New England and Microsoft Research New York City. She was for many years Professor of Mathematics at UCLA. She is the recipient of an NSR Postdoctoral Fellowship, a Sloan Fellowship, the UCLA Distinguished Teaching Award and the ABI Women of Vision Leadership Award. She was twice a member of the IAS Princeton, and is a Fellow of the AAAS, ACM, AMS and Fields Institute, and an Elected Member of the American Academy of Arts and Sciences.

Stuart Feldman is best known as the creator of the computer software program, make, for UNIX systems. He was also an author of the first Fortran 77 compiler, and he was part of the



original group at Bell Labs that created the Unix operating system. Until recently, he was the Vice President of Computer Science at IBM Research. He is currently Vice President, Engineering, East Coast, at Google. Feldman has served on the board of the Computing Research Association

(CRA) and of the Association to Advance Collegiate Schools of Business (AACSB International). He was chair of ACM SIGPLAN and founding chair of ACM SIGecom. He was elected the President of the ACM in 2006. Feldman is also a member of the Editorial Advisory Board of ACM Queue, a magazine he helped found with Steve Bourne. He has also served on the editorial boards of IEEE Internet Computing and IEEE Transactions on Software Engineering. He received an A.B. in astrophysical sciences from Princeton University and a Ph.D in applied

mathematics from the Massachusetts Institute of Technology. Feldman became a Fellow of the IEEE in 1991 and a Fellow of the ACM in 1995. In 2003, he was awarded ACM's Software System Award for his creation of make.

David R. Martinez, a national leader in high performance embedded computing and advanced signal processing, is the Associate Division Head of the Cyber Security and Information Sciences Division at MIT Lincoln Laboratory. Mr. Martinez has served as a keynote speaker at multiple national-level workshops and symposia in signal processor and embedded computing systems. He was elected an IEEE Fellow in 2003. He holds a B.S. in Electrical Engineering from New Mexico State University and MS and EE degrees from MIT. He co-authored/co-edited the book entitled High Performance Embedded Computing, A Systems Perspective (CRC, 2008).



Adam Wolf is the Engineering Manager for foundational applications at Bloomberg. His team of 400+ engineers is responsible for cross-asset class applications and systems for the Bloomberg Professional Service (Bloomberg terminal) including our news, charts, market monitors and alerts, data analytics, e-mail, instant messaging and compliance, as well as our alternate platforms for the BPS including mobile and MS Office. He graduated from Yale University with a BS degree in Computer Science in 2004 and has been with Bloomberg for 10+ years. In his time at Bloomberg, he led the migration of the news plant to a service oriented architecture and the implementation of its real-time search and alerting system and started the machine learning and search infrastructure teams. He enjoys running and has run 3 NYC Marathons.



Dr. Valerie Taylor is the Senior Associate Dean of Academic Affairs in the Dwight Look College of Engineering, Regents Professor and Royce E. Wisenbaker Professor in the Department of Computer Science and Engineering at Texas A&M University. Dr. Taylor is an IEEE Fellow and has received numerous awards for distinguished research and leadership. Dr. Taylor is a member of ACM. Valerie E. Taylor earned her B.S. in ECE and M.S. in Computer Engineering from Purdue University in 1985 and 1986, respectively, and a Ph.D. in EECS from the University of California, Berkeley, in 1991.



7:30 PM – 10:00 PM

Career Fair & Dessert

Location: Essex Foyer

The Career Fair includes representatives from our supporters. Take an opportunity to discuss career and graduate school options with the representatives and receive a stamp for your passport.

**8:30 AM – 9:15 AM****Plenary Speaker***Location: American Ballroom***Challenges in Mobile Cloud Computing****Dilma Da Silva**, Professor and Department Head, Department of Computer Science and Engineering, Texas A&M University

Cloud computing went from “the IT fad of the moment” to being recognized as a revolutionary and effective approach to deliver computing services. In parallel, the growth and impact of mobile computing in our society has been astonishing. In this talk, we discuss the key technical innovations and business aspects that enabled the broad adoption of cloud services in our industry, and highlight open technical problems being tackled by the academic and industrial research communities. We also analyze current practices in integrating cloud services into mobile apps, exploring how the requirements from such new workloads may introduce new challenges in distributed computing, visualization, operating systems, networking, and system management.

BIOGRAPHY:

Dilma Da Silva is the Professor and Department Head of Computer Science and Engineering at Texas A & M University. Prior to her appointment at Texas A & M University, Dilma was a Principal Engineer and Manager at Qualcomm Research in Santa Clara, California. She lead the area of mobile cloud computing. Her prior work experience also includes IBM T. J. Watson Research Center, in New York (2000-2012) and the University of Sao Paulo in Brazil (1996-2000). Her research activities have been around scalable and adaptive system software, focusing in the last 4 years on cloud computing. She received her Ph.D in Computer Science from Georgia Tech in 1997. She has published more than 80 technical papers and filed 11 patents. She chaired 24 conferences/workshop committees, participated in several prestigious journal editorial boards and has been a program committee member in more than 80 scientific conferences or workshops and more than 30 thesis committees. Dilma is an ACM Distinguished Scientist, an ACM Distinguished Speaker, a member of the board of CRA-W (Computer Research Association’s Committee on the Status of Women in Computing Research), of the CDC (Coalition for Diversifying Computing), co-founder of the Latinas in Computing group, and treasurer/secretary for ACM SIGOPS.

9:45 AM – 10:30 AM**Plenary Speaker***Location: American Ballroom***Robotics to Reach Out and Change the World****Odest Chadwicke Jenkins**, Associate Professor, Brown University

Robotics is poised to be a groundbreaking and disruptive technology. Robotics will transform society in the next 40 years the way computing has transformed it over the last 40 years. Robotics is the next evolution, taking technology beyond

digital information into performing real tasks in the physical world. Through robotics, we can erase the geographic barriers that limit us in our work, play, education, and so much more. Even with such amazing innovation at hand, we face major challenges in producing an equitable workforce prepared for this future. The unfortunate fact of computing is that it has contributed to the increasing trends of inequity. Robotics, if not pursued wisely, has the potential to accelerate this trend. However, robotics also presents an opportunity to reverse these trends. Specifically, we can enable everyone across the socioeconomic spectrum to maximize their “computational literacy”, the basic means of expression in this technological world. The knowledge and tools to become, extend, and practice computational literacy have never been so accessible, available, and free. The common web browser, in particular, provides almost everything needed to learn modern computer programming and enter a pathway of infinite technological potential.

In this talk, I will present our work in bringing robots out of research laboratories and into the real world through the World Wide Web. This work includes using the web to make a wide variety of robots accessible and programmable to researchers, educators, and the physically disabled. I will further describe how our use of the JavaScript programming language and HTML5 markup language can be used to develop courses for computer programming, with an emphasis on video games, physical simulation, and robotics.

BIOGRAPHY:

Odest Chadwicke Jenkins, Ph.D., is an Associate Professor of Computer Science at Brown University. Prof. Jenkins earned his B.S. in Computer Science and Mathematics at Alma College (1996), M.S. in Computer Science at Georgia Tech (1998), and Ph.D. in Computer Science at the University of Southern California (2003). Prof. Jenkins was selected as a Sloan Research Fellow in 2009. He is a recipient of the Presidential Early Career Award for Scientists and Engineers (PECASE) for his work in physics-based human tracking from video. He has also received Young Investigator awards from the Office of Naval Research (ONR) for his research in learning dynamical primitives from human motion, the Air Force Office of Scientific Research (AFOSR) for his work in manifold learning and multi-robot coordination and the National Science Foundation (NSF) for robot learning from multivalued human demonstrations. His research addresses problems in robot learning and human-robot interaction, primarily focused on robot learning from demonstration, as well as topics in computer vision, machine learning, and computer animation.

11:00 AM – 12:30 PM**Panels and Workshops****State-Level Education Reform for Diversity***Location: St. George*

Moderator: **Renee Fall**, University of Massachusetts – Amherst
 Panelists: **Mark Guzdial**, Georgia Institute of Technology; **W. Richards (Rick) Adrion**, University of Massachusetts-Amherst;
Debra Richardson, University of California-Irvine



To increase the diversity of students in computing, we will likely have to change computing education. National groups like Code.org, CSTA, NCWIT, and CSEdWeek.org are generating enthusiasm to reform computing education, but real change must be made at the community and state level—where educational decisions are made in the U.S. system. To make change in districts and schools requires the active participation of individuals and local organizations to engage policy makers, superintendents, and communities. This panel features leaders from California, Massachusetts, and Georgia who are working to change formal computing education pathways (K-16) to improve diversity. Panelists will share what has worked, what has not worked, and how different state systems require different strategies. The session will include time for participants to meet others from their own state to share information and get advice about reforming computing education at home.

BIOGRAPHIES:

Renee Fall has spent the past seven years working to increase diversity in computing in Massachusetts and beyond as project manager of the Commonwealth Alliance for Information Technology Education (www.caite.info) and as a co-PI of the Expanding Computing Education Pathways Alliance (www.ECEPalliance.org), both NSF-sponsored efforts to broaden participation in computing. Her career in higher education has included inter-institutional collaborations; women's/gender studies, diversity, and equity; continuing and online education; grant development and publishing. She holds a masters degree from Harvard Divinity School and is pursuing a doctorate in higher education research, policy, and leadership at the University of Massachusetts Amherst.

Mark Guzdial is a Professor in the School of Interactive Computing at Georgia Tech. He is a learning scientist who focuses on computing education research. He invented the Media Computation approach to teaching introductory computing. He serves on the ACM's Education Council and is on the editorial boards of the "Journal of the Learning Sciences," "ACM Transactions on Computing Education," and "Communications of the ACM." With his wife and colleague, Barbara Ericson, he received the 2010 ACM Karlstrom Outstanding Educator award. He was also the recipient of the 2012 IEEE Computer Society Undergraduate Teaching Award.

W. Richards (Rick) Adrion, with **Renee Fall** (UMass), **Mark Guzdial** (Georgia Tech) and **Barbara Ericson** (Georgia Tech), directs the Expanding Computing Education Pathways (ECEP) Alliance. ECEP is designed to increase the pipeline of women and underrepresented minorities entering K-20 education pathways. Previously, Adrion was PI for the NSF BPC CAITE Alliance. He co-leads the Education and Outreach working group for the Massachusetts Green High Performance Computing Center, an UMass-MIT-BU-Harvard-NEU consortium. Adrion has been involved with multimedia systems for teaching and learning since 1995 and with software engineering since 1975. He is a fellow of the ACM and AAAS.

Debra Richardson is founding dean of the Bren School of Information and Computer Sciences at UC Irvine. She joined the faculty in 1987, became ICS chair in 2000, and in 2002 led the department to become the first computing-focused school in the UC system. Richardson is an advocate for increasing participation of women and other underrepresented minorities in computing. She chairs the Alliance for California Computing Education for Students and Schools and has served on the leadership team of NCWIT. Richardson's research has been recognized by designation as an ASE Fellow and also with two retrospective impact awards from ACM SIGSoft.

Multidisciplinary Computer Science: Solving the Important Questions of Today and Tomorrow

Location: American North-Center

Moderator: **Aimee Tabor**, TRUST Science & Technology Center
 Panelists: **Jesse Lopez**; Oregon Health & Science University; **Kevin Carter**, MIT Lincoln Labs; **Silvia Crivelli**, Lawrence Livermore National Laboratory

Do you love computer science but do not see yourself working at typical tech company? Do you have a desire to help others? Do you share your passion for computer science with a passion for security, oceanography or sustainability? There will be an increasing number of employers that are interested in graduates who work at the intersection of computer science and another field such as biology or law. These jobs require a computer science degree with understanding of modeling in another field or area. Employers are increasingly going to be looking for graduates who can use computer science and big data to answer questions about products, materials or best practices. Our panel of experts will talk about their path and how they blended their interests to find a unique job and make a positive impact. The panel will also offer tips on how to grow your skills in this area.

BIOGRAPHIES:

Aimée Tabor is the Education Director of the TRUST Science & Technology Center and has responsibility for strategic planning, undergraduate program development and professional development for the Center. She has 10 years experience in education and professional development and 3 years working particularly on issues related cybersecurity education. Current projects include hosting the Security Code-a-thon at the Richard Tapia Celebration and supporting the growth of the CESTEMER Conference. Aimee also serves as a Multicultural Education Facilitator for the UC Berkeley Campus. Prior to joining TRUST, Aimee was a program evaluator for San Francisco Unified School District.

Jesse Lopez is a PhD candidate in Environmental Science and Engineering at Oregon Health & Science University and a Department of Energy Computational Science Graduate Fellow. His graduate work is focused on studying sediment dynamics in the Columbia River estuary using high-resolution numerical models and observations. His research interests lie



broadly at the intersection of environmental studies, high-performance computing, and data analysis. Jesse is also a former mathematics teacher and AmeriCorps alumni who completed undergraduate studies in history and mathematics at the University of Washington.

Dr. Kevin Carter is technical staff in the Cyber Systems and Technology Group at MIT Lincoln Laboratory. He joined the Laboratory in 2009, and has worked on problems of network security, situational awareness, and anomaly detection. His focus lies in large-scale network traffic analysis; identifying patterns of interest in the midst of overwhelming noise. The emphasis on cyber modeling is part of a larger need for a 'Science of Cyber,' focusing less on ad-hoc and one-off solutions, and applying sound scientific principles to understand cyber environments. Dr. Carter's academic research interests include statistical signal processing, pattern recognition and machine learning.

Silvia Crivelli is a computational biologist working on protein folding. She started the WeFold (collaboration and competition) experiment that brings together labs and individuals to solve one of the 100 top outstanding challenges in science. She wants to leverage the unique character of the social-media-based collaborative research community created by WeFold to develop next generation STEM researchers and to help young researchers further their professional networks and scientific expertise. She believes that progress in science will come from the rich combination of ideas that only a highly diverse community can create.

Diversity Tales from the Trenches: Experiences of Underrepresented Minorities in Computing

Location: Staffordshire

Moderator: **Manuel A. Pérez-Quñones**, Virginia Tech
 Panelists: **Jamika Burge**, University of California at Los Angeles; **Juan Gilbert**, University of Florida; **Brian Blake**, University of Miami

This panel will discuss the challenges and experiences of computing professionals, from diverse backgrounds, when it comes to diversity in the workplace. Panelists will share their experiences with diversity in their disciplines, and they will share anecdotes for how diversity might successfully be incorporated in the workplace. Panelists are also leaders for the Coalition to Diversify Computing (CDC), as past or current chairs, so their insights can (and have) impacted policy and research decisions in computing research.

BIOGRAPHIES:

Dr. Manuel A. Pérez-Quñones is Associate Professor of Computer Science at Virginia Tech. He is a member of the Center for Human-Computer Interaction. He is co-chair of the Coalition to Diversify Computing, a joint organization of the ACM and CRA. His research interests include personal information management, human-computer interaction, user interface software, and educational/cultural/diversity issues

in computing. He holds a DSc from The George Washington University and a BA & MS from Ball State University. He has published over 100 refereed articles and co-authored 10 book chapters. He is an NSF CAREER Awardee.

Jamika Burge is the Director of Assessment Technology Product and Research at the Smarter Balanced Assessment Consortium at the University of California at Los Angeles (UCLA). She holds a PhD in computer science, and her research interests lie in HCI, at the intersection of behavioral methodology and technology adoption and use. She completed a postdoc in the College of IST at Penn State (2007-2009), where she worked with John M. Carroll on wireless informatics initiatives for non-profit organizations. She has several publications in books and conferences, is a member of ACM, and is serving her second term as co-chair of the CDC (The Coalition to Diversify Computing), where she also co-directs the Collaborative Research for Undergraduates (CREU) program and is a leader for the CRA-W/CDC Alliance.

Dr. Juan E. Gilbert is the Andrew Banks Family Preeminence Endowed Chair and the Associate Chair of Research in the Computer & Information Science & Engineering Department at the University of Florida where he leads the Human Experience Research Lab. He is also a Fellow of the American Association of the Advancement of Science, National Associate of the National Research Council of the National Academies, an ACM Distinguished Scientist and a Senior Member of the IEEE.

Dr. Brian Blake is Vice Provost & Dean of the Graduate School and Professor of Computer Science at the University of Miami. Dr. Blake has published over 165 refereed papers in the areas of internet computing and web-based software engineering. He is Editor-in-Chief for IEEE Internet Computing, Associate Editor of IEEE Transactions on Service Computing, and Editor-in-Chief of a Springer book series Web-Scale Workflow and Analytics. He is an ACM Distinguished Scientist and Senior Member of the IEEE. Dr. Blake received a Bachelor of EE from Georgia Institute of Technology and PhD in Information and Software Engineering from George Mason University.

Opportunities in Open Source

Location: American South

Moderator: **Marina Zhurakhinskaya**, Red Hat
 Panelists: **Shauna Gordon-McKeon**, OpenHatch; **Cindy Pallares**, University of Texas at Dallas; **Jonathan Garcia-Mallen**, MIT

Open source technologies play a vital role in our lives and offer tremendous opportunities for contributors. Open source technologies enable web services and mobile devices, knowledge sharing and science. Some open source projects, like Wikipedia and Mozilla, are household names. Others, like Linux and OpenStack, are industry standards, with dozens of companies employing people to work on them. Across the whole software industry, employers look for open source experience to evaluate the skills and potential of job



candidates. However, there is a dearth of African Americans, Latino Americans, and women contributing to open source projects. The panelists will discuss why it is both professionally and socially valuable to contribute to open source and how people can get started doing so. The panelists will draw from their experience organizing outreach initiatives in open source, participating in these initiatives, and building their careers in or with the help of open source.

BIOGRAPHIES:

Marina Zhurakhinskaya is a Community Engagement Lead at Red Hat and a board member at the GNOME Foundation and the Ada Initiative. She organizes the GNOME Foundation's Outreach Program for Women. About 170 women have so far participated in the program's paid, remote internships with dozens of open source organizations. Mrs. Zhurakhinskaya is one of the coordinators for GNOME's participation in Google Summer of Code and a creator of the GNOME's newcomers tutorial and workshop. Prior to her community engagement role, Mrs. Zhurakhinskaya developed software for GNOME. She is an MIT graduate with Bachelor's and Master's degrees in Computer Science.

Shauna Gordon-McKeon is the Programs Director for OpenHatch. She develops and organizes Open Source Comes to Campus, an open source immersion workshop held at college campuses around the country. These workshops are aimed at newcomers and designed to welcome students from every background into the open source community, and to provide them with connections to projects and mentors. She maintains a list of programs which provide paid opportunities to work in open source. Ms. Gordon-McKeon is a Hampshire College graduate with a Bachelor's degree in Neuroscience. She contributes to open science and open government projects in her spare time.

Cindy Pallares is a senior majoring in Electrical Engineering at the University of Texas at Dallas. She is also a software engineering intern at Red Hat working on the Glance virtual machine image management component of the OpenStack cloud computing platform. She worked on the Marconi message queuing service for OpenStack in the December 2013 round of the Outreach Program for Women. In the past years, she has taught and mentored elementary, middle-school, and high school students in robotics, electronics, and hands-on engineering in the Austin area. Her interests are free and open source software, Python, and robotics.

Jonathan Garcia-Mallen is a sophomore majoring in EECS at MIT. Over the summer, he worked as a system administrator for the first-place MIT-Olin Maritime RobotX Challenge team, which uses an open source autonomy platform called MOOS-IvP. His interest in free and open source software began when he became a member of MIT's Student Information Processing Board. He assisted OpenHatch in organizing an Open Source Comes to Campus workshop at MIT. His previous exposure to teaching had been by tutoring other students

and training members of his high school robotics team. His other interests include computer languages, international development, and music.

Resume Writing Workshop Sponsored by Google

Location: Adams/Parliament/Baltic

Presenters: **Meron Tamrat**, Google; **Eric Yurko**, Google

This workshop will give attendees advice on best practices for crafting technical resumes for internships and jobs in industry. This session is a repeat session for attendees who missed this session on Wednesday.

2:00 PM – 3:00 PM

Ken Kennedy Distinguished Lecture

Location: American Ballroom

Algorithmic and Software Challenges when Moving Towards Exascale

Jack Dongarra, University Distinguished Professor, EECS, University of Tennessee

In this talk we examine how high performance computing has changed over the last 10-year and look toward the future in terms of trends. These changes have had and will continue to have a major impact on our software. Some of the software and algorithm challenges have already been encountered, such as management of communication and memory hierarchies through a combination of compile-time and run-time techniques, but the increased scale of computation, depth of memory hierarchies, range of latencies, and increased run-time environment variability will make these problems much harder.

BIOGRAPHY:

Jack Dongarra received a Bachelor of Science in Mathematics from Chicago State University in 1972 and a Master of Science in Computer Science from the Illinois Institute of Technology in 1973. He received his Ph.D. in Applied Mathematics from the University of New Mexico in 1980. He worked at the Argonne National Laboratory until 1989, becoming a senior scientist. He now holds an appointment as University Distinguished Professor of Computer Science in the Computer Science Department at the University of Tennessee and holds the title of Distinguished Research Staff in the Computer Science and Mathematics Division at Oak Ridge National Laboratory (ORNL), Turing Fellow at Manchester University, and an Adjunct Professor in the Computer Science Department at Rice University. He is the director of the Innovative Computing Laboratory at the University of Tennessee. He is also the director of the Center for Information Technology Research at the University of Tennessee which coordinates and facilitates IT research efforts at the University.

He specializes in numerical algorithms in linear algebra, parallel computing, the use of advanced-computer architectures, programming methodology, and tools for parallel computers. His research includes the development, testing and documentation of high quality mathematical software.



He has contributed to the design and implementation of the following open source software packages and systems: EISPACK, LINPACK, the BLAS, LAPACK, ScaLAPACK, Netlib, PVM, MPI, NetSolve, Top500, ATLAS, and PAPI. He has published approximately 200 articles, papers, reports and technical memoranda and he is coauthor of several books. He was awarded the IEEE Sid Fernbach Award in 2004 for his contributions in the application of high performance computers using innovative approaches; in 2008 he was the recipient of the first IEEE Medal of Excellence in Scalable Computing; in 2010 he was the first recipient of the SIAM Special Interest Group on Supercomputing's award for Career Achievement; in 2011 he was the recipient of the IEEE IPDPS Charles Babbage Award; and in 2013 he was the recipient of the ACM/IEEE Ken Kennedy Award for his leadership in designing and promoting standards for mathematical software used to solve numerical problems common to high performance computing. He is a Fellow of the AAAS, ACM, IEEE, and SIAM and a member of the National Academy of Engineering.

5:30 PM – 7:30 PM

Poster Session

Location: Essex North

The Tapia technical poster session provides an opportunity for students to present their latest research results and methodologies to a wide conference audience. Winners of the top posters (1st, 2nd, & 3rd place) will be recognized at the conference banquet.

3D Human Hand Motion Detection Using MEMS Inertial and Magnetic Sensors

Fatemeh Abyarjoo, Florida International University; **Armando Barreto**, Florida International University; **Naphtali Rische**, Florida International University; **Francisco Ortega**, Florida International University; **Nonarit O-Iarnnithipong**, Florida International University; **Jonathan Cofino** Florida International University

Aggregating Results from Multiple Related Queries to Improve Web Search Over Sessions

Ashraf Bah Rabiou, University of Delaware

An Approach for Recognizing Freehand Sketched 3D Geometric Primitives in Continuous Interaction Spaces

Paul Taele, Texas A&M University; **Tracy Hammond**, Texas A&M University

An Empirical Analysis of Stop-and-Frisk in New York City

Khanna Pugach, Baruch College; **Derek Sanz**, Brooklyn College; **Siobhan Wilmot-Dunbar**, Pace University; **Md. Afzal Hossain**, New York City College of Technology

An Evaluation of SciDB for Metagenome Analysis

Katherine Sittig-Boyd, Simmons College

Analyzing the Security Infrastructure of the Android Operating System

Derek L. Morris Jr., Elizabeth City State University

Context Dependent Prosody: Investigating Pitch Contours in Verbal Communication

Jillianna Farietta, Simmons College; **Patcharaporn Israsena**, Simmons College; **Maria Romero**, Simmons College; **Katherine Sittig-Boyd**, Simmons College

Creating the Largest Database of Protein Models for Improving Scoring Functions Using Machine Learning Techniques

Ricardo Ferreira, Mountain View College

Design, Testing, and Analysis of an Inexpensive Field Work Platform

Kristin M. Muterspaw, Earlham College; **Ruth Y. Lewis**, Earlham College; **Anna M. Plotkin-Swing**, Earlham College

Discovering Probabilistic Use Cases in MOOCs

Cody A. Coleman, MIT; **Daniel T. Seaton**, MIT

Evaluating Social Networking Sites for Privacy Leaks

Danielle Butts, Norfolk State University

Evaluation of the Quality of Wavelet Compressed Neural Signals Based on Spike Sorting Performance

Sylmarie Dávila-Montero, University of Puerto Rico - Mayagüez; **Yuning Yang**, Michigan State University; **Andrew Mason**, Michigan State University

Eyes-Free Browsing with Voice-controlled Aural Flows

Romisa Rohani Ghahari, Indiana University-Purdue University Indianapolis; **Daide Bolchini**, Indiana University-Purdue University Indianapolis

Graphics Processing Unit (GPU) Based Implementation of Correlation Power Analysis (CPA) to Break Encryption Keys

Neel P. Shah, Northeastern University

H-AES: A Fast and Reliable Security Solution for Cloud Computing

Nevrus Kaja, University of Michigan - Dearborn; **Adnan Shaout**, University of Michigan - Dearborn; **Mikhail Borovikov**, University of Michigan - Dearborn

High-Throughput Computational Screening of Nanoparticles for Chemical Catalysis

Benjamin Corona, University of Texas at Austin

How Do You IM When You Get Emotional?

Afarin Pirzadeh, IUPUI; **Mark Pfaff**, IUPUI

Leveraging Data Science to Attract High School Students to Computer Science

Aaron L. Smith, Norfolk State University; **Vanessa D. Hammond**, Norfolk State University; **Desmond O. Ellsworth**, Norfolk State University; **Cytricia N. Eaton**, Norfolk State University

Light Detection and Ranging: Studying Atmospheric Wave's Properties

Joseph Colon, Universidad Metropolitana



Maestoso: Triumphant and Heroic Sketch Recognition for Music Education

Laura Barreto, Vassar College; **Paul Taelle**, Texas A&M University; **Stephanie Valentine**, Texas A&M University; **Tracy Hammond**, Texas A&M University

Measuring the Efficiency of Rapid Application Development Languages (LiveCode) in Creating Cross-Platform Software

Carla De Lira, California Lutheran University; **Craig Reinhart**, California Lutheran University

Modular Extensible Framework for Performance Comparative Analysis

Simone Smarr, Spelman College; **Tanzima Islam**, Lawrence Livermore National Laboratory; **Yolanda Rankin**, Spelman College

Optimal Classroom Views for Deaf Students

Vasu Gupta, RIT

Self-Balancing Bikes: Locally Re-routing Users to Improve the Flow of Bike Share Programs

Franky Rodriguez, St. Joseph's College; **Jahaziel Guzman**, Brooklyn College; **Donald E. Hanson II**, Adelphi University; **Briana Vecchione**, Pace University

SmartStrokes: Evaluating Automated Cognitive Testing for Stroke Patient Diagnosis and Recovery

Raniero A. Lara-Garduno, Texas A&M University; **Nick Melnyk**, Texas A&M University; **Paul Taelle**, Texas A&M University; **Tracy A. Hammond**, Texas A&M University

The Use and Misuse of Disposable Email

Krista M. LaFentres, Oberlin College; **Stephen Checkoway**, Johns Hopkins University; **Cynthia Taylor**, Oberlin College

Using a Mobile Application to Encourage Community Interactions at a Local Event

Sarah Alice Hanna, Barnard College; **Jess Kropczynski**, Shippensburg University of Pennsylvania; **Patrick Shih**, Pennsylvania State University; **John Carroll**, Pennsylvania State University

Using Motion Planning to Study Ligand Binding

Ogenna Esimai, University of Texas at Arlington

Visualizing Big Data Through Juxtaposition

Natalia Rodriguez, Southwestern University

7:30 PM – 8:15 PM

Birds of a Feather Sessions

Coalition to Diversify Computing: Looking for a Few Good Partners

Location: American North-Center

Presenters: **Manuel A. Pérez-Quiñones**, Virginia Tech; **Jamika Burge**, University of California at Los Angeles

The Coalition to Diversify Computing (CDC) is a organization of computing professionals who volunteer their time to support technical diversity throughout academic, industry, and government. As a group, we organize and manage projects that address the shortfall of trained personnel from underrepresented groups in computing research. We also help to develop a diverse community of professionals that can effectively meet the computing demands of an evolving society. The goal of this BOF is to present a high-level view of CDC to those interesting in learning more about our programs. We also invite interested individuals with an interest in joining the CDC to attend and support the continued growth of the diversity in computing. In particular, we are interested in students and professionals willing to help expand the organization's mission to high schools, industry and government.

BIOGRAPHIES:

Dr. Manuel A. Pérez-Quiñones is Associate Professor of Computer Science at Virginia Tech. His full bio appears on page 12.

Jamika Burge is the Director of Assessment Technology Product and Research at the Smarter Balanced Assessment Consortium at the University of California at Los Angeles (UCLA). Her full bio appears on page 12.

Using Twitter to Empower Minority Women in STEM

Location: Gloucester/Newberry

Presenters: **Khalia Braswell**, University of North Carolina-Charlotte; **Sarah Brown**, Northeastern University

This session will highlight how to use Twitter as a platform to explore prime opportunities with a unique reflective format based on experiences of the NSBE Empowering African American Women in STEM Task Force. According to the Pew Internet Research Project, 40% of the African-American female population who use social networking sites, use on Twitter. As a result, to build awareness for the initiative and generate momentum, the task force hosted several Twitter chats. While a Twitter chat is largely an unstructured conversation, the open social nature produces a better response than a survey. Participants will leave with a guide to facilitate their own Twitter chats and a better perspective on how to use digital communities in order to facilitate a discussion in real-time. By encouraging engagement, we hope to demonstrate the livelihood of the community of Minority women in STEM.

BIOGRAPHIES:

Khalia Braswell is a graduate student in the Information Technology Masters Program at the University of North Carolina at Charlotte. She received her Bachelors of Science degree in Computer Science from North Carolina State University. Braswell is passionate about helping to increase the lack of women in the technology field and founded INTech, a one-day coding camp for girls. Braswell has decided to take a leave of absence from her studies to complete a one-year internship at Apple, Inc. in California.



Sarah Brown is a PhD Candidate in the Electrical and Computer Engineering Department at Northeastern University, a Draper Laboratory Fellow and a National Science Foundation Graduate Research Fellow. Her research area is machine learning and her work involves development and analysis of algorithms that assist in understanding of data from psychology experiments. Sarah is a passionate advocate for underrepresented STEM engagement and has published on this topic as well. Sarah is currently serving as the National Academic Excellence Chair and a member of the Empowering African American women in STEM Task Force for the National Society of Black Engineers.

Disability: Celebrating a Face of Diversity

Location: St. George

Presenter: **Richard Ladner**

This Birds of a Feather session will bring together people who have a disability or who are interested in those who are. Even among those who have a disability there is great diversity, but there are also many common experiences. The goal of the session is learn from each other about strategies for achieving success. The session will include information about the opportunities available from AccessComputing, a NSF-funded Broadening Participation Alliance.

BIOGRAPHY:

Richard E. Ladner is a Professor in the Department of Computer Science and Engineering at the University of Washington. His full bio appears on page 4.

Pathways to STEM: A Model for Implementing Engaging Workshops for Youth in Your Community

Location: Adams/Parliament/Baltic

Presenters: **Danielle Cummings**, Department of Defense; **Rosario Robinson**, Anita Borg Institute; **Loretta Cheeks**, Arizona State University; **Jamika Burge**, University of California at Los Angeles; **Jennifer Argüello**, Kapor Center for Social Impact; **Errol King**, Hidden Level Games

Hispanic Americans, African Americans and Native Americans are the three most underrepresented groups in terms of enrollment and degrees awarded within Computing fields [Taulbee Survey, 2014]. As a result, professionals in STEM must make an effort to actively engage young adults at the time, and preferably before, they begin contemplating their future careers. Black Women in Computing (BWIC), in collaboration with various organizations (i.e. Black Girls Code, Hidden Level Games, etc.), has hosted successful game development and programming workshops for under-served/underrepresented youth in multiple cities throughout the country. In this BoF we will discuss our model for implementing this type of event within a community. We will discuss how to develop a workshop, obtain corporate and community funding/support, advertise an event to the community, and more. We will share our experiences (what worked, what didn't work) and

give attendees the opportunity to do the same as well as ask questions.

BIOGRAPHIES:

Danielle Cummings is a Computer Systems Researcher for the Department of Defense. She is also the founder and committee chair of Black Women in Computing, a community focused on increasing the number of black women in computing-related fields. She is a former instructor for Girls Who Code, and frequently hosts and participates in various STEM-based educational programs targeting minority youth. Danielle holds a B.A. in Computer Science and a B.A. in Art from The Ohio State University, an M.S. in Software Engineering from the University of Houston, Clear Lake, and a Ph.D. in Computer Science from Texas A&M University.

Rosario Robinson, Senior Manager, ABI Communities and accomplished technical woman was recently (March 2014) listed in The 100 Most-Wanted Speakers at Tech Conferences. Rose is Her Systems' Keeper, the largest virtual community of technical women with more than 5,000 members from over 54 countries, and diversity manager for ABI communities (Black Women in Computing, Latinas in Computing, LGBT, Turkish Women in Computing, Arab Women in Computing and others). With more than 20+ years in the IT industry, her technical expertise includes global consulting in the areas of IT Project Management for Telecom, Mobile and eCommerce software implementations.

Loretta Cheeks have developed systems & led development teams within the communications, radio, avionics, instrumentation & control and chemical industries. After Cheeks spent 20 years engineering technical solutions for Fortune 500 corporations, she started the journey to achieve a lifelong goal, which is to earn a PhD in Computer Science. Cheeks is currently a full-time PhD graduate student as an Adobe Foundation GEM Fellow at Arizona State University in the School of Computing, Informatics and Decision Systems Engineering. Cheeks founded StrongTIES STEM Program to promote STEM education that emphasizes creativity, problem-solving, collaboration and a sustainable education program using computer technologies.

Jamika Burge is the Director of Assessment Technology Product and Research at the Smarter Balanced Assessment Consortium at the University of California at Los Angeles (UCLA). Her full bio appears on page 12.

Jennifer Argüello is the Senior Tech Advisor at the Kapor Center. She is a speaker and thought leader on women in technology and Latino(a)s in STEM. She has been a leader in STEM focused organizations namely the Society of Hispanic Professional Engineers and Latinas in Computing. She sits on various advisory boards including: Yes We Code, CODE2040, and Globaloria. She was recently named a 2013 Silicon Valley Latino 40 under 40 Latinos2Watch in Science and Technology and in she was 2011 Femmeconomics Top 50 Women to Watch in Tech2010. She holds a BS in Computer Science from UC San Diego.



Errol King is a creative technologist, educator and social entrepreneur. He is a Founder and Creative Director at Hidden Level Games the producers of Beta. A self-taught game developer he can program in a multitude of languages and loves getting hands on with electronic prototyping in Arduino. His passion is the use of media and gaming as a force for converting consumers to producers.

How to Make A Million Dollars in Five Years or Less

Location: American South

Presenter: **Marcus Huggans**, National GEM Consortium

This Birds of a Feather Session will prove the fundamental belief of the 21st century and beyond: all STEM professionals should hold an advanced STEM degree. Particularly, the participants will gather information about career and financial implications of NOT obtaining a graduate degree. If you think all you need is a bachelor's degree to be competitive in the global society or that you should work first then go back to graduate school, YOU CAN'T MISS THIS SESSION! Come find out why graduate school is not an option by necessity, and the \$Million Dollar reasons you should attend graduate school.

BIOGRAPHY:

Dr. Marcus A. Huggans is a native of St. Louis, Missouri and was educated in the University City and Lutheran Parochial school systems. Dr. Huggans completed his engineering studies at the University of Missouri-Rolla. He received a B.S. degree in Electrical Engineering and M.S. & Ph.D. in Engineering Management. He was one of the first African-American males to earn a Ph.D. in this discipline from the University. Dr. Huggans is an alumnus of the GEM Fellowship Program. Dr. Huggans has extensive experience in the STEM field with over twenty years of working in the industry, academia, and non-profits. He has worked for 3M Company, AT&T Bell Laboratories, Department of Justice-Federal Bureau of Investigation (FBI), and Texas Instruments Inc, University of Missouri-Rolla (UMR) now known as Missouri S&T, and the National GEM Consortium. He began working at the National GEM Consortium in 2006 and is the Senior Director of External Relations at GEM.

8:15 PM – 9:00 PM

Birds of a Feather Sessions

Cryptocurrency Creation and Verification

Location: Gloucester/Newberry

Presenters: **Eric Studley**, Globus Medical; **Durga Suresh**, Wentworth Institute of Technology

Bitcoin is a decentralized cryptocurrency that has recently gained a massive influx of attention from both the technology sector and the general public. The cryptographic methods used to operate the Bitcoin network and other cryptocurrencies like it are complex and not easily understandable by a non-technical user, but new users should

still be assured that the transactions they make are legitimate and that the protocol as a whole is secure. During this talk, the methods used to secure and facilitate transactions within a cryptocurrency protocol will be explained. This discussion will aim to provide an intermediate level explanation to someone completely new to Bitcoin and will also serve to reinforce the average users' understanding. Bitcoin, and other related virtual currencies, will continue to grow in popularity in the future. Learning about how transactions are processed and verified is essential to being an informed cryptocurrency user.

BIOGRAPHIES:

Eric Studley is a recent graduate of Wentworth Institute of Technology with a bachelor's degree in Computer Science. He has been learning about and actively using Bitcoin and other cryptocurrencies since 2012, and in his senior year created software to facilitate and help with Bitcoin transactions. Eric is originally from Boston, and is currently a Qt/QML Associate Software Engineer at Globus Medical in North Andover, Massachusetts.

Durga Suresh, Associate Professor in Computer Science, is close to completing 14 years at Wentworth Institute of Technology. She has been enthusiastically involved with the scholarship of teaching for many years. Her research interest are in software defined radios, cognitive radios, dynamic spectrum access, software engineering and information fusion. Passionate about education and knowledge imparting methods, Durga is currently working on undergraduate research to make student's learning experience richer. Durga was also a part of the interdisciplinary collaboration exchange between faculty and students at Wentworth and dove-tailed to this is her specialty which is creating online learning communities among students.

Taking Action to Increase Diversity

Location: Parliament/Adams/Baltic

Presenters: **Raquell Holmes**, improvescience; **Tim Hickey**, Brandies University

The landscape of computing has changed. Instead of low enrollments of computer science majors, we now have large numbers. During this period of high enrollment, what should we do to maintain and increase participation by underrepresented groups? In this BoF, students and faculty will talk with one another on how to improve and advance efforts to increase diversity in computing. Help us identify and develop nucleation points for action and collaboration beyond the conference. What would we consider success? What is a diverse community when our numbers of women and underrepresented minorities are low? What collaborations are needed or programs need to be emulated to advance the inclusion and development of underrepresented minorities in computing? Through a combination of facilitated exercises and open dialog, participants will seed new alliances for increasing participation in computing.



BIOGRAPHIES:

Raquell Holmes is an Assistant Research Professor with appointments at the Center for Computational Sciences at Boston University and adjunct Associate Professor at the Mathematical Computational Modeling Sciences Center of Arizona State University. She has years of experience training biologists to use computing in their teaching and research. She founded improvscience to provide scientists with opportunities to develop skills in leadership, collaboration and inclusion. Since its inception improvscience has worked with over a thousand technologists and scientists to help them communicate and collaborate with one another. She is one of the founders of the New England Undergraduate Computing Symposium as part of the New England regional effort of the Empowering Leadership Alliance.

Tim Hickey is a Professor of Computer Science with 30 years of teaching experience and 20 years of research. His interests in both theoretical computer science and the use of theoretical results to build useful innovative applications in collaboration, computer-supported education, scientific computing, visualization, and programming language design. He is a member of the Film Studies program faculty and a founder of the New England Undergraduate Computing Symposium in collaboration with the New England regional effort of the Empowering Leadership Alliance.

Hispanics in Computing Community

Location: American North-Center

Presenters: **Manuel A. Pérez-Quiñones**, Virginia Tech; **Jose Andre Morales**, Carnegie Mellon University –CERT; **Dan Garcia**, UC Berkeley

The HispanicPhD mailing list was founded a few months before the Tapia 2009 Conference. At the 2011 Conference in San Francisco we changed the name and expanded the group to include all Hispanics in Computing (not just PhD level). The current group has hundreds of Hispanics Computer Scientists and the listserv is sought out as a place to support each other, announce jobs, seek collaborators, and announce some of the successes of our members (tenure announcements and defense results are common). We propose to continue our tradition of meeting at the Tapia conference, in a BoF for the Hispanic community. The gathering will allow many of us to meet face to face and discuss issues facing Hispanics in Computing. In addition, we hope to continue growing the listserv and our online community.

BIOGRAPHIES:

Dr. Manuel A. Pérez-Quiñones is Associate Professor of Computer Science at Virginia Tech. His full bio appears on page 12.

Dr. Jose Andre Morales is a Researcher in the Software Engineering Institute - CERT at Carnegie Mellon University. His research is in cyber security with a focus on behavior based malware analysis and detection, suspicion assessment theory and implementation, mobile malware, and malware distribution networks. He has extensive experience in building dynamic analysis systems for executable programs. He holds a Ph.D. in Computer Science from Florida International University. He was a post-doc in the Institute for Cyber Security at UT San Antonio. He is co-founder of the Hispanics in Computing email list. He is a Senior Member of the ACM and IEEE.

Dan Garcia is a Senior Lecturer with Security Of Employment (i.e., “tenured” teaching professor) in the EECS Department at UC Berkeley. He has won all four of the department’s teaching awards, and was chosen as an ACM Distinguished Educator in 2012. His research interests are computer science education and online learning at scale. He serves on the ACM Education Board, the AP Computer Science Principles Development Committee, and has spent the past five years sharing his Beauty and Joy of Computing curriculum with almost 200 high school teachers across the country with the goal of broadening participation in computing.

Exploring Cybersecurity Experimentation with Linux and DETER

Location: American South

Presenters: **Elizabeth Bautista**, Lawrence Berkeley National Lab; **Sowmya Balasubramanian**, Lawrence Berkeley National Lab; **Graciela Perera**, Northeastern Illinois University; **Rose Dillion**, University of St. Thomas

Linux powers 94% of the world’s supercomputers, most of the servers powering the Internet, and a billion Android devices. Understanding cyber-security attacks and defenses in Linux environment is a complex problem with few facilities enabling cyber-security experimentation. This session will provide an introduction to some of the tools and techniques available to understand the complexity of cyber-security attacks. We will use DETERLab to provide hands on experience to the participants. This session is designed for anyone who has limited or no previous exposure to Linux. During the session you will gain an understanding of Linux from the command line perspective. Using the DETER Testbed, you will also learn how to create and use public key cryptography tools, use and search online security documentation, protect files and directories, access resources throughout the file system, and write shell scripts.



BIOGRAPHIES:

Elizabeth Bautista is Group Lead for the Operations Technology Group (OTG) at Lawrence Berkeley National Lab's National Energy Research Scientific Computing (NERSC) Center. Bautista's group ensures 24x7 accessibility, reliability, and security of NERSC's High Performance Systems, data storage systems and of the Energy Sciences Network (ESnet). NERSC is the primary scientific computational facility for the Office of Science in the U.S. Department of Energy. She supports programs that involve women and girls in and champions issues of retention policy and diversity. She has a B.S. in Computer Information Systems and an M.B.A. in Technical Management from Golden Gate University.

Sowmya Balasubramanian began her career at Berkeley Lab as a software engineer in the Scientific Networking Division after graduating from Carnegie Mellon University with a Masters in Information Networking. She develops software/middleware and tools for high-speed networks, clouds and distributed systems. Her work helps scientists to do their research efficiently and create solutions to critical problems like global warming, cancer, etc and this excites and motivates her. She also loves to work with students to inspire and to motivate them to pursue a career in technology. In her spare time, Sowmya loves to paint and read books.

Graciela Perera is an assistant professor in the Computer Science Department at Northeastern Illinois University since Fall 2013. During Spring 2012, Graciela Perera was a visiting professor at University of Texas at El Paso. Her research interests are computer networks and protocols, distributed systems, and applied security. Focusing on next generation networks; wireless sensor networks applications, and infrastructure safety. She was the recipient of the 2011 Estrella de LUNA award from Ohio's Latinas United Networking Association. She is part of the Computing Alliance for Hispanic-Serving Institutions (CAHSI).

Rose Dillon is a recent graduate of the University of St. Thomas, Minnesota. She has a Master's degree in Software Engineer and B.S. in Computer and Information Technology. Her senior research focused on the socio-economics and technological gap of the Digital Divide between wealthy and underprivileged communities. Her career spans 9+ years in the IT industry across multiple disciplines. She is passionate about using technology to enhance the lives of individuals and groups less privileged. She enjoys expanding her knowledge and working on technology projects that aim to apply innovative solutions to improve the human experience.

Scaling Up Diversity in REUs: Broadening Participation of Underrepresented Groups in Undergraduate Research Experiences

Location: St. George

Presenters: **Vetria Boyd**, Clemson University; **Samuel Moore**, University of Texas-Austin

Students who participate in REUs gain valuable insight into graduate school, an appreciation for collaboration and the research process. There are numerous REU programs and REU sites yet there seem to be a disproportionate number of underrepresented groups participating in these research experiences. Most underrepresented undergraduates are unaware of research opportunities or they learn of research opportunities late in their undergraduate careers compared to their counterparts. This BOF will start a discussion among participants who are interested in or have put into practice efforts to recruit members from underrepresented groups, and provide a platform for the discussion of how to get faculty, students and staff to engage in the effort to broaden participation of underrepresented groups in undergraduate research experiences. BOF attendees will be able to hear multiple viewpoints from REU Site coordinators from the University of Texas and Clemson University who share their challenges for recruiting underrepresented participants.

BIOGRAPHIES:

Dr. Vetria L. Byrd, Director of Advanced Visualization at Clemson University's Computing and Information Technology Department, is Deputy Chair for the Education Outreach Track (EOT) for XSEDE15. Dr. Byrd is the creator of BPviz, an annual visualization workshop designed to broaden participation of women and underrepresented groups in visualization. Dr. Byrd is the REU Site coordinator for the NSF funded REU Site in Collaborative Data Visualization Applications at Clemson University. Dr. Byrd holds a Ph.D. in Computer and Information Sciences, Master's degrees in Computer Science and Biomedical Engineering and a Bachelor's degree in Computer Science.

Dr. Samuel Moore is the Director of Outreach and Diversity at Jackson School of Geosciences in Austin, Texas. Dr. Moore served as Program Coordinator for Education, Outreach and Training at the University of Texas at Austin where he focused on the promotion, coordination and evaluation of undergraduate and graduate coursework in scientific computation to cultivate the next generation of researchers who will make discoveries that advance science and society through the application of advanced computing technologies. Dr. Moore is the coordinator of the NSF REU Site: Integrative Computational Education and Research Traineeship at the University of Texas at Austin.

**8:30 AM – 9:15 AM****Plenary Speaker**

Location: American Ballroom

Superhuman Computing: Designing Custom Software and Hardware Interfaces to Support Our Natural Abilities

Shaun Kane, Assistant Professor, University of Colorado Boulder

In recent years, human-computer interfaces have expanded from a relatively standardized set of inputs and outputs (keyboards, mice, and monitors), to a broad ecosystem of device form factors with diverse input, output, and sensing methods. This diversity of human-computer interaction methods can benefit all computer users, but may be especially helpful for individuals with disabilities.

In this talk, I will discuss our recent efforts to create more accessible computing technologies for individuals with a range of abilities, including new mobile and wearable technologies for people with vision impairments, gesture-sensitive wheelchair interfaces, and hands-free user interfaces for wearable computing. I will further discuss how the rise of low-cost fabrication technologies such as 3D printers will enable users with diverse abilities to create their own individualized computing solutions.

BIOGRAPHY:

Shaun Kane, Ph.D., is an Assistant Professor in the Department of Computer Science at the University of Colorado Boulder. Prof. Kane earned both his B.S. (2003) and M.S. (2005) in Computer Science from the University of Massachusetts, and an M.S. (2011) and Ph.D. (2011) in Information Science from the University of Washington. Prof. Kane's research focuses on designing new accessible technologies for people of all abilities, including individuals with disabilities, older adults, and individuals using technology in distracting situations.

9:45 AM – 10:30 AM**Plenary Speaker**

Location: American Ballroom

Putting the Power of Data into User's Hands: Launching BI@Microsoft

Jacky Wright, Vice President, Microsoft IT Strategic Enterprise Services

The world of technology is dominated by several "megatrends" – Social, Mobile, Analytics and Cloud, also known as SMAC. In all of these areas, access to and the ability to easily manipulate data is critical to success. Gone are the days when white-coated data scientists controlled and interpreted the information sets within an organization – now it is the individual knowledge worker who can tap into data to gain insights for effective decision-making. Technology plays a fundamental role in helping those individual workers effectively develop, curate and interpret data to help drive their business forward.

In this talk, I will discuss how Microsoft put the power of data into our team's hands through Excel's Power BI features. Learn how we forged an effective partnership with our Product Development group to create best practices for user adoption, and to drive rapid, iterative development of our tools.

BIOGRAPHY:

Jacky Wright is a seasoned, global leader in Information Technology, who has made a broad impact in business and on key social issues. She draws on extensive global experience in strategy, consulting, large-scale program development, implementation, and management across a variety of industries. As Vice President of Microsoft IT Strategic Enterprise Services, Jacky Wright is responsible for all Enterprise Services and Platforms globally. She leads a team of more than 1,200 people worldwide to drive product and operational excellence, agility, and customer-centricity across the Company. Jacky is deeply engaged with senior Microsoft leadership to define Microsoft's product and service strategy for the enterprise and to build leading-edge customer products and services. Before assuming her current role at Microsoft, Jacky was VP/ CIO of Corporate Functions at BP. In that capacity she led all IT strategy, development and implementation for BP's Corporate, Alternative Energy, and Shipping segments as well as Mergers and Acquisitions. Jacky brings more than 20 years of technical and business experience to Microsoft, including CIO roles at GE and senior management roles at Accenture, AutoNation, and Ryder.

In addition to her professional leadership role, Jacky is passionate about creating positive change for historically excluded groups. As one of the most senior women of color in the industry, Jacky is committed to inspiring girls and women to pursue STEM careers, and to furthering the interests of and opportunities for under-served communities.

11:00 AM – 12:30 PM**Panels & Workshops**

Industry Perspectives of Diversity in K-12 Education

Location: Staffordshire

Moderator: **Jennifer Wang**, Google

Panelists: **Benjamin Shapiro**, Tufts University; **Tiffany Decker**, MIT; **Heather Carey**, MassTLC Education Foundation

Computer science education is increasingly important in today's technology-dependent world. But women and minorities continue to be underrepresented among those who create, rather than consume, technology. This is a critical workforce and equity concern. The technology industry in collaboration with researchers and educators are committed to increasing diverse participation. Google's latest research in K-12 CS education on women and minorities explored factors influencing decisions to pursue CS-related degrees, and another three-year study in progress details the U.S. CS education



landscape. Panelists present their organizations' approaches to increasing diversity in K-12 CS education with respect to the research.

BIOGRAPHIES:

Jennifer Wang is the Computer Science Education Outreach Program Manager on Google's K-12/Pre-Uni Education Outreach Team. At Google, she works to advance research and opportunities in computer science education. Her primary interest is in engineering and computer science activities and the impacts of open-ended tinkering activities in terms of STEM/CS learning. She received her Ph.D. in the Graduate Group in Science and Mathematics Education (focusing on Engineering Education), her B.S. in Electrical Engineering and Computer Sciences, and M.S. in Mechanical Engineering from the University of California, Berkeley.

Ben Shapiro is the McDonnell Family Professor of Engineering Education at Tufts University, where he is an assistant professor in the departments of Computer Science and Education. His research group, the Laboratory for Playful Computation, focuses on the design of playful and constructionist learning environments, with a focus on how design-rich computational problem solving can empower learners to understand and transform the world around themselves. Ben received his PhD from Northwestern University in Learning Sciences, and was a postdoctoral fellow in the Games+Learning+Society group at the Wisconsin Institutes for Discovery at the University of Wisconsin, Madison.

Tiffany Decker is the Manager of Operations and Evaluation at MIT's Office of Engineering Outreach Programs. She uses formative evaluation to improve programs and leads studies on program and curricular effectiveness with Harvard University, MIT Institutional Research, and the University of California, Berkeley. Named a district model teacher, Tiffany taught high school in Newark, NJ, from 2002 to 2005. She is passionate about access to STEM for underrepresented and underserved students and focuses on students' self-efficacy, cultural capital and experiences with microaggressions. She received a BA from Agnes Scott College and MEd in Higher Education from the University of Pennsylvania.

Heather Carey is the Executive Director for the MassTLC Education Foundation, where she focuses on increasing the number of students pursuing K-12 CS education. She transitioned after seven years with MassTLC working with the CEO on organizational development and expansion. She has been with technology associations for 10+ years, including serving as MassnetComms Associate Executive Director. Previously, Heather created school-to-career initiatives with School and Main Institute and served as Senior Program Officer for KAPOW. Heather has a BS in Elementary Education from the University of Hartford and a Masters in Politics and Education from Columbia University.

A Beginner's Guide to Visualization

Location: Essex North

Presenters: **Vetria Boyd**, Clemson University; **Lori Tanner**, Clemson University

This tutorial provides an introduction to visualization by exploring underlying principles used in information and scientific visualization. Hands-on exercises using Gephi (Information Visualization) and ParaView (Scientific Visualization) are designed to give participants experience in discerning what type of visualization tool would be most effective in gaining insight into different ways of interpreting data. The visualization process is presented as a vehicle for using visualization as a tool for knowledge discovery, gaining insight, making better informed decisions when analyzing data. The format will serve both those who wish to participate hands-on (using their own laptop) and those who wish to observe and ask questions.

BIOGRAPHIES:

Dr. Vetria L. Byrd, Director of Advanced Visualization at Clemson University's Computing and Information Technology Department, is Deputy Chair for the Education Outreach Track (EOT) for XSEDE15. Her full bio appears on page 19.

Dr. Lori Tanner is Director of Outreach, Education and Training at Clemson University's Computing and Information Technology Department. Prior to the joining Clemson University, Dr. Tanner was the director for the Student Technology Enrichment Program at the University of South Carolina Upstate. She has taught a variety of subjects for the School of Education including literacy, technology, curriculum, and research methods. She has achieved success in development, research and implementation of effective pedagogical application of technology in online and traditional learning. Dr. Tanner has insight and expertise in coordination of curriculum development, technology integration, and support for faculty, staff, and students.

When Working for Diversity in CS Becomes Your Day Job

Location: St. George

Moderator: **Rane Johnson-Stempson**, Microsoft Research
Panelists: **Valerie Barr**, Union College; **Maria Klawe**, Harvey Mudd College; **Manuel A. Pérez-Quiñones**, Virginia Tech

The panelists wear multiple hats; they are all computing researchers who have incorporated their passion for diversity in STEM into their professional work. They will share how they converted their passion for diversity in STEM into informed and effective service to help each attendee envision how they might support diversity in STEM in their current context as well as five, ten, and twenty years from now. The panelists will share advice for navigating the opportunities and challenges associated with balancing their scholarship and diversity-focused service. They have worked to support diversity throughout their careers in



small and (more recently) large ways. They will discuss how they have integrated diversity-focused service and how their work has changed throughout their careers. The panel is appropriate for anyone who seeks to make technical contributions alongside diversity-focused service.

BIOGRAPHIES:

Rane Johnson-Stempson engages with academics worldwide to identify high-impact areas for research investigations. She is working on projects that use technology to eradicate human trafficking & middle school girls' perceptions in STEM. Johnson serves as Microsoft Research's lead for growing, attracting, & retaining women in research, science, & engineering. She works with NCWIT, Anita Borg, CRA-W, & researchers to grow the pipeline of women. She is passionate about education & technology, with 18 years of experience in the field. Johnson is a graduate of Bucknell University with B.S. Mechanical Engineering/B.A. Economics/Finance, & George Fox University with an Executive MBA.

Valerie Barr is Professor of Computer Science, Union College. She studied Applied Mathematics at Mount Holyoke College, has a Masters from NYU, and Ph.D. in CS from Rutgers. She worked on automated blood analyzers, automated storage and retrieval machines, and banking back office operations. Recent research focused on verification and validation for natural language processing systems. She is heavily involved in development of interdisciplinary programs between CS and the humanities and social sciences, with a goal of increasing the number and diversity of CS enrollments. Valerie is chair of the Association for Computing Machinery Council on Women in Computing.

Maria Klawe began her tenure as Harvey Mudd College's first female president in 2006. She joined HMC from Princeton University after serving 14 years at the University of British Columbia. Prior to UBC, Klawe spent eight years with IBM Research in California and two years at the University of Toronto. She received her Ph.D. (1977) and B.Sc. (1973) in mathematics from the University of Alberta. In addition to numerous other commitments, Klawe is a member of the boards of Microsoft Corporation, Broadcom Corporation and Math for America, and is a fellow of the American Academy of Arts & Sciences.

Dr. Manuel A. Pérez-Quiñones is Associate Professor of Computer Science at Virginia Tech. His full bio appears on page 12.

A Programming Approach to the CS Principles Data Task

Location: Adams/Parliament/Baltic

Presenter: **Dan Garcia**, UC Berkeley

One of the big ideas for the proposed AP CS Principles course is: "Data". According to the curricular framework learning objectives, students must be able to: * 3.1.1 Use computers to

process information, find patterns, and test hypotheses about digitally processed information to gain insight and knowledge.

* 3.2.1 Extract information from data to discover and explain connections, patterns, or trends. * 3.2.2 Use large data sets to explore and discover information and knowledge. We will start by explaining the CS10K project (cs10kcommunity.org), the AP CS Principles curriculum framework (csprinciples.org), and UC Berkeley's Beauty and Joy of Computing (BJC) course (bjc.berkeley.edu). We use the Snap! graphical programming language (snap.berkeley.edu) and employ higher-order functions that make working with data elegant, efficient and fun. We'll also show the path from Snap! to Python that we utilize as we move, using a programming-centric focus, from small data to big data.

Please bring your laptop fully charged to the workshop as there will be a limited number of outlets to charge devices.

BIOGRAPHY:

Dan Garcia is a Senior Lecturer SOE in the EECS Department at UC Berkeley, and joined the faculty in 2000, after receiving his PhD there. His full bio appears on page 18.

2:00 PM – 3:30 PM

Panels & Workshops

Data Privacy Tools in the Age of Ubiquitous Data Collection

Location: Essex North

Presenters: **Pierre St Juste**, Miami University; **Renato Figueiredo**, University of Florida; **Corey Baker**, University of Florida

Recent government leaks, increased government requests for user data to private corporations, and unauthorized social experiments by Web companies have raised the public's awareness of the fragility of their "private" information. To address these concerns, researchers have a renewed interest in many anonymity and privacy tools to help users transition to a more private mode of operation on the Internet. Despite the availability of a plethora of tools, most users and researchers are intimidated by their complexity while assuming that the learning curve for such tools are too high. This workshop plans on unshrouding the veil of confusion by giving succinct explanations of the most prominent tools along with hands-on demonstrations showcasing their functionality. The ultimate goal is to generate more discussion and interest the urgency to address Internet privacy issues through intuitive tools that average end-users can leverage to ensure appropriate access and control over their private information.

BIOGRAPHIES:

Dr. Pierre St Juste is a Visiting Assistant Professor in the Computer Science and Software Engineering department at Miami University in Ohio. His research focuses on peer-to-peer virtual private networks (P2PVPNs) which allows end-users to



communicate privately at the IP layer without depending on a middleman. By leveraging encryption and P2P technologies, users can easily form ad-hoc virtual networks allowing for private collaboration. He helped develop SocialVPN (socialvpn.org), an open-source P2PVPN available freely on the Internet since 2009 and it has been downloaded over 25,000 times since its release.

Dr. Renato Figueiredo is an Associate Professor in the Electrical and Computer Engineering department at the University of Florida. He has extensive research background in visualization including virtual private networks. He has also done research in social networks, peer-to-peer networks, and cloud computing. Through his research, he has addressed issues dealing with private user communication, data storage and computation in the cloud. His work has been funded by government and industry including NSF, Intel, IBM, NASA, NOAA, and ONR. You can access some of his funded projects on the Web (ipop-project.org, grid-appliance.org).

Mr. Corey Baker is a PhD candidate in the Electrical and Computer Engineering department at the University of Florida. His research focuses on private user communication through delay tolerant networking. He designed the Low-Energy Socially-Cognizant Routing (LESC) protocol for social message routing through wireless mesh networks. Through his protocol, mobile users can disseminate private information among each other without any centralized infrastructure. His work therefore addresses the privacy concerns centralized social networking. His protocol also can also enable a messaging layer in disaster recovery and emergency response scenarios where centralized Infrastructure becomes unreliable or unavailable.

Increasing Diversity in the K-20 Computing Pipeline: Sharing Strategies & Best Practices

Location: Staffordshire

Moderator: **Valerie Taylor**, CMD-IT/Texas A&M University
 Panelists: **Richard Ladner**, University of Washington; **Beth Quinn**, NCWIT; **Jane Margolis**, UCLA ; **Rick Adrion**, University of Massachusetts-Amherst, **Mark Guzdial**, Georgia Tech; **Jamie Paton**, University of North Carolina-Charlotte; **Juan Gilbert**, University of Florida; **Moshen Beheshti**, California State University- Dominguez Hills

This panel will discuss some of the current strategies and good practices being implemented to broaden the participation of underrepresented communities in computing. Panelists featured are directors of programs that are part of the National Science Foundation Broadening Participation in Computing Alliance (NSF BPC) and lead organizations which are working on local and national initiatives addressing the need for the recruitment and retention of underrepresented communities in computing. The BPC Alliances were established between 2006 and 2009. The Alliances are national and regional

collaborations of academic institutions, educators, professional societies, community organizations, and industrial partners. Alliances include AccessComputing, Computing Alliance of Hispanic-Serving Institutions, Expanding Computing Education Pathways, Institute for African-American Mentoring in Computer Sciences, National Center for Women & Information Technology, Exploring Computer Science, Stars Alliance, The Computer Research Association's Committee on the Status of Women in Computing Research and the Coalition to Diversity Computing.

BIOGRAPHIES:

Dr. Valerie Taylor is the Senior Associate Dean of Academic Affairs in the Dwight Look College of Engineering, Regents Professor and Royce E. Wisenbaker Professor in the Department of Computer Science and Engineering at Texas A&M University. Her full bio appears on page 9.

Richard E. Ladner is a Professor in the Department of Computer Science and Engineering at the University of Washington. His full bio appears on page 4.

Dr. Beth Quinn serves as Director of Extension Services for Undergraduate Programs at the National Center for Women & Information Technology. Extension Services provides expert consulting to undergraduate computing programs seeking to increase the recruitment and retention of women in their majors. She also directs the EngageCSEdu project, a new online living repository of course materials for introductory CS courses. Developed with Google, materials in the EngageCSEdu collection are selected and peer-reviewed for pedagogical quality and their potential to engage students who might otherwise not choose CS as a major. She received her Ph.D. from the University of California-Irvine.

Jane Margolis, UCLA Senior Researcher, studies disparities in learning opportunities that fall according to race, gender, and socio-economics. She focuses on computer science education as an indicator and window into how inequality is produced in this country. Her research has resulted in national partnerships with K-12 school districts through the innovative high school program, Exploring Computer Science, that is committed to broadening participation in computing. Margolis is the lead author of two award-winning books: *Unlocking the Clubhouse: Women in Computing* (MIT Press, 2002), and *Stuck in the Shallow End: Education Race, and Computing* (MIT Press, 2008).

W. Richards (Rick) Adrion, with Renee Fall (UMass), Mark Guzdial (Georgia Tech) and Barbara Ericson (Georgia Tech), directs the Expanding Computing Education Pathways (ECEP) Alliance. His full bio appears on page 11.

Dr. Jamie Payton is the Director of the STARS Computing Corps, an NSF-funded national alliance of over 50 colleges and universities that engages a diverse group of undergraduate students in service learning projects with regional K-12



schools, industry, and community partners to inform, engage, and prepare future students for entry and success in college computing programs. In addition to advancing computer science education and broadening participation, her research interests include crowdsensing, activity recognition, quality of information, and information acquisition protocols for pervasive computing environments. She is currently an Associate Professor of Computer Science at the University of North Carolina at Charlotte.

Dr. Juan E. Gilbert is the Andrew Banks Family Preeminence Endowed Chair and the Associate Chair of Research in the Computer & Information Science & Engineering Department at the University of Florida where he leads the Human Experience Research Lab. His full bio appears on page 12.

Mark Guzdial is a Professor in the School of Interactive Computing in the College of Computing at Georgia Institute of Technology. His full bio appears on page 11.

Mohsen Beheshti is the Chair and Professor of Computer Science Department at California State University - Dominguez Hills. His research interests include Network Security, Big Data, Senso Networks, Multidisciplinary research, and Curriculum Development. He is the director of Center for Excellence in Knowledge Management and Computational Science (CECS) to promote research and education for the college. He is also the director of Computer Science Research Lab (CSRL) conducting research in Intrusion Detection system and Data Mining in collaboration with other faculty and undergraduate/graduate students. He is also a member of IEEE, ACM, Sigma Xi, CAHSI, CWW, and SACNAS.

Artbotics with Lego Mindstorms EV3

Session limited to 30 hands on participants

Location: Adams/Parliament/Baltic

Presenters: **Adam Norton**, University of Massachusetts-Lowell; **Holly Yanco**; University of Massachusetts-Lowell

This workshop introduces participants to the Artbotics program, which combines art and robotics to teach students about computer science while creating kinetic, interactive sculptures. An overview of the program will be covered, and participants will be introduced to the Lego Mindstorms EV3 platform, a new adaptation of the Artbotics curriculum. Participants will produce spirograph-like drawings by programming a Lego Mindstorms EV3 car holding a marker to drive using a sequence of motor movements, teaching the need for looping in programming, in an activity called "Driving and Drawing"; examples can be seen here <http://www.youtube.com/watch?v=8w11eFG31bo> and <http://www.youtube.com/watch?v=SNn3eeZjiO4>. Other activities from the Artbotics curriculum, such as "Exploring Mechanisms" and "Reacting to Sensors" will also be briefly covered. The workshop will close

with a discussion of best practices and lessons learned for those looking to hold Artbotics classes or use Artbotics curriculum in their classrooms. Lego Mindstorms EV3 software is available for free at <http://www.lego.com/en-us/mindstorms/downloads/software/ddsoftwaredownload>, which you can download and install prior to the workshop.

Please bring your laptop fully charged to the workshop as there will be a limited number of outlets to charge devices.

BIOGRAPHIES:

Adam Norton is the Manager of the New England Robotics Validation and Experimentation (NERVE) Center. His research interests include the design of robot control interfaces, evaluation methods for robots and end users, and using robotics for outreach with students. At the NERVE Center Adam is responsible for evaluating robot capabilities and developing new test methods for robots and end users of robots. He is also a core developer of the Artbotics program and designer for the UMass Lowell Robotics Lab. He graduated from UMass Lowell in 2010 with a Bachelor's Degree in Fine Art and Graphic Design.

Holly Yanco is a Professor of Computer Science at UMass Lowell and the Director of the New England Robotics Validation and Experimentation (NERVE) Center. Her research interests include human-robot interaction, multi-touch computing, interface design, autonomy, trust of autonomous systems, evaluation methods for human-robot interaction, and the use of robots in K-12 education to broaden participation in computer science. Yanco's research has been funded by NSF, including a CAREER Award, ARO, DARPA, NIST, and Google. She has a PhD and MS in Computer Science from the Massachusetts Institute of Technology and a BA in Computer Science and Philosophy from Wellesley College.

Social Computing: Perspectives from Industry

Location: American Ballroom

Moderator: **Ronald Metoyer**, Oregon State University
Panelists: **Dwyane Reeves**, Facebook; **Fernando Diaz**, Microsoft Research; **Gillian Chin**, Twitter

Social computing is a broad topic that generally exists at the intersection between computational and social systems. It can be viewed as the support of social behavior through computational systems (e.g. social networks), or conversely, as computation by social systems (e.g. collaborative filtering), or even as the use of computing for addressing social problems. In this panel, industry leaders will come together to discuss what Social Computing means to each of them and how it is integrated into their research and product-related efforts. The panel will discuss the many faces of social computing and what they each see as the pressing issues to be addressed in the Social Computing area over the next 5-10 years.



BIOGRAPHIES:

Ronald Metoyer is an Associate Professor in the School of Electrical Engineering and Computer Science at Oregon State University. He earned a Ph.D. from the Georgia Institute of Technology where he worked in the Graphics, Visualization and Usability Center with a focus on modeling and visualizing the motion of pedestrians in urban and architectural scenes. In 2002, he received an NSF CAREER Award for his work in "Understanding the Complexities of Animated Content". Dr. Metoyer's current research interest is in gaining an understanding of how the everyday user is affected by the large amount of data available to them and how they can and do use this data to solve problems and inform decisions. He is especially interested in supporting the visual exploration of large multivariate datasets with an emphasis on diversity analysis.

Gillian Chin is currently a data scientist at Twitter, focusing on developing intelligent systems that can be used to study user behavior, particularly around engagement with social media outlets and newly developed product features. She has worked on projects spanning from classical machine learning problems, such as identifying macro-level interests of Twitter users via their browsing habits and network structure, to theoretical analysis, such as quantitatively assessing the casual impact of user actions on the platform with respect to retention. She is currently working closely with expression-related projects to evolve the Twitter service to better identify and facilitate tweeting behavior and/or use cases. Gillian Chin received her PhD from Northwestern University in 2013, focusing on the integration of nonlinear optimization techniques with large scale statistical learning problems. She was supported by fellowships from the Natural Science and Engineering Research Council of Canada and the Northwestern Cabell Fellowship. She has previously worked at Argonne National Laboratory in the Mathematics and Computer Science Division, and Google Research NYC, developing distributed asynchronous optimization routines for statistical learning.

Fernando Diaz is a Senior Researcher at Microsoft Research. His research concerns all levels of information retrieval system deployment, including algorithm design, implementation, and evaluation. His work on federated search received best paper awards at the SIGIR 2010 and WSDM 2010 conferences. Fernando's current research focuses on information access during crisis events such as natural disasters. In this area, he co-organized the SIGIR 2011 Workshop on Social Media Under Crisis and is co-organizing the TREC 2013 Temporal Summarization Track. His research studying the spatiotemporal aspects of query behavior during crisis events received a best paper nomination at SIGIR 2011. Fernando received his PhD from the University of Massachusetts Amherst in 2008.

Dwayne Reeves is a member of the Programming Language team at Facebook working on Hack (hacklang.org). Before

joining the Hack team, Dwayne worked on improving the implementation and efficiency of Facebook's privacy infrastructure. Prior to Facebook, Dwayne was a student at MIT where he received B.S. and M.Eng in Computer Science and Engineering. He specializes in static analysis and verification of software, as well as interests in programming languages. When he is not working, Dwayne competes in competitive Street Fighter tournaments (the video game, not actual street fights).

Using Humanitarian Free and Open Source Software (HFOSS) to Attract the Underrepresented to Computer Science

Location: St. George

Moderator: **Heidi Ellis**, Western New England University
 Panelists: **Darci Budge**, Nassau Community College; **Becka Morgan**, Western Oregon University; **Patricia Ordóñez**, University of Puerto Rico, **Río Piedras**; **Karen Alkoby**, Gallaudet University

Free and Open Source Software (FOSS) has become a mainstream approach for creating, managing and distributing software projects as evidenced by such widely used products as Firefox and Apache. The principles of openness and transparency that underlie FOSS provide rich opportunities for students to learn via observation and participation in a variety of aspects of development. Humanitarian FOSS (HFOSS) is FOSS that somehow benefits the human condition and can range from medical records to disaster management to applications that help monitor elections. Student involvement in HFOSS projects has benefits to students that include increased technical and professional skills, increased motivation, better understanding of social responsibility, experience in a real-world project in a real-world environment and more. This panel will present four different perspectives on how student learning can be supported by incorporating HFOSS in the classroom and how it can be used to attract and educate a diverse student body.

BIOGRAPHIES:

Heidi Ellis is Chair and Professor of Computer Science and Information Technology at Western New England University. Dr. Ellis is one of the founding members of the Humanitarian Free and Open Source Software project which focuses on involving students in FOSS projects that improve the human condition. She has been involving students in HFOSS projects since 2006 and she is PI on several NSF projects related to student learning in HFOSS. Heidi involves students in GNOME Accessibility projects in a one-semester senior software engineering course.

Darci Burdge is Assistant Chair and Professor of Computer Science at Nassau Community College. Her interests include exploring student participation in humanitarian open source software in a community college setting as a means to providing real-world experience and increased participation,



especially among women. She is Co-PI on an NSF-funded project to assist faculty who are interested in involving students with HFOSS projects.

Becka Morgan earned her PhD in December 2012. Her area of research is diversity in Free/Open Source Software development. For the last three years Dr. Morgan has focused on creating a curriculum for both undergraduate and graduate level students to provide a path into FOSS development. As a 2013 graduate of POSSE, using the support of POSSE alumni, Dr. Morgan has been able to redevelop the FOSS course she teaches to provide a more robust assignment set and assessment model.

Patricia Ordóñez is an Assistant Professor in the Department of Computer Science at the University of Puerto Rico Río Piedras. Her research interests focus on using machine learning and visualization to make the world a better place. She is interested in creating clinical decision support systems that aid medical providers to efficiently diagnose and treat patients by personalizing medicine, and in using mobile and wearable technology to reduce health disparities in the Americas and to improve communication between the hearing and the hearing impaired. She is passionate about diversifying the field of computer science.

Karen Alkoby is an Assistant Professor of Information Technology program in Department of Business at Gallaudet University. Karen was the first deaf woman to receive a Ph.D. degree in Computer Science from DePaul University, Chicago in 2008. She has been teaching various areas such as programming, HCI, MIS and Software Engineering since she became faculty in January 2009. She was a coordinator and an instructor of a youth camp program on the campus, Greenfoot, in Summer 2011 for deaf and hard of hearing high school students across the country.

6:30 PM – 11:00 PM

Tapia Conference Banquet

Location: American Ballroom

Banquet Speaker:

Freeman A. Hrabowski, III, President, University of Maryland-Baltimore County

BIOGRAPHY:

Freeman A. Hrabowski, III, has served as President of UMBC (The University of Maryland, Baltimore County) since 1992. His research and publications focus on science and math education, with special emphasis on minority participation and performance. He chaired the National Academies' committee that produced the recent report, *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads*.

In 2008, he was named one of America's Best Leaders by U.S. News & World Report, which in 2009, 2010, and 2011 ranked UMBC the #1 "Up and Coming" university in the nation. In 2011, U.S. News also ranked UMBC 4th nationally for "Best Undergraduate Teaching" – tied with Yale. TIME magazine named him one of America's 10 Best College Presidents in 2009, and one of the "100 Most Influential People in the World" in 2012. In 2011, he received both the TIAACREF Theodore M. Hesburgh Award for Leadership Excellence and the Carnegie Corporation of New York's Academic Leadership Award, recognized by many as the nation's highest awards among higher education leaders. Also in 2011, he was named one of seven Top American Leaders by The Washington Post and the Harvard Kennedy School's Center for Public Leadership. He serves as a consultant to the National Science Foundation, the National Institutes of Health, the National Academies, and universities and school systems nationally. Examples of honors include election to the American Academy of Arts & Sciences; receiving the U.S. Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring; and being named a Fellow of the American Association for the Advancement of Science. He holds honorary degrees from more than 20 institutions – from Harvard and Princeton to Duke to Johns Hopkins University.

A child-leader in the Civil Rights Movement, Hrabowski was prominently featured in Spike Lee's 1997 documentary, *Four Little Girls*, on the racially motivated bombing in 1963 of Birmingham's Sixteenth Street Baptist Church. He and UMBC were recently featured on CBS's 60 Minutes, attracting national attention for the campus's achievements involving innovation and inclusive excellence.

Born in 1950 in Birmingham, Alabama, Hrabowski graduated at 19 from Hampton Institute with highest honors in mathematics. At the University of Illinois at Urbana-Champaign, he received his M.A. (mathematics) and four years later his Ph.D. (higher education administration/statistics) at age 24.

**8:00 AM – 12:00 PM****ARTSI Robotics Competition Sponsored by IAAMCS**

Conference participants are invited to watch the competition
Location: Essex Center-South

The IAAMCS sponsored ARTSI Robotics competition's multiple events features teams of students programming Calliope2SP mobile robots using the Tekkotsu open source software framework to perform perception, navigation, and manipulation tasks. Prizes will be awarded to the teams who place during this competition.

8:00 AM – 4:00 PM**CMD-IT Tech Industry Summit: Partnering to Develop Solutions on Increasing Diversity**

By invitation only

Location: Staffordshire

Keynote Speaker

Daniel A. Reed, Vice President for Research and Economic Development at the University of Iowa & University Computational Science and Bioinformatics Chair, and Professor of Computer Science and Electrical and Computer Engineering.

Tech Summit Facilitator: **Sabrina Coleman**, President and Founder, Mahoghany Coaching & Development

With the recent release of diversity data by U.S. technology companies, the Center for Minorities and People with Disabilities in IT (CMD-IT) in partnership with AccessComputing, the Coalition to Diversify Computing (CDC), Code2040, Institute for American-American Mentoring in Computing Sciences (IAAMCS), the National Center for Women and Information Technology (NCWIT) and Shodor are organizing a summit to discuss key issues concerning domestic diversity in technology. The Summit is being organized as part of a long-term investment in understanding and improving the employment situation particular to the broad field of computing. Issues that will be discussed during the summit include:

- graduation production of ethnic minorities, women, and people with disabilities in the broad field of computing,
- the rate of advancement for ethnic minorities, women, and people with disabilities in technical positions.

Additionally, the summit will provide a forum for open dialogue about issues around diversity in computing and for partnering to develop solutions.

8:00 AM – 5:00 PM**Trust Security Code-a-thon**

By invitation only

Location: Essex North-West & North Center

This year the TRUST Security Team will help students understand how to defend against distributed denial of service attacks. The exercise will allow students to practice monitoring a network for denial-of-service attacks and devise

appropriate actions. Students will be divided into teams and each team will play the defender role for their own team's system and the attacker role for another team's system. At the end of the exercise, students will have a better understanding of how to run an automated program to generate requests, utilize monitoring software, write rules to filter traffic, and use the DETER Testbed to create attacker/defender experiments.

Doctoral Consortium

By invitation only

Location: Adams

The Doctoral Consortium is a one-day workshop that provides an opportunity for doctoral students to discuss and explore their research interests with a panel of established researchers in computing.

Doctoral Consortium Research Topics

Gina L. Bullock, North Carolina A&T State University

Applying the Contract Net Protocol to the Monitoring of Structural Health of an Aircraft

Anamary Leal, Virginia Tech

Interactions on Flexible Input for Modeling Domains

Cathy M. Bailey, Auburn University

Thesis Summary Cathy M Bailey Tapia 2015

Paul Taele, Texas A&M University

Sketch Recognition Approaches for Motion-Gestured Geometric 3D Primitives in Surfaceless Interaction Spaces

Saoni Mukherjee, Northeastern University

Side Channel Attacks on Graphics Processing Units

Mohammed Seyam, Virginia Tech

Fostering Innovation in User-eXperience Design through Agile Methods

Felesia Stukes, UNC Charlotte

Communities of Purpose

Akhil Langer, University of Illinois at Urbana-Champaign

Parallel Algorithms and Infrastructure for Two-stage Stochastic Linear/ Mixed-Integer Programming

Mai El-Shehaly, Virginia Tech

Visualization of Multi-Volume Time-Variant Scientific Data Sets

Jaye Nias, Bowie State University

Cultural Relevance and Social Impacts of User-Defined Gestures for Touchscreen User Interfaces

Hamid Hamraz, University of Kentucky

Forest Modeling using Airborne Lidar

Muhammad Naveed, University of Illinois at Urbana-Champaign

New Directions in Cryptography



Rohit Ranchal, Purdue University
A Framework for Service Activity Monitoring and Access Control in SOA

Suryadip Chakraborty, University of Cincinnati
Performance Analysis In Wireless Body Area Network

9:00 AM – 2:00 PM

Computing Tour at Harvard University

Confirmed conference attendees only
Location: Tour leaves from American Foyer

The Harvard University tour will allow participants to visit and learn about graduate, undergraduate, and other research opportunities in computer science and computational science, as well as related opportunities in biology, physics, chemistry,

and the social sciences. The tour will include lab tours, demonstrations, short presentations, small group discussions with faculty and students, and the opportunity to meet with admissions representatives.

Computing Tour at Northeastern University

Confirmed conference attendees only
Location: Tour leaves from Essex Foyer

This tour will provide undergraduate/masters level students and accompanying faculty a glimpse into the exciting computing activities at Northeastern University. It will feature short talks on the advances of computing in both software and hardware, a PhD student panel from both CS and ECE disciplines and tours of research laboratories.

CONFERENCE ORGANIZATION

The **2015 ACM Richard Tapia Celebration of Diversity in Computing Conference** is possible because of the tremendous dedication and contributions of many organizations and volunteers from the computing community. We very much appreciate the significant support, time, and excellent input. We extend a sincere thank you to everyone, including our attendees, for making this conference possible.

SPONSOR

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Founded in 1947, ACM is a major force in advancing the skills of information technology professionals and students worldwide. Today, over 80,000 members and the public turn to ACM for the industry's leading Portal to Computing Literature, authoritative publications and pioneering conferences, providing leadership for the 21st century.

ORGANIZER

THE COALITION TO DIVERSIFY COMPUTING (CDC)

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.

PRESENTER

CENTER FOR MINORITIES AND PEOPLE WITH DISABILITIES IN INFORMATION TECHNOLOGY (CMD-IT)

www.cmd-it.org

The Center for Minorities and People with Disabilities in Information Technology (CMD-IT) is a non-profit organization with a vision to contribute to the national need for an effective workforce in computing and IT through synergistic activities related to minorities and people with disabilities. The vision is realized through the mission to ensure that under-represented groups are fully engaged in computing and information technologies, and to promote innovation that enriches, enhances, and enables these communities, such that more equitable and sustainable contributions are possible by all communities. CMDIT's projects are focused on professional development, community enrichment, and curriculum development.

IN-COOPERATION

THE COMPUTING RESEARCH ASSOCIATION (CRA)

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.

THE IEEE COMPUTER SOCIETY

www.computer.org

The IEEE Computer Society traces its origins to the 1946 formation of the Subcommittee on Large-Scale Computing of the American Institute of Electrical Engineers (AIEE). Today, IEEE-CS offers its members many benefits including complimentary subscription to the Computer magazine, free online access to 300 computing and IT books, free online access to 350 distance learning course modules in more than 40 subjects including Java, Cisco, Sun, Microsoft, and more, and discounted subscriptions to more than two dozen periodicals.



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Thank you to our incredible group of over 100 scholarship reviewers! The full list of the 2015 Scholarship reviewers is available on the conference website.

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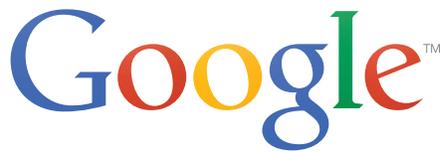
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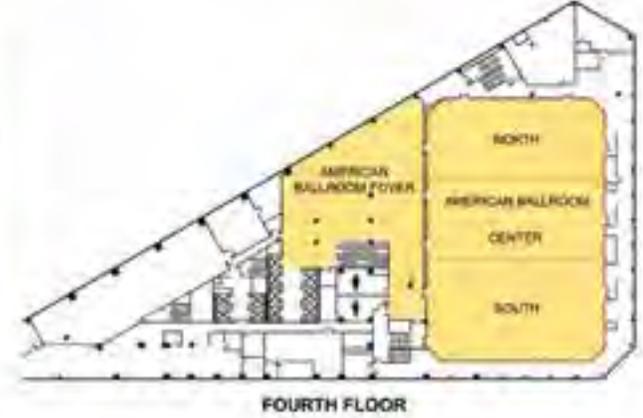
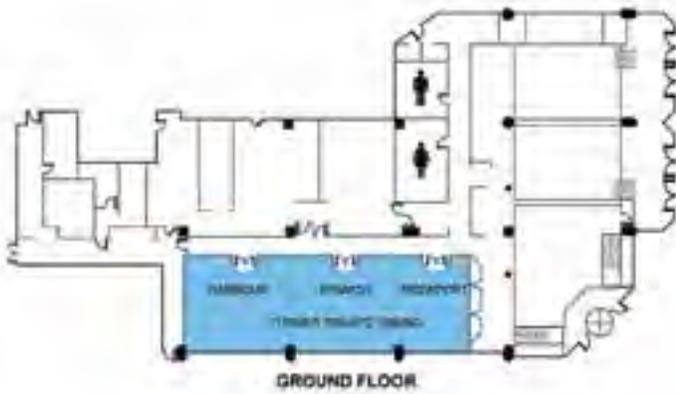
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