

2016 ACM RICHARD TAPIA

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

DIVERSITY MATTERS!

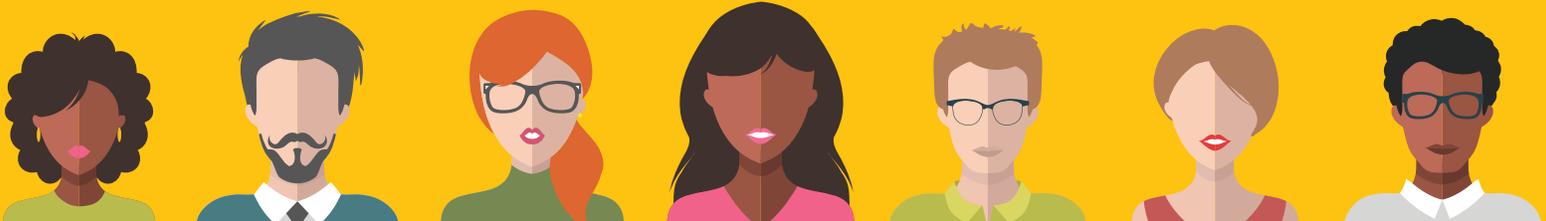
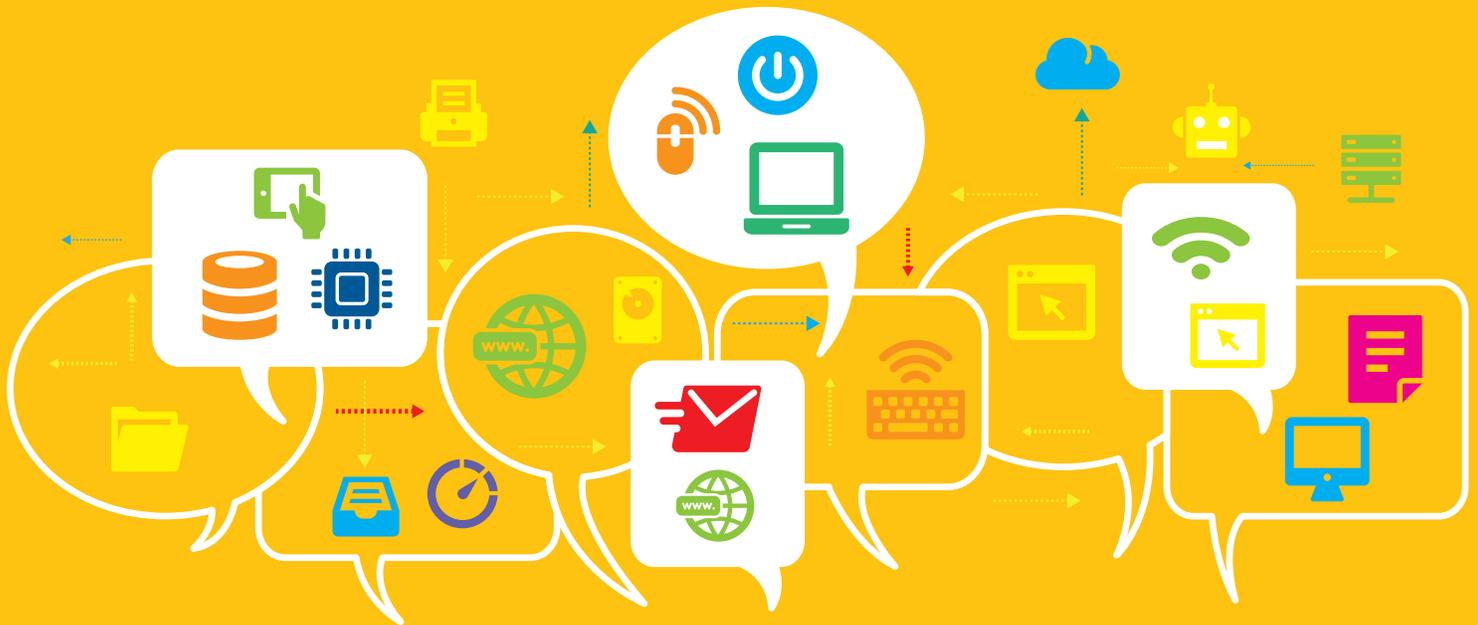


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September 14-17, 2016 | Austin, TX

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2016 ACM RICHARD TAPIA

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

SEPTEMBER 14–17, 2016 | AUSTIN, TEXAS

The **2016 ACM Richard Tapia Celebration of Diversity in Computing Conference** is sponsored by the Association for Computing Machinery (ACM), organized by the Coalition to Diversify Computing (CDC), and presented by the Center for Minorities and People with Disabilities in Information Technology (CMD-IT). The conference is in cooperation with the Computing Research Association (CRA).

This year's conference, the tenth 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 diverse groups across the broad range of computing and information technology, from science to business to the arts to infrastructure.

Given the current global academic, professional and societal climates, the Tapia 2016 conference theme, **"Diversity Matters!"**, recognizes the Tapia Conference's commitment to diversity in all its wonderful forms.

Diversity matters for innovation: Solutions derived from restricted, homogenous perspectives are likely to be sub-optimal often missing key insights necessary for broader, more impactful, simply better outcomes.

Diversity matters for knowledge: When we join forces with diverse disciplines, the mergers of computational thinking with other scientific and artistic domains can render unique and compelling solutions that help us tackle the hardest problems facing our world.

Diversity matters for life: Computing advances do not occur in a vacuum; they are not disconnected from our societal challenges. Both science and society benefits when we enable people from all groups to leverage their talents and passions to explore novel ways to change the world.



Studies from psychology and other social sciences have indicated that undertaking personally meaningful work is an effective strategy in the pursuit of happiness. It is unsurprising, then, that we have found our lives enriched over the last 18 months while working with the Tapia Organizing Committee to bring to you Tapia 2016, the tenth edition of the Tapia Conference series. Like many in our community, our passion for computing and our belief in its power to advance our world drive our efforts to establish a sustainable pipeline of diverse talent into the computing field.

Our theme for Tapia 2016 is “Diversity Matters.” Often we approximate and reduce diversity to outwardly distinguishing features: gender, skin color, hair type, diction and accentuation, etc. Yes, these features can help to distinguish diversity, but diversity is so much richer than this. It is in our unique upbringings, the wonderful places, environments and people that we have encountered, our varied experiences that comprise our beautiful psyche and, indeed, the challenges and hardships we have had to overcome and the future obstacles we will face.

It is with this broad perspective, from personal experiences to career paths to new and emerging societal challenges that call for innovative, multi-disciplinary approaches, that we organized this year’s conference. Thanks to record setting numbers of submissions, we were able to create what we hope you find to be exciting, educational, inspiring and, yes, diverse conference program. We received a total of 76 Birds-of-a-Feather (BoFs), Workshop and Panel submissions. With the help of our Technical Program Chairs and committee members, we selected 17 BoFs, 10 Workshops and 8 Panels. Our popular Poster Reception will showcase 48 student posters (selected from 74 submissions). We compliment these program activities with a distinguished lineup of invited speakers, a series of professional and development workshops, and the Saturday Doctoral Consortium.

Tapia 2016 is only made possible through the commitment, hard work and financial support of an appropriately diverse set of people and organizations. We are deeply grateful to the Tapia 2016 Infrastructure and Technical Program Committees: these task forces that comprise volunteers from academia, research labs and industry form the heart and soul of the conference. We wish to acknowledge all sponsors of Tapia 2016, especially our Platinum Sponsors and Gold Sponsors. In part, this sponsorship supported the attendance of 179 scholarship recipients and 14 doctoral consortium participants.

We hope that our program and conference environment with its diversity of thoughts and experiences stimulate curiosity, passion and meaningful conversation that deepens our understanding about life, about computing and about life in computing. In closing, we continue to welcome your ideas for how Tapia should involve in 2017 and beyond as well as your continued support and engagement with all stages of the conference planning and execution.



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



Dorian Arnold
*Associate Professor,
Department of
Computer Science,
University of New
Mexico*

Dilma Da Silva
Tapia 2016 General Chair

Dorian Arnold
Tapia 2016 Program Chair



PLENARY KEYNOTE SPEAKERS



Melanie Moses
Associate Professor of Computer Science at the University of New Mexico and External Faculty at the Santa Fe Institute



Raquel Romano
Senior Software Engineer, Google



Daniel Sonnenfeld
Technical Program Management Director, Salesforce



Joseph Teran
Professor of Applied Mathematics at UCLA

FIRESIDE CHAT PLENARY PANELISTS



Jen Cotton
Staff Product Designer, Twitter



Shawndra Hill
Senior Researcher, Microsoft Research NYC and Adjunct Associate Professor, Operations and Information, Wharton School of the University of Pennsylvania



Yvonne Melton
K-12 Education Outreach Coordinator, Google



Damien Peters
Program Manager, Facebook

BANQUET KEYNOTE SPEAKER



Richard A. Tapia
University Professor; Maxfield-Oshman Professor in Engineering; and Director of the Center for Excellence and Equity in Education, Rice University

CDO PLENARY PANELISTS



Lesley Slaton Brown
Chief Diversity Officer, HP Inc.



Gwen Houston
Chief Diversity Officer and General Manager Global Diversity & Inclusion, Microsoft



Drew Valentine
Vice President, People and Culture, IBM Analytics



Meghan Welch
Chief Diversity and Inclusion Officer, Senior Vice President, Human Resources, Capital One



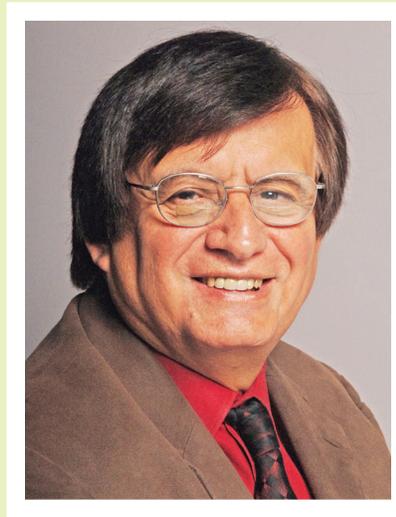
Dr. Judith Williams
Global Head of Diversity, Dropbox



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.



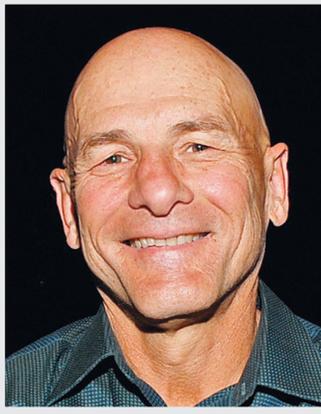
Richard A. Tapia Achievement Award for Scientific Scholarship, Civic Science and Diversifying Computing

David Patterson grew up in Southern California body surfing and listening to the Beach Boys, who were a local band. He was the first of his family to graduate from college, earning three degrees from UCLA before joining UC Berkeley in 1976. Thus, his whole world since he was a teenager has been large public universities.

His most successful projects have likely been Reduced Instruction Set Computers (RISC), Redundant Arrays of Inexpensive Disks (RAID), and Network of Workstations (NOW). All three projects helped lead to multibillion-dollar industries. This research led to many papers and six books, with the best-known book being *Computer Architecture: A Quantitative Approach*, co-authored by John Hennessy, and the most-recent book being *Engineering Software as a Service*, co-authored by Armando Fox. His current research is open source computer architecture (RISC-V) and hardware for computer security.

In the past, he served as Director of the Parallel Computing Lab, Director of the Reliable and Distributed Systems Lab, Chair of UC Berkeley's CS Division, Chair of the Computing Research Association (CRA), and President of the Association for Computing Machinery (ACM). He was General Chair of Tapia 2011, serves on its steering committee, and supports large UC Berkeley contingents that attend Tapia Conferences.

This work resulted in about 40 honors, some shared with friends, including election to the National Academy of Engineering, the National Academy of Sciences, and the Silicon Valley Engineering Hall of Fame. He was named Fellow of the Computer History Museum, ACM, IEEE, and both AAAS organizations and won the NEC C&C Prize. From the University of California, he won the Outstanding Alumnus Award (UCLA Computer Science Department), Outstanding Academic Alumnus Award (UCLA College of



Engineering), the Distinguished Teaching Award (Berkeley), and the Berkeley Citation. From the ACM, he received the Karlstrom Outstanding Educator Award, the SIGARCH Eckert Mauchly Award, the Distinguished Service Award, and the SIGARCH Distinguished Service Award. From the IEEE, he received the Johnson Information Storage Award, the Undergraduate

Teaching Award, the Mulligan Education Medal, and the IEEE von Neumann Medal. Two of his books received Texty Awards from the Text and Academic Authors Association, and one of his papers won three retrospective awards: the ACM SIGMOD Test of Time Award, the ACM SIGOPS Hall of Fame Award, and the IFIP Jean-Claude Laprie Award in Dependable Computing.

A wrestler in high school and college, he fulfilled his itch for exercise over the decades with rugby, cycling, sprint triathlons, weightlifting competitions, and soccer, which he still plays every Sunday. His personal claim-to-fame was marrying his high-school sweetheart; next year is their 50th wedding anniversary. They have two children and three grandchildren, and all live nearby.

He is delighted to win the Richard Tapia Achievement Award. It is named after one of his personal heroes who has led a remarkably parallel life, from growing up in Torrance California in a large family, being the first of his family to graduate from college, marrying and having children young, earning his A.B. and Ph.D. from UCLA, and going on to a long, successful academic career.

SCHEDULE AT A GLANCE

WEDNESDAY, SEPT. 14, 2016

10:00 AM – 9:00 PM

Conference Registration

Location: Plaza Registration

12:00 PM – 6:00 PM

Exhibitor Set-Up

Location: Rio Grande Exhibit Hall

1:00 PM – 5:00 PM

Industry Professional Development Workshop: Effective Communication – The Hidden Success Factor

Professional attendees only

Preregistration required

Location: Trinity

CMD-IT Student Professional Development Workshop

Sponsored by Facebook & Microsoft

Preregistration required

Location: Glass Oaks

5:00 PM – 6:00 PM

Scholarship Orientation & Newcomer Session

Location: Grand Ballroom A

6:00 PM – 7:30 PM

Welcome Reception & Fireside Chat: Using Technology and Social Media to Diversify Computing

Jen Cotton, Lead Product Designer, Home Timeline Team, Twitter

Shawanda Hill, Senior Researcher, Microsoft Research NYC and Adjunct Associate Professor, Operations and Information Management, Wharton School of the University of Pennsylvania

Yvonne Melton, K-12 Outreach Coordinator, Google

Damien Peters, Product Manager, Facebook

Location: Grand Ballroom

7:30 PM – 10:00 PM

Dessert & Career Fair

Location: Rio Grande Exhibit Hall

THURSDAY, SEPT. 15, 2016

7:00 AM – 5:00 PM

Conference Registration

Location: Plaza Registration

7:00 AM – 8:00 AM

General Breakfast

Location: Grand Ballroom

Startup Breakfast: Kickstart Your Career at a Startup

Sponsored by Asana & a16z

By invitation only

Location: Glass Oaks

Breakfast with eBay: Debugging the Brand of You, Inc.

Sponsored by eBay

By invitation only

Location: Pecos

8:00 AM – 8:30 AM

Welcome & Announcements

Location: Grand Ballroom

8:30 AM – 9:15 AM

Plenary Speaker

Redefining Inclusion: Technology as an Act of Service

Raquel Romano, Senior Software Engineer, Google

Location: Grand Ballroom

9:15 AM – 9:30 AM

Break

9:30 AM – 10:15 AM

Plenary Panel

Shifting the Paradigm: A Dialogue with Chief Diversity Officers

Lesley Slaton Brown, Chief Diversity Officer, HP Inc.

Gwen Houston, Chief Diversity Officer and General Manager Global Diversity & Inclusion, Microsoft

Drew Valentine, Vice President, People and Culture, IBM Analytics

Meghan Welch, Chief Diversity and Inclusion Officer, Senior Vice President, Human Resources, Capital One

Dr. Judith Williams, Global Head of Diversity, Dropbox

Location: Grand Ballroom

10:00 AM – 5:00 PM

Career Fair/Exhibits

Location: Rio Grande Exhibit Hall

10:15 AM – 10:45 AM

Refreshment Break

Location: Rio Grande Exhibit Hall

CDO Reception

Sponsored by Northrop Grumman

By invitation only

Location: San Antonio

10:45 AM – 12:15 PM

Panels & Workshops

Making New Contacts: Learning to Network Strategically

Location: Glass Oaks

SCHEDULE AT A GLANCE

THURSDAY CONTINUED

Learning to Find Your Teaching School: Difference Paces and Different Places

Location: Sabine

Open Source Simplified: Let's Get YOU Started

Location: Grand Ballroom B

The Ins and Outs of Administrative Diversity Positions in Academia

Location: Trinity

Bias Busters @ University Workshop: A Carnegie Mellon/Google Collaboration to Address Unconscious Bias

Location: Grand Ballroom A

10:45 AM – 12:45 PM

CMD-IT Industry Roundtable

By invitation only

Location: San Antonio

12:45 PM – 2:00 PM

Lunch with Supporters

Location: Grand Ballroom

2:00 PM – 3:00 PM

Ken Kennedy Distinguished Lecture

Scientific Computing in the Movies and Virtual Surgery

Joseph Teran, Professor of Applied Mathematics, UCLA

Location: Grand Ballroom

3:00 PM – 3:30 PM

Refreshment Break

Location: Rio Grande Exhibit Hall

3:30 PM – 4:30 PM

Birds of a Feather Sessions

Summer Programming Boot Camp to Retain Women in Computing

Location: San Antonio

Privacy in the Age of the Internet of Things

Location: Grand Ballroom A

Education, Scholarship, Internship, and Employment Opportunities in Cyber Security

Location: Grand Ballroom B

Hispanic in Computing Community

Location: Glass Oaks

Participating in Free/Open Source Software Communities

Location: Sabine

Visualization Research and Careers

Location: Trinity

4:30 PM – 5:30 PM

Birds of a Feather Sessions

Building Technical Leaders through Service: Implementing the STARS Computing Corps Model

Location: Trinity

Turning Big Data into Big Opportunity - Challenges and Applications

Location: Grand Ballroom B

Disability: Celebrating a Face of Diversity

Location: San Antonio

Learn About How NCWIT Can Support Female College Students in Computing

Location: Glass Oaks

Being Queer in Computing Environments

Location: Sabine

5:30 PM – 6:30 PM

Birds of a Feather Sessions

Empowering Women of Developing Countries in Computer Science

Location: Sabine

Planting a Seed, Growing a Leader: Minority Leadership in Computing

Location: Trinity

Open Source Contributions -The Earlier the Better!

Location: San Marcos

The Lives of Persistent Outliers in the World of Big Data

Location: San Antonio

MS vs PhD: Which should you choose, based on where you want to go?

Location: Glass Oaks

Tech for Good: Using Technology for Social Impact

Location: Grand Ballroom B

5:30 PM – 6:30 PM

Private Reception for Student Poster Presenters

Sponsored by Department of Energy National Labs

By invitation only

Location: Guadalupe

Private Reception for CMD-IT Advisory Board

By invitation only

Location: Nueces

6:30 PM – 8:00 PM

Poster Session & Reception

Sponsored by Silver Sponsors

Location: Grand Ballroom

Undergraduate & Graduate Posters

Location: Wedgewood

Industry Posters

Location: The Arbor

8:00 PM – 10:00 PM

Sponsor Receptions

ABI Communities Reception

Location: Glass Oaks

Microsoft Reception

By invitation only

Location: Treehouse Kitchen

SCHEDULE AT A GLANCE

FRIDAY, SEPT. 16, 2016

7:00 AM – 5:00 PM

Conference Registration

Location: Plaza Registration

7:00 AM – 8:00 AM

General Breakfast

Location: Grand Ballroom

Hispanics in Computing Breakfast

Sponsored by IBM & EquitableTech Entrepreneurs

By invitation only

Location: Pecos

8:00 AM – 8:30 AM

Announcements

Location: Grand Ballroom

8:30 AM – 9:15 AM

Plenary Speaker

Overcoming Barriers for Careers in Information Technology

Daniel Sonnenfeld, Technical Program Management Director,
Salesforce

Location: Grand Ballroom

9:15 AM – 9:30 AM

Break

9:30 AM – 10:15 AM

Plenary Speaker

**Emergence, Cooperation and Diversity: The Evolution of
Natural and Engineered Swarms**

Melanie Moses, Associate Professor of Computer Science
University of New Mexico and External Faculty at the Santa Fe
Institute

Location: Grand Ballroom

10:00 AM – 5:00 PM

Career Fair/Exhibits

Location: Rio Grande Exhibit Hall

10:15 AM – 10:45 AM

Refreshment Break

Location: Rio Grande Exhibit Hall

10:45 AM – 12:15 PM

Panels & Workshops

Building Your Resume for a Career in Tech

Location: Grand Ballroom B

Increasing Diversity in Computing: Sharing of Good Practices

Location: Glass Oaks

**Computational Art using Leap Motion (CALM): Integrating
Creativity with Programming**

Location: Wedgewood

**Pursuing Valuable International Experiences for Computing
Careers in a More Globally-Connected Technological World**

Location: Trinity

**Solving the Unsolvable Through Scientific Computing:
Explorations in the Best Uses of Popular Mathematics
Software**

Location: Sabine

12:30 PM – 2:00 PM

Lunch & Networking

Location: Grand Ballroom

Faculty Networking Luncheon

Sponsored by Red Hat

By invitation only

Location: Pecos

2:00 – 3:30 PM

Panels & Workshops

Taking on the Technical Interview

Location: Glass Oaks

Navigating Your Career in Industry

Location: Trinity

Parallel Computing with OpenMP on the Raspberry Pi 2

Location: Wedgewood

**Open Access Colleges as a Path to Upward Mobility in High
Tech: A collaborative effort between a community college,
state university, and industry**

Location: Sabine

Engaging Students of Color in Computer Science

Location: San Antonio

Strategies for Human-Human Interaction

Location: San Marcos

3:30 PM – 4:00 PM

Refreshment Break

Location: Rio Grande Exhibit Hall

4:00 PM – 5:30 PM

Panels & Workshops

**How to (Not) Get Away with a Cyber Crime: Detecting,
Preventing, and Mitigating Cyber Attacks**

Location: San Marcos

Computation and Finance

Location: Sabine

**BRAID- A Pilot Initiative to Achieve More Diverse
Undergraduate CS Departments**

Location: San Antonio

SCHEDULE AT A GLANCE

FRIDAY CONTINUED

4:00 PM – 5:30 PM

Panels & Workshops Continued

Exploring networking fundamentals on Raspberry Pis

Location: Pecos

Why Open Source is Good for Business?

Location: Glass Oaks

NSF Funding

Location: Trinity

5:30 PM – 6:30 PM

VIP Reception

By invitation only

Location: Wedgewood

6:30 PM – 11:00 PM

Banquet & Dancing

Keynote Speaker: Richard A. Tapia

Location: Grand Ballroom

SATURDAY, SEPT. 17, 2016

8:00 AM – 5:00 PM

Doctoral Consortium

Sponsored by the National Science Foundation

By invitation only

Location: Trinity

HPC Day with the National Laboratories

Sponsored by the Department of Energy National Laboratories

By invitation only

Location: San Antonio

Cybersecurity Session

Sponsored by Trust

By Invitation only

Location: Sabine

Black Women in Computing (BWIC) Gaming Workshop for High School Students

Sponsored by BWiC, CMD-IT and the Motorola Solutions Foundation

By invitation only

Location: Glass Oaks

9:00 AM – 1:00 PM

Bloomberg CodeCon

Sponsored by Bloomberg

By invitation only

Location: Wedgewood

**10:00 AM – 9:00 PM****Conference Registration***Location: Plaza Registration***1:00 PM – 5:00 PM****CMD-IT Student Professional Development Workshop**

Sponsored by Facebook and Microsoft

*Preregistration required for this session**Location: Glass Oaks*

The CMD-IT Student Professional Development Workshop will provide undergraduate and masters level computer science students with the unique opportunity to receive coaching and development from Industry professionals. Students will learn the best practices for resume writing and preparing for the rigors of the interview (technical and behavioral) process.

1:00 PM – 5:00 PM**Industry Professional Development Workshop: Effective Communication – The Hidden Success Factor***Professional Conference attendees only**Preregistration required for this session**Location: Trinity*

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

Effective communication plays a vital role in the success of any organization, team or relationship; as the majority of our work today has become highly interdependent, and delivering results is often accomplished only through team effort.

Effective communication is at the core of a team's ability to function and perform, usually making the difference between success and failure. It is the glue that helps deepen your connections to others and improve teamwork, decision making, and problem solving, making it one of the most critical skills to professional success. So a leader or professional who has both technical and strong interpersonal skills is a valuable asset to his or her organization.

No matter your role, everyone is responsible for creating an environment that engenders trust and mutual sharing of information; and effective communication is a key interpersonal skill needed for making this happen.

Expected Outcomes:

- Learning to communicate more effectively has many benefits. Through this workshop, participants will gain a better understanding of the following:
- What it means to communicate effectively and what is at the heart of this critical skill.

- Become more aware of their own communication style and communication skills, while working to sharpen these skills through a greater level of awareness and practice.
- How others perceive you and how you can adapt more readily to their style of communicating.
- What is active listening and its importance in effective communication.
- Clearly state the (3) levels of listening
- Identify the barriers to active listening
- Recognize ways to overcome barriers to communicating effectively.
- Understand the role of giving and receiving feedback in effective communication.
- Practice the feedback model

5:00 PM – 6:00 PM**Scholarship Recipient Orientation & Newcomers Session***Location: Grand Ballroom A*

Tapia Conference Scholarship Recipients and attendees who are first time Tapia Conference participants are invited to join conference leadership at this session to welcome and introduce you to the conference.

6:00 PM – 7:30 PM**Fireside Chat: Using Technology and Social Media to Diversify Computing***Location: Grand Ballroom*

Jen Cotton, Lead Product Designer, Home Timeline Team, Twitter

Shawanda Hill, Senior Researcher, Microsoft Research NYC and Adjunct Associate Professor, Operations and Information Management, Wharton School of the University of Pennsylvania

Yvonne Melton, K-12 Outreach Coordinator, Google

Damien Peters, Product Manager, Facebook

Moderator: **Rosario Robinson**, Tapia 2016 Social Media Chair; Director, Anita Borg Institute (ABI) Communities and Her Systems' Keeper

From sharing experiences at conferences to social activism, social media is having an enormous impact on how information is used and shared publicly. Various social media platforms have incredible reach globally, providing new methods of storytelling where short stories generate niche content for target audiences. Incredibly powerful. But what is



most exciting about social media is how it has disrupted the computing and technology landscape with respect to social interactions.

Many underrepresented groups have a voice and purpose through social media. In turn, the path to diversify computing became open and allowed movements into industries by exposing talent that may otherwise not have been identified, highlighting innovation and research by diverse professionals, and increasing access to programs and scholarships that underrepresented students may not readily know about or have access to. This plenary will engage in discussion about how social media has become a powerful platform that has brought attention to the diversity problem in computing, while providing avenues for inclusion.

BIOGRAPHIES:

Jen Cotton is responsible for designing the Home Timeline at Twitter, leading a team of designers on the overall user experience across mobile and web. She also leads Twitter's Women in UX group, an employee resource group focused on inclusion and diversity in the user experience community. Prior to joining Twitter in 2013, Jen was an interaction designer at New York Magazine, where she worked across both NYMag.com and Vulture.com. Earlier, she was at Scripps Networks and the Congressional Black Caucus Foundation. Jen earned a Masters of Fine Arts degree in Design & Technology from Parsons School for Design and a Bachelor of Arts degree in International Relations and Creative Writing. She is @jencotton on Twitter.

Shawndra Hill is a Senior Researcher at Microsoft Research NYC and an Adjunct Associate Professor in the Operations and Information Management at the Wharton School of the University of Pennsylvania, where she is an Annenberg Public Policy Center Distinguished Research Fellow, a Wharton Customer Analytics Initiative Senior Fellow, and a core member of the Penn Social Media and Health Innovation Lab. Generally, she researches the value to companies of mining data on how consumers interact with each other on social media — for targeted marketing, advertising, health and fraud detection. Her current research focuses on the interactions between TV content and Social Media (www.thesocialtvlab.com). Dr. Hill holds a B.S. in Mathematics from Spelman College, a B.E.E. from the Georgia Institute of Technology and a Ph.D. in Information Systems from NYU's Stern School of Business.

Yvonne Melton works on the K-12 Education Outreach team at Google. In her role, she works on initiatives to inspire the next generation of computer scientists with a focus on girls and people of color. Previously, Yvonne worked as a Diversity Industry Programs Specialist where she worked to engage industry talent for business roles at Google. Yvonne has a Bachelor of Business Administration with a concentration in Marketing from Howard University.

Damien Peters is a Product Manager at Facebook. He spends his time focused on products aimed at measuring advertisement effectiveness on Facebook. Previously, he led the company's effort on crowdsourcing information about Places in the real world. Prior to Facebook, he was a Product Manager at TinyCo and Zynga, focused on mobile gaming. In a past life, he was an Associate at Booz Allen Hamilton focused on data and modeling for the Navy & IRS. Damien's motivation lies in creating great product experiences at scale and tackling extremely hard problems. Damien holds an MBA from the MIT Sloan School of Management, along with a B.S. in Computer Science and B.A. in Economics from the University of Maryland.

Rose Robinson is Director, Anita Borg Institute (ABI) Communities and Her Systems' Keeper, global community of technical women. She manages all affinity communities (Black Women in Computing, Latinas in Computing, LGBT in Computing and others) and special interest groups. Rose has 20+ years in software implementations in Telecommunications, Geospatial and Infrastructure. She manages ABI's open source programs including Systems Google Summer of Code, Google Code In and social impact projects. Rose holds a B.S. and M.S. in Mathematics. She works on HBCU Tech Inclusion and is helping Savannah State University CS department, as a member of their Industry Advisory Board.

7:30 PM – 10:00 PM

Career Fair & Dessert

Location: Rio Grande Exhibit Hall

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.

**7:00 AM – 8:00 AM****General Breakfast***Location: Grand Ballroom***Startup Breakfast: Kickstart Your Career at a Startup****Sponsored by Asana & a16z***By invitation only**Location: Glass Oaks*

Startups are a great environment for interns and new graduates to learn and grow at an accelerated pace. Learn how to find a company that's right for you while optimizing for learning opportunities, culture, and team size in a panel discussion featuring mid-stage startup, Asana and the venture capital firm, a16z. This session will help you learn what companies are looking for as they build out their teams and how to maximize your impact as you join a startup.

Breakfast with eBay: Debugging the Brand of You, Inc.**Sponsored by eBay***By invitation only**Location: Pecos*

If you're at Tapia, you're already wildly intelligent. So here's something to noodle on... why did companies across the world spend almost \$600Bn on marketing and advertising their brands last year alone? Is it really that big of a deal? You bet! In fact, it's not only a big deal for companies... it's a big deal for YOU. Whether it's during the school year or during your "dream" internship, your brand is all you've got. Do you really know what your personal brand is and/or how to make it even stronger? Join eBay's Chief Diversity Officer, Damien Hooper-Campbell, for a real and engaging conversation on how to identify and upgrade the brand of YOU, Inc.

8:00 AM – 8:30 AM**Welcome & Announcements***Location: Grand Ballroom***8:30 AM – 9:15 AM****Plenary Speaker***Location: Grand Ballroom***Redefining Inclusion: Technology as an Act of Service****Raquel Romano**, Senior Software Engineer, Google

When we think of a career in service, we most likely think of the nonprofit sector or a medical profession or military service, but seldom do we think of technology. Yet much software and hardware is intended to be used

by people, and to that end, it should serve the needs of its users. As builders of technology, we have the responsibility to consider how our tools and services are benefiting all users. That benefit may be to make people's lives more convenient or more entertaining, or it might be to deliver and receive information that is critical to a person's physical and psychological well-being. I will share my experiences working on technology in the service of users for whom ideas developed for the 'mainstream' have not always delivered their promise. Drawing on work in several areas—crisis response, accessibility, and civic tech—I will examine how taking an inclusive approach to software development influences what problems we try to solve and how we try to solve them.

BIOGRAPHY:

Raquel Romano is a senior software engineer at Google where she builds accessible technology for people with disabilities. At Google, she has also worked on machine learning algorithms for text detection and optical character recognition (OCR) to interpret text in imagery, and on Google's Crisis Response engineering team building tools for information discovery after natural disasters. She also spent a year as the lead technologist for Google.org's philanthropic efforts, where she evaluated technologically innovative nonprofit initiatives and advised them on engineering and product challenges.

Prior to joining Google, Raquel was a postdoctoral fellow in the Computing Research Division at the Lawrence Berkeley National Laboratory, where she was a Luis W. Alvarez Postdoctoral Fellow. She completed her MS and PhD in computer science at the MIT Artificial Intelligence Laboratory (CSAIL) under an AT&T Bell Laboratories Fellowship with a focus on computer vision, and she earned her BA from Harvard in mathematics.

Raquel has been involved in various efforts to support those who want to pursue careers in technology but do not have the resources and networks to make that path easy. She co-founded Latinas in Computing (www.latinasincomputing.org), a worldwide community of Latina computer scientists in academia, industry, and research. She has served on organizing committees for the Richard Tapia and Grace Hopper celebrations of computing, and she has frequent speaking engagements for events dedicated to supporting members of underrepresented groups in math, science, and technology (CRA-W, SACNAS, Tapia, Grace Hopper). Raquel was named one of 2014's top Latinos in technology by CNET en Español and is on the advisory board for #YesWeCode. She was awarded the 2015 Diversity Award by the Society for Hispanic Professionals in Engineering (SHPE).



9:30 AM – 10:15 AM

Plenary Panel

Location: Grand Ballroom

Shifting the Paradigm: A Dialogue with Chief Diversity Officers

Lesley Slaton Brown, Chief Diversity Officer, HP Inc.

Gwen Houston, Chief Diversity Officer and General Manager Global Diversity & Inclusion, Microsoft

Drew Valentine, Vice President, People and Culture, IBM Analytics

Meghan Welch, Chief Diversity and Inclusion Officer, Managing Vice President, Human Resources, Capital One

Dr. Judith Williams, Global Head of Diversity, Dropbox

Moderator: **Valerie Taylor**, Senior Associate Dean for Academic Affairs, Texas A&M University; Executive Director, CMD-IT

Recently, many technology companies have published their technical workforce diversity data, for which it is recognized that the numbers, especially with respect to ethnic diversity, are very small. Companies, however, are developing innovative programs and creating supportive environments to address these issues. This panel will feature the Chief Diversity Officers from technology companies and will provide an opportunity to have an informative discussion about what is needed to move the needle to generate more diversity in the technical workforce and the methods necessary to sustain the advancement of those efforts.

BIOGRAPHIES:

Lesley Slaton Brown is the Chief Diversity Officer at HP Inc. With over 20 years of experience in the technology industry, Lesley has a unique ability to align and build strategy across organizations and drive business outcomes. Coupling her global marketing, branding, communications and diversity and inclusion experience, with a deep passion for social entrepreneur and leadership development, she has led key efforts to address the digital divide and build sustainable enterprise in Senegal, West Africa. Most recently, Lesley served as the Principal Investigator for the National Action Council for Minorities in Engineering (NACME), "Go West" Computing Project. Lesley was recently awarded the 2016 Woman of the Year in Technology by Silicon Valley's Chapter of National Coalition of 100 Black Women, Inc.

Gwen Houston is the Chief Diversity Officer and General Manager Global Diversity & Inclusion for Microsoft Corporation. Headquartered in Redmond, Washington, Microsoft employs over 100,000 people in more than 100

countries/regions and territories, delivering record revenue of \$93.6 billion in fiscal year 2015. Gwen Houston is responsible for the strategic direction, implementation, and alignment of Microsoft's global diversity and inclusion initiatives worldwide, to ensure maximum impact on Microsoft's business growth and talent strategies. Gwen has been featured as one of Savoy's Top Women in Corporate America in 2012 and received one of National Multicultural Institute's Leading Lights Diversity Award in 2012.

Meghan Welch is the Chief Diversity and Inclusion Officer (CDIO) for Capital One Financial Corporation and Senior Vice President, Human Resources for the Financial Services Division. Ms. Welch delivers talent strategies that drive business goals. She is a key leader in the transformation of the business to deliver cutting-edge digital innovations that help customers succeed. This includes rethinking the talent acquisition and development models, as well as driving an innovative Maker Culture, all in an effort to achieve the company's mission. In her role as CDIO, Ms. Welch leads Capital One's global efforts to foster and maintain a workplace environment in which the voices of every employee, affiliate, client, and customer are heard and matter. She is instrumental in further building a culture where every person's dignity and worth are recognized and honored, and where diverse perspectives, lifestyles, and backgrounds are welcomed and celebrated.

Drew Valentine is Vice President, People and Culture, IBM Analytics. His global team has responsibility for talent management, leadership development, and organizational capability of IBM's \$9B big data business unit that promotes the creation and delivery of knowledge solutions and data platforms to empower every citizen, student, worker, leader, institution, industry, society, and the world. He has held a variety of human resources and legal staff positions since joining IBM in 1988. Prior to changing career paths, he served as IBM's first Director of Global Equal Opportunity and Marketplace Initiatives, where he was responsible for IBM's compliance and monitoring efforts with regard to federal and local country equity legislation and for developing strategies and policies to address the changing landscape of employment equity legislation around the world. Mr. Valentine attended Michigan State University, earning a Bachelor of Business Administration and a Masters of Labor and Industrial Relations. He earned his law degree from Fordham University School of Law and was a lieutenant in the US Military Police Corps.



Judith Williams leads all diversity and inclusion programs, as well as corporate social responsibility for Dropbox. Prior to Dropbox, Judith was Diversity Programs Manager at Google where she directed the unconscious bias work stream, and built strategies for recruiting, retention, and advancement of Google's technical employees. Before joining Google Judith was an entrepreneur, a human resources consultant, and a college professor; her research focused on the construction of racial identity in theatre and popular culture in the U.S and Brazil. Judith received her A.B. from Harvard College, and M.A. and Ph.D. degrees from Stanford University.

Valerie Taylor is the Senior Associate Dean of Academic Affairs in the College of Engineering and the Regents Professor and Royce E. Wisenbaker Professor in the Department of Computer Science and Engineering at Texas A&M University. She is also the Executive Director of the Center for Minorities and People with Disabilities in IT (CMD-IT). Valerie Taylor is an IEEE Fellow and has received numerous awards for distinguished research and leadership. Valerie Taylor is also a member of ACM. She earned her B.S. in ECE and M.S. in Computer Engineering from Purdue University and a Ph.D. in EECS from the University of California, Berkeley.

10:00 AM – 5:00 PM Career Fair & Exhibits

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.

10:15 AM – 10:45 AM Refreshment Break

Location: Rio Grande Exhibit Hall

CDO Reception

Sponsored by Northrop Grumman

By invitation only

Location: San Antonio

10:45 AM – 12:15 PM Panels and Workshops

Making New Contacts: Learning to Network Strategically

Location: Glass Oaks

Many people dislike networking, but you can find ways to make networking work for you and your style. We'll discuss myths and realities about networking, informational interviewing, attending conferences, participating in

professional societies, using social networking websites, and attending career fairs. Learn about networking etiquette, business cards, elevator pitches, and following up with contacts. Attendees will be able to learn skills that they can practice and utilize throughout the conference, helping them to build relationships and head home with a richer network of contacts.

Workshop Organizer: **Briana Blaser**, University of Washington

Finding Your Kind of Teaching School: Different Paces at Different Places

Location: Trinity

Teaching at the collegiate level is a well-respected and satisfying career. Yet, many graduate students and their advisers have experience only with research universities. They have limited knowledge of career opportunities at teaching-oriented institutions, as well as the differing expectations for faculty at different types of institutions. In this panel, we aim to illuminate a range of teaching-focused career paths. Faculty from several different teaching-oriented institutions, including small liberal arts colleges, an engineering school, a community college, and a historically black university will speak about their professional and personal experiences. Depending on the interests of the audience, topics may include: what a typical day or week is like, relationships with students and colleagues, course management, campus resources, summer activities, conducting research, the job search, and the tenure process.

Panel Moderator: **Janet Davis**, Whitman College

Panelists: **Valerie Galluzzi**, Rose-Hulman Institute of Technology; **Nery Chapeton-Lamas**, MiraCosta College; **Peter-Michael Osera**, Grinnell College; **Ali Sekmen**, Tennessee State University

Open Source Simplified, Let's Get YOU Started!

Location: Grand Ballroom B

This workshop aims to introduce the tools and culture of FOSS (free and open-source software) development to participants and make them ready to impact real projects. Through a combination of brief lectures with slides mixed with a hands-on sessions, the facilitators aim to guide participants towards making real contributions to an open source project. Using a customized starter project, with missing functionality and intentional bugs, we plan on making this session a highly interactive and hands on learning experience. Participants will be exposed to the practical skills needed to contribute to open source projects, such as using version control, command utilities and Slack chat channel. A beginner level experience



in a programming language, like c/c++, java or python will be helpful but not required.

Workshop Organizers: **Bushra Anjum**, Amazon Inc;
Pavithra Ramaswamy, Cisco Systems Inc

The Ins and Outs of Administrative Diversity Positions in Academia

Location: Sabine

As the world becomes more diverse, attention to diversity and underrepresentation in computing has become imperative and prominent. Universities and tech companies are actively seeking ways to make their organizations better reflect the communities they serve and to which they market products. As a result, many computing professionals, particularly from underrepresented groups, are asked to engage in diversity activities. This gives those individuals visibility in administrative circles and often leads to new professional opportunities and appointments. In this panel, several university stakeholders speak about their experiences moving from academic/research positions into administrative positions with a particular focus on diversity in tech fields. Some of the questions addressed in the presentation include: What's the significance of diversity in the title? What's the impact of this change on your career path? What prepared them for the change? What challenges have they faced? How do they balance teaching, research, service, and family life?

Panel Moderator: **Jeffrey Forbes**, Duke University

Panelists: **Manuel Pérez-Quñones**, University of North Carolina at Charlotte; **William Robinson**, Vanderbilt University; **Lamara Warren**, Indiana University; **Ronald Metoyer**, University of Notre Dame

Bias Busters @ University Workshop: A Carnegie Mellon/Google Collaboration to Address Unconscious Bias

Location: Grand Ballroom A

This BiasBusters @ University Workshop is a Carnegie Mellon/Google Collaboration introducing participants to the development of BiasBusters@CMU with the goal of helping participants to start their own BiasBusters programs at their home institutions. In this workshop participants will learn: 1. Our experiences successfully bringing bias and inclusivity programming into one of the world centers of computing teaching, research and innovation; 2. A brief preview of BiasBusters@CMU, taking participants through one role-play and debrief from the full 2-hour program; 3. How attendees can set up their own unbiasing program, using open source materials

BiasBusters@CMU specifically seeks to: (1) Summarize the available body of research; (2) Raise awareness of bias (conscious and unconscious); (3) Discuss the potential for reducing the impact of bias; (4) Understand our own bias towards inaction when we hear or see (often unintentional) non-inclusive statements or actions; (5) Use role play and scenarios to practice ways we might act and step in as allies to ensure everyone experiences an inclusive culture.

Workshop Organizers: **Carol Frieze**, Carnegie Mellon University; **Gerry Katilius**, Google; **Diana Marculescu**, Carnegie Mellon University; **Momin Malik**, Carnegie Mellon University

10:45 AM – 12:45 PM

CMD-IT Industry Roundtable

By invitation only

Location: San Antonio

12:45 PM – 2:00 PM

Lunch with Sponsors

Location: Grand Ballroom

Join our conference sponsors at lunch and learn more about programs, career paths, and graduate school opportunities at their organizations

2:00 PM – 3:00 PM

Ken Kennedy Distinguished Lecture

Location: Grand Ballroom

Scientific Computing in the Movies and Virtual Surgery

Joseph Teran, Professor of Applied Mathematics at UCLA

New applications of scientific computing for solid and fluid mechanics problems include simulation of virtual materials for movie special effects and virtual surgery. Both disciplines demand physically realistic dynamics for such materials as water, smoke, fire, and brittle and elastic objects. These demands are different than those traditionally encountered and new algorithms are required. Teran's talk will address the simulation techniques needed in these fields and some recent results including: simulated surgical repair of biomechanical soft tissues, extreme deformation of elastic objects with contact, high resolution incompressible flow, clothing and hair dynamics. Also included is discussion of a new algorithm used for simulating the dynamics of snow in Disney's animated feature film, "Frozen."



BIOGRAPHY:

Joseph Teran is a professor of applied mathematics at UCLA. His research is focused on numerical methods for partial differential equations arising in classical physics. This includes computational solids, computational fluids, multi-material interactions, fracture dynamics and computational biomechanics. One very exciting example of this research is virtual surgery. These techniques allow a surgeon to practice a given procedure on the computer rather than on a cadaver or patient with full confidence that the physical behavior of the patient in the virtual world will match the physics of the real patient. Other exciting applications include computer graphics and movie special effects at Walt Disney Animation. Professor Teran was a recipient of a 2011 Presidential Early Career Award for Scientists and Engineers (PECASE) and a 2010 Young Investigator award from the Office of Naval Research. In 2008, Discover Magazine named him one of the 50 “Best Brains in Science” which lauded him and other young scientists as “young visionaries who are transforming the way we understand the world”. Also, his postdoctoral and graduate research was supported by National Science Foundation Mathematical Sciences Postdoctoral Research and Graduate Research Fellowship awards.

3:30 PM – 4:30 PM

Birds of a Feather Sessions

Summer Programming Boot Camp to Retain Women In Computing

Location: San Antonio

Underrepresented students in computing can face several critical issues to retention including: lack of prior programming knowledge; isolation; and avoidance in taking tough classes like programming.

At Georgia Gwinnett College (GGC), we have seen many benefits from holding a weeklong Programming Boot Camp (PBC) for women. PBC is focused on improving Java programming skills, providing professional development, and building a stronger network with faculty, peers, and industry experts. After participating in PBC, students exhibited increased engagement on campus, and 61% of them enrolled in their next programming course. In this BoF, we invite students and faculty to discuss issues such as format and potential impact of short-term PBCs as GGC faculty discuss recruitment, funding, curriculum development, etc. Former PBC participants will provide their own perspective on the program’s impact. Whether you have completed your own

boot camps or are just curious about how it works, we invite you to participate.

BOF Organizers: **Sonal Dekhane**, Georgia Gwinnett College; **Kristine Nagel**, Georgia Gwinnett College; **Nannette Napier**, Georgia Gwinnett College; **Estephania Gonzalez**, Georgia Gwinnett College; **Lorena Sanchez-Rubio**, Georgia Gwinnett College

Privacy in the Age of the Internet of Things

Location: Grand Ballroom A

Internet of Things (IoT) devices are collecting physical data of diverse human activities such as electricity consumption preferences, location information, driving habits, and biosensor data at unprecedented levels of granularity, and because sensing is passive, people are generally unaware of their privacy exposure. In this session we will discuss and open the floor to a discussion of the social, policy, and technical issues related to privacy in the context of the Internet of Things. We are developing an openly accessible website on “Privacy and IoT”. The website will be full of resources and background reading on privacy and surveillance, policy issues, and technical solutions. We will discuss the website and possible additions and contributions to this effort.

BOF Organizers: **Alvaro Cardenas**, University of Texas at Dallas; **Raheem Beyah**, Georgia Institute of Technology; **Claire Vishik**, Intel

Education, Scholarship, Internship, and Employment Opportunities in Cyber Security

Location: Grand Ballroom B

This BoF will address the following topics, among others: Scholarships / Fellowships/ Pursue a challenging profession in Cyber Security and/or Information Assurance (IA). Work for the Department of Defense or other Federal, and Local State organizations and help defend our nation’s cyber space. Cyber Security Careers: The government lacks some 20,000 or 30,000 people with the needed skills to defend cyberspace. The DHS has found that it’s not just a problem of finding the appropriate candidates; it’s about breaking through all the red tape in hiring them. Salaries can vary by agency and also by education and certification. Lesson Learned: Fellows/ Scholars Increase Student Competency/ Provide Better Federal Employment opportunities Participants/ Obtain Competitive Salaries/ Many Consider Advanced Graduate Studies

BOF Organizer: **Alfredo Cruz**, Polytechnic University of Puerto Rico



Hispanic in Computing Community

Location: Glass Oaks

The Hispanics in Computing group was founded a few months before the Tapia 2009 Conference. After Tapia 2011 in San Francisco we created a listserv and a Facebook group. The list members have gathered at every Tapia conference since 2009, during that time the community has grown to about 350 members. Some members have gone from graduate students to faculty members. The Tapia conference has become our yearly gathering to meet old friends and make new ones. Each conference results in at least 20 new members to the list. This BOF continues the yearly gathering of the Hispanics in Computing. The gathering allows many of us to meet face to face and discuss issues facing Hispanics. We seek participation from the audience to evolve the group to match the community's interest. We also discuss how academic institutions in the US can better serve growing number of Hispanics.

BOF Organizers: **Jose Morales**, Carnegie Mellon University – CERT; **Manuel Pérez-Quiñones**, University of North Carolina at Charlotte; **Dan Garcia**, UC Berkeley; **Patricia Ordoñez**, University of Puerto Rico Río Piedras

Participating in Free/Open Source Software Communities

Location: Sabine

Participation in Free/Open Source Software (FOSS) communities is rapidly becoming a differentiator for students seeking employment in IT, with more companies actively recruiting students with these skills, or directly headhunting promising contributors. While anyone can in theory join a FOSS project, in practice there are often social and technical barriers that discourage many, especially underrepresented students from successfully joining. As a result 98% of FOSS contributors are male, and 75% are from North America and Europe. Through 10 years of researching, teaching, and participating in FOSS communities, we've determined that a key factor discouraging participation and diversity is the often disconnected and isolated joining process. Being part of a cohort with which to climb the learning curve is an important support mechanism, and a good predictor of success.

The goal of this BOF is therefore twofold; bringing together students who have an interest in, but never contributed to FOSS to form cohorts and introduce them to students, academics and industry participants who can serve as mentors and provide advice. The second goal is to bring together FOSS

contributors and educators with an interest in addressing the on-boarding and diversity issues in FOSS to discuss ways of addressing these challenges.

BOF Organizers: **Carlos Jensen**, Oregon State University; **Lance Albertson**, Oregon State University

Visualization Research and Careers

Location: Trinity

Visualization plays a significant role in the exploration of data across all disciplines. Visualization tools and techniques have the ultimate goal of understanding the complex relationships that exist within data. Join us at this Birds of Feather session to learn about Information and Scientific Visualization. We'll go over useful topics such as learning resources, design principles, applications (Gephi, ParaView), languages (D3, Processing), conferences (IEEE VisWeek, XSEDE, VIZBI, BioVis), and public data resources. Come learn about the computational visualization skills that can prepare you for careers as a researcher or practitioner in areas such as Human Computer Interaction, High Performance Computing, bioinformatics, imaging, data science, analytics, and more. We will also describe diversity in visualization opportunities such as Research Experience for Undergraduates as well as the Broadening Participation in Visualization (BPViz) Workshop.

BOF Organizers: **Alberto Roca**, DiverseScholar; **Ronald Metoyer**, University of Notre Dame; **Vetria Byrd**, Purdue University

4:30 PM – 5:30 PM

Birds of a Feather Sessions

Building Technical Leaders through Service: Implementing the STARS Computing Corps Model

Location: Trinity

Having college students serve as leaders of K-12 computing outreach activities is a win-win for both groups. However, the college students need professional development and support to ensure successful events that will truly be engaging for the younger students. With support from the STARS Alliance, Georgia Gwinnett College (GGC), has developed a professional development program for computing undergraduate students to learn to effectively conduct computing outreach.

In this BoF, we invite students and faculty to discuss the structure, format, and potential impact of using a service learning course as a mechanism to enhance diversity in computing. Whether you have been operating service learning courses for years or just contemplating how this might work



on your campus, we invite you to participate. GGC faculty will discuss the course approval process, student recruitment, and syllabus development. GGC students who participated in the course will provide their own perspective on the program's impact.

BOF Organizers: **Nannette Napier**, Georgia Gwinnett College; **Kristine Nagel**, Georgia Gwinnett College; **Sonal Dekhane**, Georgia Gwinnett College; **Xin Xu**, Georgia Gwinnett College

Turning Big Data into Big Opportunity - Challenges and Applications

Location: Grand Ballroom B

The goal of this BOF is to facilitate a meeting place where participants to the Tapia conference interested in BigData and Analytics can network and learn about education and industry opportunities as well as discuss research topics and trends in BigData Insights. Most discussions about big data are usually about large datasets that are logistically difficult to present or manage and can be a challenge to process using traditional tools. Discussion includes the collection techniques of large environmental data and its analysis, major challenges with the High Performance Computing (HPC) community, currently available tools and techniques for scalable and efficient analysis of data-intensive scientific applications in HPC, the White House Open BigData Initiative and how we harness "Big Data" to address problems to create social positive impact. Finally, we conclude the session discussing the use of BigData in healthcare domain to predict epidemics, cure disease and improve quality of life.

BOF Organizers: **Elizabeth Bautista**, Lawrence Berkeley National Lab; **Rosario Robinson**, Anita Borg Institute; **Misbah Mubarak**, Argonne National Laboratory; **Maria Patterson**, University of Washington

Disability: Celebrating a Face of Diversity

Location: San Antonio

There is great diversity among individuals with disabilities, but there are also many common experiences. This Birds of a Feather session will bring together people who have a disability or who are interested in supporting individuals with disabilities. The goal of the session is to learn from each other about strategies for achieving success and ensuring that computing is welcoming and accessible to individuals with disabilities. The session will include information about internship, mentoring, and career development opportunities

available from AccessComputing, a NSF-funded Broadening Participation Alliance.

BOF Organizers: **Richard Ladner**, University of Washington; **Brianna Blaser**, University of Washington

Learn About How NCWIT Can Support Female College Students in Computing

Location: Glass Oaks

In 2007, the National Center for Women & Information Technology (NCWIT) created the Aspirations in Computing (AiC) program. AiC provides a long-term community for female technologists, encouraging persistence in computing through continuous engagement and ongoing encouragement. Thousands of women are offered technical workshops, networking at virtual and in-person meetups, visibility and recognition for achievements, and they gain exclusive access to scholarships, internships, and career opportunities at more than 650 NCWIT member organizations. Come learn about how you can join this vibrant community where peers are mentoring peers. We'd like to invite you to celebrate the amazing female technologists in the computing world. We'll bring students together to celebrate triumphs, ask questions, seek advice, or to just enjoy each other's company and leave Tapia with a new network of friends and computing peers.

BOF Organizer: **Ammi Ludwick**, NCWIT

Being Queer in Computing Environments

Location: Sabine

In this gathering, we will engage with some of the everyday challenges that impede inclusivity of queer individuals in computing research and learning environments. We use the term 'queer' as a placeholder with the intention of opening up discussions about, as opposed to proposing prescriptions for, marginalized gender, sex, sexuality, and reproductive identities. Queer computing professionals must often make complex decisions about when, how, and to whom to disclose certain aspects of their queer identities. More inclusive computing environments would improve research and teaching outcomes. We will invite dialogs with the audience by sharing personal experiences of being a queer educator, researcher, learner, and diversity-advocate in the fields of Computer Science, Information Science, and Human Computer Interaction. Our goal is to provide a communal platform that allows critical re-examination of existing power



relationships to identify and engage with the struggles of being queer in computing research and learning spaces.

BOF Organizers: **Gopinaath Kannabiran**, Indiana University-Bloomington; **Steve Chenoweth**, Rose-Hulman Institute of Technology; **Oliver Haimson**, University of California, Irvine; **Kyle Overton**, Indiana University-Bloomington

5:30 PM – 6:30 PM

Private Reception for Student Poster Presenters

By invitation only

Location: Guadalupe

Private Reception for CMD-IT Board of Advisors

By invitation only

Location: Nueces

Birds of a Feather Sessions

Empowering Women of Developing Countries in Computer Science

Location: Sabine

The goal of this session is the establishment of an international forum to unite and empower female computer scientists based within developing countries. By providing access to scientific materials and state-of-the-art this forum would enable women to generate original knowledge and provide the support infrastructure necessary for sharing such research with leading communities and universities around the world. This session provides opportunity to directly communicate the experiences and difficulties experienced by female computer scientists in developing nations to leading figures in the international community, thus immediately creating a provisional platform through which various solutions and strategies may be initially debated. The participants within this session would ideally be a mix of those currently conducting research within computer science and women originally from developing nations that have the unique ability to share their personal experiences concerning the difficulties faced by this underrepresented community, in addition to suggesting potential future empowerment mechanisms.

BOF Organizer: **Hana Khamfroush**, Pennsylvania State University

Planting a Seed, Growing a Leader: Minority Leadership in Computing

Location: Trinity

This BOF panel collects a group of professionals in the computing community who hold leadership roles in the organizations they are involved in, which is inclusive of outreach, academia, and industry settings. Join us as we discuss their path to leadership; how their personal experiences shaped the kind of work they went in to, how they established themselves in their community, their responsibilities, how the leadership role ties into their everyday life and enhances their work, how it connects them to their local community and other minorities, how it affects their career, and so on. The purpose of this panel is to give students and professionals a broader picture of leadership that inspires them to expand upon their own roles as leaders in whatever environment or community they find themselves in.

BOF Organizers: **Laura D. Barreto**, Vassar College; **Lauren V. Gaber**, University of Michigan – Dearborn; **Shaun K. Kane**, University of Colorado at Boulder; **Raquel Romano**, Google; **Ather Sharif**, Comcast; **Danielle Cummings**, Department of Defense

Open Source Contributions –The Earlier the Better!

Location: San Marcos

Open Source Development is often associated with programming and coding. However, this is not true. Anyone can share any information which can help others. One can open source anything. It could be a list of resources helpful for on boarding to a specific class or even a book. The basic idea of open source is sharing something to the whole world. Now, it is very important for students to understand and get on board as early as possible. The reason being almost all the companies encourage such a culture. It is very overwhelming at once, but one step at a time can help you get through. Universities can help students by encouraging the same behavior. The university projects could be open sourced or even pair projects can be helpful to understand collaborations. The basic idea here is to encourage open source contribution as a culture from the very beginning.

BOF Organizer: **Harshita Kasera**, University of Southern California



The Lives of Persistent Outliers in the World of Big Data

Location: San Antonio

We live in a world where information about our lives is shared with potentially millions of people in mere moments. Our thoughts, beliefs and values are all being documented through exchanges on social media, email and websites. Some companies are taking this data and using it to better align their messages to our personal needs and wants. Unfortunately, the big data used to generate “recommendations” often uses models that focus on one or two dimensions of a person. What happens when you look statistically different than the majority? What happens when you don’t fit the model? This BOF provides the opportunity to discuss statistical “outliers” in the context of Big Data. As social media and other personal online data is being used for advertising, credit-rating decisions and, in some cases, job decisions, is diversity an issue that needs to be addressed in the context of Big Data? If so, how?

BOF Organizer: **Alicia Powers**, Fino Consulting

MS vs PhD: Which should you choose, based on where you want to go?

Location: Glass Oaks

This session will focus on the major differences in career options and in graduate studies between a Master’s degree and Ph.D. degree. Topics include realistic goals and expectations for each degree, various strategies for deciding which degree to pursue, based on where you want to go with your career (post-doc, industry, academia, startup). Content will be relevant for undergraduate/graduate students to focus on the pros/cons of pursuing the MS/PhD for careers in Industry/Government/Academia/Startups.

Workshop Organizers: **Holly Rushmeier**, Yale University; **Bushra Anjum**, Amazon, Inc.; **Tammara Combs**, Serendipity Interactive

Tech for Good: Using Technology for Social Impact

Location: Grand Ballroom B

Many social impact projects have started in various humanitarian efforts to support communities across the globe. This Birds of a Feather (BOF) aims to teach what it means to make a social impact through the use of technology, in addition to helping the audience understand that being a Humanitarian and a Computer Scientist does not have to be mutually exclusive. This BOF will include technical professionals and professionals working in humanitarian organizations where they will discuss the rewards and potential risks, in addition to, the skills required to be a Humanitarian Computer Scientist. Lastly, several open source projects will be

highlighted and discussed concerning how they have impacted and created social change.

BOF Organizers: **Rosario Robinson**, Anita Borg Institute; **Ihudiya Finda Ogburu**, Uplift Education; **Sandi Giver**, Peace Corps

6:30 PM – 8:00 PM

Poster Reception

Location: Grand Ballroom

Industry Poster Session

Location: The Arbor

The Tapia Industry Poster session provides an opportunity for conference participants to learn about career paths and/or diversity initiatives at conference sponsors respective organizations. The following organizations will present during the Industry Poster Session:

- AccessComputing
- Asana
- Capital One
- D. E. Shaw Research
- Virginia Tech
- Fermi National Accelerator Laboratory
- Fidelity Investments
- Google
- Indiana University
- JPMorgan Chase & Co.
- Lawrence Berkeley National Laboratory
- Lawrence Livermore National Laboratory
- Liberal Arts College Association for Faculty Inclusion
- Lyft
- Microsoft
- National Center for Atmospheric Research
- Oak Ridge National Laboratory
- Pinterest
- Red Hat
- Stony Brook University
- UC Berkeley
- University of Notre Dame
- University of Oklahoma
- Yale University

Student Poster Session

Location: Wedgewood

The Tapia technical student poster session provides an opportunity for undergraduate and graduate 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.

**GRADUATE POSTERS****1. Comparison of Data Mining Methods on Microarray Gene Expression Data on Cancer**

Presenter: Thomas Hahn (University of Arkansas at Little Rock)

Co-authors: Richard Segall (Arkansas State University), Shen Lu (Soft Challenge LLC)

2. The Role of Media Enjoyment in the General Population's Reactions to Computer Science as a Topic of Study

Presenter: Joslenne Peña (The Pennsylvania State University)

Co-authors: Chulakorn Aritajati (The Pennsylvania State University), Mary Beth Rosson (The Pennsylvania State University)

3. Hardware Trust Model in Cloud Security

Presenter: Nevrus Kaja (University of Michigan - Dearborn)

4. Dengue Fever Surveillance in Asia using Text Mining Cluster Analysis

Presenter: Andrea Villanes (North Carolina State University)

5. Automated Analysis of Varied Language Production

Presenter: Paula Garcia (Rochester Institute of Technology)

Co-authors: Vicki Hanson (Rochester Institute of Technology)

6. Improving Effectiveness of MOOC Using Learners Perspective

Presenter: Dilrukshi Gamage (University of Moratuwa)

7. Visualizing Task Progress to Reduce Cognitive Biases in Crime Solving Task

Presenter: Nitesh Goyal (Cornell University)

8. PostureMonitor: Real-Time IMU Device to Detect Bad Posture Using Fuzzy Logic Principle

Presenter: Sudarat Tangnimitchok (Florida International University)

9. Gaze-Assisted User Authentication to Counter Shoulder-surfing Attacks

Presenter: Vijay Dander Rajanna (Texas A&M University)

Co-author: Tracy Hammond (Texas A&M University)

10. Automatic Precondition Generation for Repairing Runtime Errors

Presenter: Angello Astorga (University of Illinois at Urbana-Champaign)

Co-authors: Mengqi Gu (University of Illinois at Urbana-Champaign), Chiao Hsieh (University of Illinois at Urbana-Champaign), Siwakorn Srisakaokul (University of Illinois at Urbana-Champaign), Tao Xie (University of Illinois at Urbana-Champaign), Nikolai Tillmann (Microsoft Research), Johnathan de Halleux (Microsoft Research)

11. High Speed Natural Language Processing using GPUs

Presenter: Arturo Argueta (University of Notre Dame)

12. Investigating QPoC Representation in Video Games

Presenter: Roger Smith (Rochester Institute of Technology)

13. A Study on the Password Habits of College Students: Length and Reuse Based on Demographics

Presenter: Jorge Hernandez (Polytechnic University of Puerto Rico)

14. Spent Fuel Cask Basket Structure Evaluation with Emission Source Tomography

Presenter: Haitang Wang (University of Florida)

15. A Hybrid Answer Validation Model for Community Question Answering System

Presenter: Asiat Mercy Adebisi (Federal University of Technology Akure)

16. Fantasy Forecaster: A Case Study in Gamifying Science Data

Presenter: Gabriel Dzodom (Texas A&M University)

Co-authors: Frank Shipman (Texas A&M University), Rohit Gargate (IBM), Ross Peterson (Fujitsu)

17. Fair Evaluation of Global Network Aligners

Presenter: Joseph Crawford (University of Notre Dame)

Co-authors: Yihan Sun (Carnegie Mellon University), Tijana Milenkovic (University of Notre Dame)

18. Outlining the Design Goals and Challenges for Mobile Support for Exhibit Interpretation

Presenter: Priscilla Fernanda Jimenez Pazmino (University of Illinois at Chicago)

Co-authors: Leilah Lyons (University of Illinois at Chicago), Brian Slattery (University of Illinois at Chicago)

19. Learning, Characterizing and Validating Networks from Data, a Task-focused Approach

Presenter: Ivan Brugere (University of Illinois at Chicago)



20. MochiSketch: A Sketch-Based Intelligent Tutoring System for Visual and Technical Assessment of East Asian Language Script Symbols

Presenter: Paul Taele (Texas A&M University)
Co-author: Tracy Hammond (Texas A&M University)

21. DanceCraft: A Whole-Body Dance Software for Children with Autism

Presenter: Jamie K. Brown (University of California, Irvine)
Co-authors: Kathryn E. Ringland (University of California, Irvine), Gillian R. Hayes (University of California, Irvine)

22. Closed ASL Interpreting for Online Videos

Presenter: Matthew Seita (Rochester Institute of Technology)
Co-author: Raja Kushalnagar (Rochester Institute of Technology)

23. Linguistic Analysis of Instagram Hashtags

Presenter: Elnaz Nouri (University of Southern California)

24. Biometric Properties of Eye Movement and Pupillometry in Mammography

Presenter: Folami Alamudun (Texas A&M)
Co-authors: Tracy Hammond (Texas A&M), Georgia Tourassi (Oak Ridge National Laboratory)

UNDERGRADUATE POSTERS

25. The Ins and Outs of the New York City Subway System

Presenter: Riva Tropp (Microsoft)
Co-authors: Eiman Ahmed (Microsoft), Shannon Evans (Microsoft), Steven Vazquez (Microsoft)

26. Fabrication of Mechanically Flexible Photonic Crystal Cavities on Germanium Nanomembranes

Presenter: Lauren A. Patterson-Strong (Northampton Community College)

27. The Cost of Public School

Presenter: Thomas Patino (Skidmore College)
Co-authors: Glenda Ascencio (St. Joseph's College), Anastassiya Neznanova (Queens College), Nikki Hanson (Queens College)

28. Biomedical Disease Name Entity Recognition: An Ensemble Approach

Presenter: Hidayat Rahman (Leeds)
Co-authors: Thomas Hahn (University of Arkansas at Little Rock), Richard Segall (Arkansas State University), Fahad Najeeb (LLU)

29. Techniques for Anomaly Detection in IPv4 and IPv6 Network Flows

Presenter: Grace M. Rodriguez (University of Puerto Rico, Río Piedras)

30. Development of a Text Similarity Based Automatic Short Answer Grading System

Presenter: Olaide Beatrice Folorunso (Federal University of Technology)
Co-authors: Bolanle Adefowoke Ojokoh (Federal University of Technology), Samuel Temitope Ijikoyejo (Federal University of Technology), John Odunayo Okelola (Federal University of Technology), Emmanuel Tobi Ibiloye (Federal University of Technology), Abdulrauf Olusegun Folorunsho (Federal University of Technology)

31. From Corn to Classroom – Representing Advanced Concepts Though 3D Printed Models

Presenter: Timothy A. Gonzales (Lamar University)
Co-author: Greg Yera (Lamar University)

32. Using the Kinect to Classify Signs by Movements

Presenter: Eric S. Epstein (Rochester Institute of Technology)

33. Interactive Learning: Cryptography Methods

Presenter: Jorge Silvestrini (Polytechnic University of Puerto Rico)

34. Wearable Assistive and Augmentative Communication Button

Presenter: Lauren V. Gaber (University of Michigan - Dearborn)

35. CaveGEOmap: MATLAB Implementations in Order to Create 3 Dimensional Maps for Territorial Caves

Presenter: Yesenia Marie Rivera-Lopez (University of Puerto Rico-Arecibo)

36. A Network Flows Visualization Framework and API for Network Forensics and Analytics in the Web

Presenter: Julio de la Cruz-Natera (University of Puerto Rico, Río Piedras)
Co-author: Ian M. Dávila-Morales (University of Puerto Rico, Río Piedras)

37. Automated Anomaly Detection Within The Toa Network Flow Data Monitoring System

Presenter: Jose A. Valles Salas (University of Puerto Rico, Río Piedras)
Co-author: Ian Dávila Morales (University of Puerto Rico, Río Piedras)



38. 3D Immersive Color-Mapping of Large Astronomical Data

Presenter: Carlos Uribe (University of Illinois at Chicago)

39. The Impact of Quality Metrics on Communities Detected in Complex Networks

Presenter: Anastasia Voloshinov (Pomona College)
Co-authors: Jennifer Nguyen (Pomona College), Christina Tong (Pomona College)

40. Empowering Physical Therapist to Create 3D Printed Assistive Technology

Presenter: Niara Comrie (University of Maryland, Baltimore County)
Co-authors: Samantha McDonald (University of Maryland, Baltimore County), Amy Hurst (University of Maryland, Baltimore County), Erin Buehler (University of Maryland, Baltimore County)

41. Analyzing Health Data in Longitudinal Clinical Narratives

Presenter: Rebecca L. Haralson (Simmons College)
Co-authors: Katherine Sittig-Boyd (Simmons College), Stephanie P. Worobey (Simmons College)

42. Clinical Trial Eligibility Criteria Analysis for Patient Search

Presenter: Cristina Diaz (St. John's University)
Co-authors: Alexis King (St. John's University), Bonnie MacKellar (St. John's University), Christina Schweikert (St. John's University)

43. Exploring the Relationship Between Computational Algorithmic Thinking and Self-Efficacy in African-American Girls

Presenter: Rachelle C. Minor (Spelman College)

44. Predicting Developer Expertise from Eye Gazes on Source Code

Presenter: Jenna Wise (Youngstown State University)
Co-authors: Jessica Whitely (Youngstown State University), Ahraz Husain (Youngstown State University), Alina Lazar (Youngstown State University), Bonita Sharif (Youngstown State University)

45. Linked Data for Real Estate Advisor Application

Presenter: Saul Lopez (Arizona State University)
Co-authors: Christopher Diaz (Arizona State University), Julie Teplik (Arizona State)

8:00 PM – 10:00 PM

ABI Communities Reception

Sponsored by the Anita Borg Institute

Location: Glass Oaks

Join Anita Borg Institute communities (Systems, Black Women in Computing, Latinas in Computing, and more) for an informal meetup to meet members, learn about their initiatives and how to engage. Our communities are engaged in open source social impact projects, professional and peer mentoring through programs like Google Summer of Code and Google Code In and technical conferences and meetups. ABI Communities are engaged in various programs, involved in their own tech initiatives to engage and impact their communities as well and teach others how to get involved. This is a great networking opportunity!

Microsoft Reception

By invitation only

Location: Treehouse Kitchen

**7:00 AM – 8:00 AM****General Breakfast***Location: Grand Ballroom 8:00 AM – 8:30 AM***8:00 AM – 8:30 AM****Announcements***Location: Grand Ballroom***8:30 AM – 9:15 AM****Plenary Speaker***Location: Grand Ballroom***Overcoming Barriers for Careers in Information Technology****Daniel Sonnenfeld**, Technical Program Management Director, Salesforce

Today there is an incredible diversity of opportunities for people with disabilities in science, technology, engineering, and math (STEM) fields. Daniel Sonnenfeld will talk about his career as a Deaf technology professional: how he got into tech, and the experiences at companies where he worked. He will dive into the tools, techniques and resource groups he used to overcome communication barriers and excel as an engineer, a manager of engineers, and in product and program management positions. Daniel will inspire people from diverse backgrounds with practical advice and strategies to enhance their own careers.

BIOGRAPHY:

Daniel Sonnenfeld is a Technical Program Management Director at Salesforce where he leads complex cross-organizational technology initiatives. His professional experience spans the high tech industry, having worked with large enterprises and startups. After a stint at Massachusetts Institute of Technology, Daniel graduated from the University of California, Santa Cruz with a B.A. in Computer Science. Born deaf, Daniel wore hearing aids most of his life and received cochlear implants 13 years ago. He is multilingual and fluent in English, American Sign Language and French.

9:30 AM – 10:15 AM**Plenary Speaker***Location: Grand Ballroom***Emergence, Cooperation and Diversity: The Evolution of Natural and Engineered Swarms****Melanie Moses**, Associate Professor of Computer Science, University of New Mexico and External Faculty at the Santa Fe Institute

Natural systems are immensely more adaptive, flexible, and robust than anything built by humans. For example, right now trillions of T cells are crawling through your tissues,

without a blueprint of your body or centralized instructions, protecting you from viruses, nascent tumors, and their own uncontrolled proliferation. Uncountable numbers of ants crawl across forest canopies, desert sands and perhaps your kitchen counter. Each species uses its own decentralized strategy that tailors a small repertoire of sensing, navigation and communication behaviors to forage effectively in its environment. While spectacularly successful decentralized collective behaviors have evolved in ant colonies and immune systems, it remains a challenge to engineer flexible and effective cooperative robotic systems that can function in the real world. We emulate natural cooperative search behaviors in robotic swarms that sense, navigate and communicate to search effectively in previously unmapped environments. This work is the first to demonstrate high-level robot swarm behaviors that can be automatically tuned to produce efficient collective foraging strategies in varied and complex environments. The NASA Swarmathon engages students in this research in a swarm robotics challenge designed to revolutionize space exploration. In the first year, 500 students from Minority Serving Institution participated in the Swarmathon, demonstrating diverse approaches that robotic swarms can use to explore for resources, search for signs of life, and support human settlements on other planets.

BIOGRAPHY:

Professor Melanie Moses earned a B.S. from Stanford University in Symbolic Systems, an interdisciplinary program in cognition and computation, and a Ph.D. in Biology from the University of New Mexico in 2005. She is currently an Associate Professor in the Department of Computer Science at the University of New Mexico and External Faculty at the Santa Fe Institute. Her interdisciplinary research exists at the boundaries of Computer Science and Biology with over 50 peer reviewed publications in computational and mathematical biology and biologically-inspired swarm robotics. Research in the Moses Lab focuses on computational modeling of complex biological systems, particularly on cooperative search strategies in immune systems and ant colonies. Her research also applies principles from biology to design computational systems, particularly robotic swarms that replicate ant behaviors to perform collective tasks. Her research lab includes 14 includes post docs, undergraduate and graduate students and high school interns from Computer Science and Biology.

Professor Moses was the co-director of the NIH funded UNM Program in Interdisciplinary Biological and Biomedical Sciences 2013 - 2015, and directs the CSforAll course, an introductory programming course in computer modeling and simulation in which 400 New Mexico high school students



have been introduced to computer science and earned dual credit at UNM. Professor Moses is the Principal Investigator for the NASA Swarmathon, a swarm robotics competition that aims to engage 1000 students from Minority Serving Institutions to develop new swarm robotic algorithms to revolutionize space exploration. She is honored to have been a Ford Foundation Dissertation Diversity Fellow and a Microsoft Research New Faculty Fellowship Finalist, and to have received the UNM Outstanding New Teacher of the Year Award and the School of Engineering New Faculty Awards for Excellence in Teaching and Research.

10:00 AM – 5:00 PM Career Fair & Exhibits

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.

10:45 AM – 12:15 PM Panels & Workshops

Building Your Resume for a Career in Tech

Location: Grand Ballroom B

Unsure of your resume? Are you looking for guidance in developing it? Come learn about how to prepare a strong resume for technical positions. You'll hear from Google and Pandora about best practices when it comes to your resume. Don't forget to bring a copy of your resume to the session!

Workshop Organizers: **Melissa Arguinizoni**, Google; **Anita Stokes**, Pandora

Increasing Diversity in Computing: Sharing of Good Practices

Location: Glass Oaks

This panel will provide an opportunity for representatives from the NSF-funded Broadening Participation in Computing Alliances and other organizations to share their good practices about increasing diversity in computing. The panel will begin with an introduction to the NSF BP Alliances and other organizations including the following: AccessComputing, Exploring Computer Science Program, CRA-W/CDC, NCWIT, CAHSI, ECEP, STARS, IAAMCS, and CMD-IT. In particular, each panelist will be asked to discuss their organization and how they have successfully moved K-20 students through the computing pipeline. Following the panelist presentations, the moderator will open the panel for Q&A discussion with the audience on good practices.

Panel Moderator: **Valerie Taylor**, Texas A&M University/ CMD-IT

Panelists: **Ann Gates**, University of Texas at El Paso; **Richard Ladner**, University of Washington; **Nancy Amato**, Texas A&M University; **Kayla McMullen**, University of Florida; **Rick Adrion**, University of Massachusetts- Amherst; **Amherst**; **Julie Flapan**, UCLA Center X; **Leisa Thompson**, NCWIT; **Jamie Payton**, Temple University

Computational Art using Leap Motion (CALM): Integrating Creativity with Programming

Location: Wedgewood

Since an engaging context can positively impact student performance and motivation, the workshop presenters have created curriculum that teaches programming using computational art and the Leap Motion controller. Leap Motion is a kinesthetic interface that captures how users naturally moves their hands. It supports pointing, waving, reaching, and grabbing. The workshop organizers will bring several Leap Motion devices with a plan of creating a hands-on, collaborative experience. Participants will be organized in groups of 2-3, so at least one person in the group should have a laptop available that can have the appropriate software installed. The topics covered include: - Utilizing Leap Motion as an alternative input device - Writing code in Processing that incorporates the Leap Motion API - Two exercises creating computational art using Leap motion - Educational resources on using Leap Motion in CS2 courses which will also be available on a workshop web site

Workshop Organizers: **Evelyn Brannock**, Georgia Gwinnett College; **Robert Lutz**, Georgia Gwinnett College; **Nannette Napier**, Georgia Gwinnett College

Pursuing Valuable International Experiences for Computing Careers in a More Globally-Connected Technological World

Location: Trinity

Our panelists share their experiences on the value of seeking of academic, research, and industrial experiences at the international level, which include global experiences that reach out to Africa, Europe, East/Southeast Asia, and Oceania, and professional experiences including academia, research, and industry, and career progress ranging from emerging to established. We believe that doing so is more than crucially relevant in our computing field, as technological advances are becoming ever more an international contribution. Whether it stems from the boundary-pushing artificial intelligence research efforts in South Africa, the record-breaking supercomputing deployments in China, the emerging mobile computing markets in Chile, the marriage of design and computing excellence in Germany, or the



innovative augmented reality systems in New Zealand, the computing field is a world affair that cannot be ignored by the next generation of domestic computing engineers and scientists.

Panel Moderator: **Paul Taele**, Texas A&M University

Panelists: **Danielle Cummings**, United States Department of Defense; **Jacqueline Gross**, Spiceworks; **Jaye Nias**, University of Maryland Eastern Shore

Solving the Unsolvable Through Scientific Computing: Explorations in the Best Uses of Popular Mathematics Software

Location: Sabine

Many times one is posed with the need to implement a mathematical software program to solve or investigate a phenomenon. The workshop organizers are faculty in mathematics who often use these programs to carry out research applied to biology, and engineering as well as the development of numerical schemes. This two-hour session will provide best practices on how to best choose and implement popular mathematics software such as Mathematica, MATLAB (or GNU Octave), R along with RStudio, and Sage. The format will encourage both participating hands-on (using your own laptop with pre-installed software) as well as observing and asking questions.

Workshop Organizers: **Talitha Washington**, Howard University; **Edray Goins**, Purdue University; **Alejandra Alvarado**, Eastern Illinois University; **Luis Melara**, Shippensburg University

12:30 PM – 2:00 PM Networking Luncheon

Location: Grand Ballroom

Faculty Luncheon

Sponsored by Redhat

By invitation only

Location: Pecos

2:00 PM – 3:30 PM Panels & Workshops

Taking on the Technical Interview

Location: Glass Oaks

The job search (be it for an internship or a full-time) for a software engineering position usually involves one or more technical interviews. We'd like to provide tips, tricks, strategies and practice from both academic and industry perspectives to

help you best present your technical abilities during this often stressful process.

Workshop Organizers: **Eric Yurko**, Google; **Antoine Picard**, Google; **Cynthia Lee**, Stanford University; **Kaanon MacFarlan**, Pinterest

Navigating Your Career in Industry

Location: Trinity

With the increasing impact that computing has in our lives, there are opportunities for exciting careers in computing in virtually all industry domains, with demand for expertise in a variety of technical areas. This panel identifies approaches for making professional choices that allow for continuous career growth and discusses how to avoid the pitfalls that may lead to feeling stuck. The panelists also highlight critical non-technical skills that have a significant impact on career success.

Moderator: **Sabrina Coleman**, Founder and CEO, Mahoghany Coaching & Development

Panelists: **Jennifer Argüello**, Github; **Nicholas C.M. Fuller**, IBM T.J. Watson Research Center; **Ted Imes, Sr.**, Northrup Grumman Mission Systems; **Kryisia Jacobs**, Fermi National Accelerator Laboratory (Fermilab)

Parallel Computing with OpenMP on the Raspberry Pi 2

Location: Wedgewood

Interest in parallel computing is rapidly increasing with the ubiquity of multi-core architectures. In this workshop, we seek to teach students about parallel computing and its potential to reduce the computational workload of intensive applications. We will give student attendees a hands-on hardware/software experience, showing how parallel computations operate and can apply in practice. In Part I of the workshop, students will set up and explore a Raspberry Pi 2 multi-core computer in small teams. In Part II, students will use the parallel capabilities of the Raspberry Pi 2 to introduce parallel computation through simple applications. Part III explores applications of the Raspberry Pi 2 to parallel applications such as image processing and population dynamics, using OpenMP. At the end of the workshop, we will raffle off a Raspberry Pi 2 to a participant.

Workshop Organizers: **Suzanne J. Matthews**, United States Military Academy; **Richard A. Brown**, St. Olaf College; **Joel C. Adams**, Calvin College; **Elizabeth Shoop**, Macalester College



Open Access Colleges as a Path to Upward Mobility in High Tech: A collaborative effort between a community college, state university, and industry

Location: Sabine

While the enormous benefits of increasing diversity in technology is well known, preparing and identifying qualified underrepresented minority students within the existing academic structure is not always easy. Underrepresented students overwhelmingly attend open-access colleges and far too often enter college underprepared. Additionally, tech industry organizations traditionally focus recruiting efforts at top-tier universities. Leaders from three key stakeholder groups – community college, state university, and industry – will enumerate what they have learned through building CSin3, a successful program with excellent results. The results include an 84% transfer rate in computer science from Hartnell College to CSUMB, CSUMB being on track to graduate 1/6 of all Hispanic and 1/10 of all women computer science students from the CSU system. This panel will explore the common goals, opportunities, and challenges in building an end-to-end collaborative pipeline to recruit, educate, retain, and hire students from first-generation, low-income, underrepresented backgrounds in computer science.

Panel Moderator: **Sathya Narayanan**, California State University- Monterey Bay

Panelists: **Willard Lewallen**, Hartnell College; **Bonnie Irwin**, California State University- Monterey Bay; **Vanita Nemali**, Salesforce

Engaging Students of Color in Computer Science

Location: San Antonio

Underrepresented students of color face severe barriers to entering the computer science field. Innovative and responsive programs are urgently needed to address inequities ranging from the lack of computer science courses in under-resourced schools to the disparaging impacts of stereotype threat in the computing workforce. This panel will explore the stark intersection between the barriers facing underrepresented students of color in computer science and the growth of opportunity emerging in Silicon Valley and nationwide. The panel will provide evidence-based perspectives on interventions designed to garner sustained interest in computer science programs through myriad out-of-school approaches. Topics discussed will include: recruitment of highly motivated, underrepresented students of color; culturally relevant pedagogies; professional development for instructors; family/parent engagement; overcoming the “double bind” encountered by girls of color;

and strengthening peer networks. A moderated discussion will follow to examine how culturally responsive approaches can broaden opportunity and participation in computer science.

Panel Moderator: **Frieda McAlear**, Level Playing Field Institute

Panelists: **Dan Garcia**, University of California, Berkeley; **Tiffany Price**, Kapur Center for Social Impact; **Solomon Russell**, El Camino College

Strategies for Human-Human Interaction

Location: San Marcos

This session will focus on strategies for productive interaction with colleagues (both faculty and students), including the opportunities and challenges of being a woman and/or a minority in a computing technology career. Topics include inter-personal interaction dynamics, uncomfortable situations that might arise and how to react, the pros and cons of relationships with your fellow graduate students or department faculty, in the workplace, dealing with isolationism (i.e., “being the only one”), techniques for inclusion, and family-friendly policies to look for in a working environment. Content will be relevant for all groups (students, faculty, and industry professionals), and session will provide time for audience members to share their experiences and tips for success.

Workshop Organizers: **Jason Black**, Florida A&M University; **Jayfus Doswell**, Juxtapia; **Jamika Burge**, Founder and Principal, Design and Technology Concepts; **Patty Lopez**, Intel Corporation

4:00 PM – 5:30 PM

Panels & Workshops

NSF Funding

Location: Trinity

The Directorate for Computer and Information Science and Engineering (CISE) at the National Science Foundation supports investigators in all areas of computer and information science and engineering, fosters broad interdisciplinary collaboration, helps develop and maintain cutting-edge national computing and information infrastructure for research and education, and contributes to the development of a computer and information technology workforce with skills essential for success in the increasingly competitive global market. CISE consists of four divisions: Advanced Cyberinfrastructure (ACI), Computing and Communication



Foundations (CCF), Computer and Network Systems (CNS), and Information and Intelligent Systems (IIS). This presentation will focus on the different programs in the CISE Directorate focused on computing education and workforce development, with a special focus on broadening participation.

Workshop Organizer: **Kamau Bobb**, NSF

BRAID- A Pilot Initiative to Achieve More Diverse Undergraduate CS Departments

Location: San Antonio

The BRAID (Building, Recruiting And Inclusion for Diversity) initiative is a joint project led by the Anita Borg Institute and Harvey Mudd College. The BRAID project addresses the lack of diversity in computer science (CS) departments and specifically looks at the underrepresentation of women and racial/ethnic minorities. Under the leadership of their department chairs, a cohort of 15 CS departments across a variety of institutional types are striving to implement departmental changes to increase the percentage of underrepresented students in CS programs. Additionally, a research team at UCLA is leading a multi-institutional, mixed-methods study to track institutions and to determine which types of departmental changes are most effective at increasing the participation of women and students of color in the CS major. This panel will share successes and challenges BRAID schools are facing as well as preliminary research findings regarding successful strategies at achieving more diverse CS departments.

Panel Moderator: **Roshni Kasad**, Anita Borg Institute

Panelists: **Ann Gates**, University of Texas at El Paso;

James Geller, New Jersey Institute of Technology; **Lillian (Boots) Cassel**, Villanova University; **Linda Sax**, University of California, Los Angeles

Exploring networking fundamentals on Raspberry Pis

Workshop open to the first 40 attendees

Location: Pecos

This workshop gives attendees hands-on experience with understanding and debugging network issues using single-board computers running open-source network measurement tools. The computers will be connected as a local area network (LAN) and emulate the Wide Area Network. The attendees will also learn about the characteristics of wide-area network – delays and packet losses, and how they affect the overall performance of the network and in turn, impact the various applications that depend on the network -like video streaming, online games, VoIP calls and so on.

Please bring your own laptop with ssh capability. (PuTTY for window. Mac and Linux have built-in ssh programs)

Workshop Organizers: **Sowmya Balasubramanian**, ESnet, Lawrence Berkeley National Lab; **Mary Hester**, ESnet, Lawrence Berkeley National Lab; **Kathryn Mace**, ESnet, Lawrence Berkeley National Lab

Why Open Source is Good for Business?

Location: Glass Oaks

Open source is ubiquitous in the technology industry. Companies choose to develop open source software because it drives innovation, reduces time to market, promotes interoperability, engages developers, and leads to better financial outcomes. With cloud computing, big data, operating systems and the Internet of Things being top technologies driven by open source, there is an unprecedented amount of opportunities to work on cutting edge projects in an open, collaborative environment. Panelists will motivate attendees to become active open source participants by covering why open source is good for business, for the progress of technology, and for individual contributors. They will discuss business cases and practices for company participation in open source, their personal career stories, and share tips on getting started.

Panel Moderator: **Hope Lynch**, Red Hat

Panelists: **Chris Aniszczyk**, Cloud Native Computing Foundation; **Jessica Canepa**, GitHub; **Anne Gentle**, Cisco; **Lidza Louina**, Oracle; **Sarah Sharp**, Intel

Computation and Finance

Location: Sabine

As early as the 1950s, computer science, computer engineering and other have been applied to both theoretical and practical problems in finance. Today more than ever, computing related fields are critical elements of finance. This panel explores the obvious and not-so-obvious ways in which computing has been integrated into the finance field; current and emerging advances; and curriculum preparation for those who might be interested in computing and finance. Moderator: **Dorian Arnold**, University of New Mexico

Panelists: **Otto Lowe Sr.**, Fidelity Investments; **Emil Menzies**, BNY Mellon; **Dalia Soliman-Powers**, Capital One Auto Finance; **Burnell Thomas**, JP Morgan

5:30 PM – 6:30 PM

VIP Reception

By Invitation Only

Location: The Arbor

2016 Banquet Keynote Speaker: Reflections

Richard A. Tapia, University Professor; Maxfield-Oshman Professor in Engineering; and Director of the Center for Excellence and Equity in Education, Rice University

Dr. Tapia's bio is located on page 4.



8:00 AM – 5:00 PM Saturday Sessions

BWiC Gaming Workshop for High School Students

Sponsored by BWiC, CMD-IT and the Motorola Solutions Foundation

By invitation only

Location: Glass Oaks

The Black Women in Computing (BWiC) Gaming Workshop is a one-day game development workshop for high school students ages 13-18. The workshop will be taught by developers from Hidden Level Games (HLG), a New York-based game and software company. Participants will develop their own fully-functional, interactive video game using HLG's game development software, "Beta The Game", and learn coding through #CodePop, a "tweet-sized" programming language. The purpose of this workshop is to increase students' interest in computer science and programming, to promote education and careers in science, technology, engineering and mathematics (STEM), and to support historically under-served and underrepresented students with limited opportunities or access to resources in these areas. This workshop is geared toward students with no prior experience in computer science or programming.

HPC DAY with the Department of Energy National Laboratories

Sponsored by the Department of Energy National Laboratories

By invitation only

Location: San Marcos

Have you always wondered what the National Labs do in the computing field? The Labs have some of the world's biggest high-performance computing (HPC) systems, which are used to solve grand-challenge science problems. These supercomputers perform at the Petaflops level – computing quadrillions of arithmetic operations per second. They have innovative chip designs, unique cooling systems, and are designed with energy efficiency in mind. The Labs are able to further scientific research as a result of computing on these giant systems.

What's it like computing on these large beasts? Join us for a day and have the amazing experience to see for yourself!

Cybersecurity in Daily Life

Sponsored by TRUST

By invitation only

Location: Sabine

Cybersecurity is a topic that has been in the news with multiple discussions on how we as consumers and users of information can protect ourselves in our professional and personal interactions in the internet. As a result, the topic of cybersecurity now touches every industry and will require professionals to support the systems and networks of every organization. This full-day workshop will engage students who are new to cybersecurity and want to learn some of the history, some of the social and ethical issues we face today, some of the applications used to practice the theories through a series of hands-on exercises. We will touch on various industries, how cybersecurity is relevant today in those areas and will include discussion sessions, some hands-on lab exercises and a cyber challenge. The workshop will also have discussions on what resources are available to navigate into a cybersecurity career.

The format of the day will be as follows: The morning session will be educational and will encourage participants to have interactive discussions with panelists and the hosts. After a lunch break, the afternoon session will be hands on exercises of specific modules or applications in cybersecurity. The afternoon session will require a laptop with wireless connectivity, the appropriate ssh application and for the student to have some familiarity with a programming language.

9:00 AM – 12:00 PM

Bloomberg CodeCon

Sponsored by Bloomberg

By invitation only

Location: Wedgewood

Face off against your peers at CodeCon, a problem solving competition hosted by Bloomberg. To compete, you will simply need a laptop. Internet connection will be provided at the workshop. The top finisher will win a cool prize!



8:00 AM – 5:00 PM

Doctoral Consortium

Supported by the National Science Foundation

By invitation only

Location: Trinity

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

1. **Haley MacLeod, Indiana University-Bloomington**
Rare World: Designing for Dispersed Populations with Rare Diseases
2. **Denae M. Ford, North Carolina State University**
Identifying Barriers for Female Participation on Stack Overflow
3. **Tania Roy, Clemson University**
Detecting Digital Dating Abuse Using Machine Learning Techniques
4. **Brittany R. Nkounkou, Cornell University**
Mechanically Verified CHP Transformations
5. **Camilo Vieira, Purdue University**
Exploring the Self-Explanation Effect in Complex Learning of Disciplinary Programming
6. **Vijay Dandur Rajanna, Texas A&M University**
Toward Gaze and Foot Based Multi-modal Human-Computer Interaction
7. **Brittany Johnson, NC State University**
Modeling Developer Conceptual Knowledge to Improve Program Analysis Tool Communication
8. **Suryadip Chakraborty, University of Cincinnati**
Data Aggregation in Wireless Body Area Network
9. **Boris Brimkov, Rice University**
Space Efficient Algorithms for Large Scale Graph Problems
10. **Parul Pandey, Rutgers University**
Exploiting the Untapped Potential of Mobile Distributed Computing via Approximation
11. **Mahsa Badami, University of Louisville**
Investigations in Active Learning Strategies for Advanced Recommender Systems
12. **Priya Anand, Pennsylvania State University**
Applying Security Tactics in Open Source Software Projects - A Pattern-based Approach
13. **Paul Taele, Texas A&M University**
Sketch-Based Intelligent Tutoring Systems for Multi-Skill Level Assessment of East Asian Language Script Symbols
14. **Jason Grant, University of Notre Dame**
Crowd Analysis using Computer Vision



2016 Tapia Conference

The 2016 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.

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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.

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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.



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Cultural diversity in our workforce is not only important for nurturing a more inclusive society; it is crucial to the creative innovation process that drives our economy. Numbers alone are not sufficient; we should strive to make the benefits of IT available to all communities, including communities who might otherwise not receive them.



SUPPORTING TECHNICAL TALENT

Center for Minorities and People with Disabilities in IT. Our vision is to contribute to the national need for an effective workforce in computing and IT. We specifically target the following groups that are grossly underrepresented in computing: African-Americans, Hispanics, Native Americans and Persons with Disabilities.

Effecting Change. CMD-IT programs ensure that underrepresented groups are fully engaged in computing and promote innovation by broadening the participation of these groups in the field of computing. Our programs focus on providing professional development for college/university students and professionals, community enrichment, and information dissemination.

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Collaboration drives real business value

Collaboration is at the heart of any company, but it no longer happens inside the office, at a desk, from 9–5. Not only do employees need access to their work anywhere, at anytime, they also need access to a global network of colleagues, partners, and clients. As employees rely on these growing business networks, technologies that power collaboration can reduce costs and drive revenue. IDC quantified the value Dropbox Business delivers in supporting collaboration.



\$684K over 5 years per 100 users

2 month payback period

802% ROI

31% less IT time supporting collaboration

“With its ease of deployment and quick adoption across the enterprise, Dropbox is proving to be just the collaboration enabler that our business units have needed for some time.”

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About Dropbox Business

- 500M users
- 3.3B connections
- Rated best-in-class for ease of use by Gartner
- Named a leader in the Forrester Wave
- Works across any devices or platform
- Enhanced collaboration features for Microsoft Office

Delivering business value

- Work more efficiently with customers, suppliers, and employees
- Improve productivity of sales and other revenue-generating departments
- Make business operations more efficient
- Reduce IT staff time to support collaboration
- Mitigate risk by enabling secure collaboration

Simplifying external collaboration

Average annual time savings per 100 users by collaboration group



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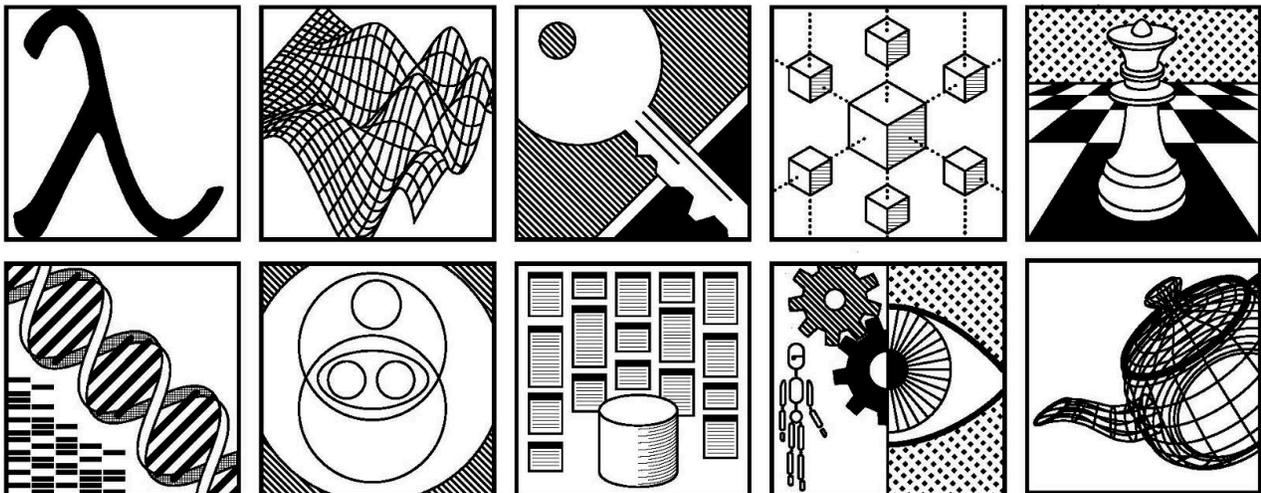
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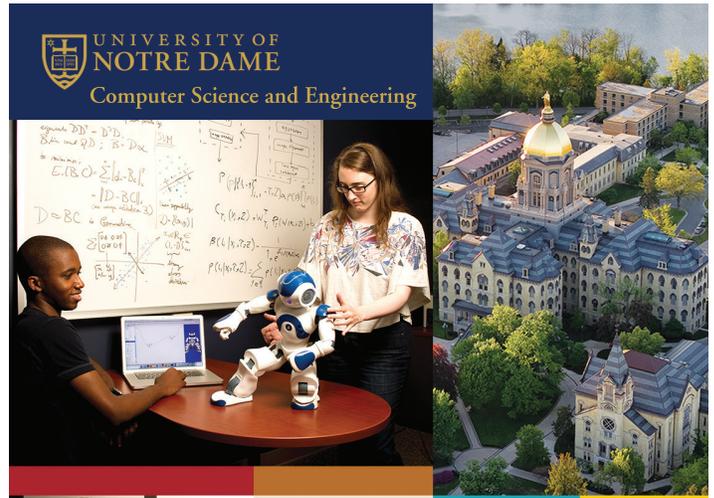
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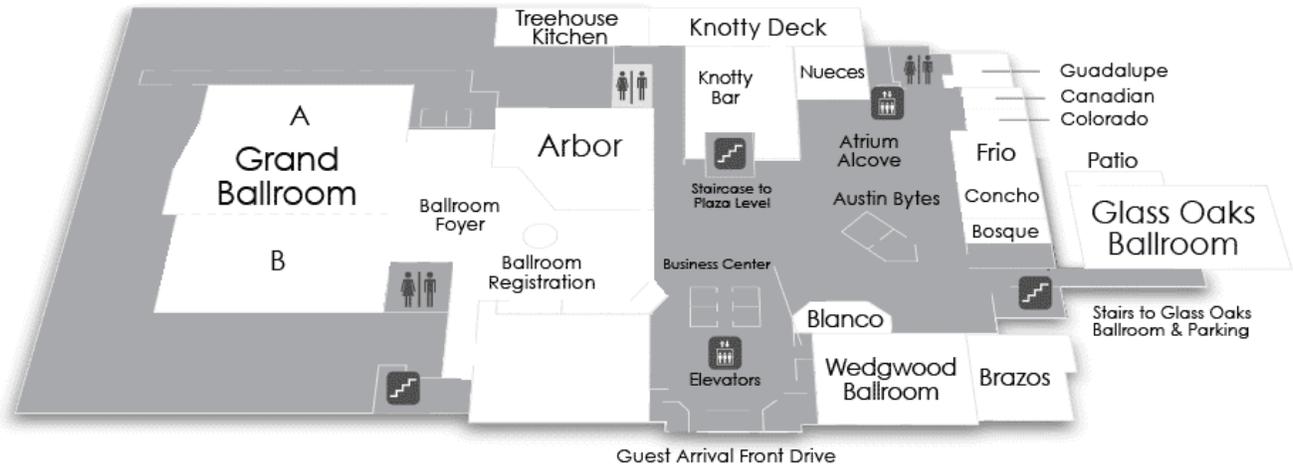
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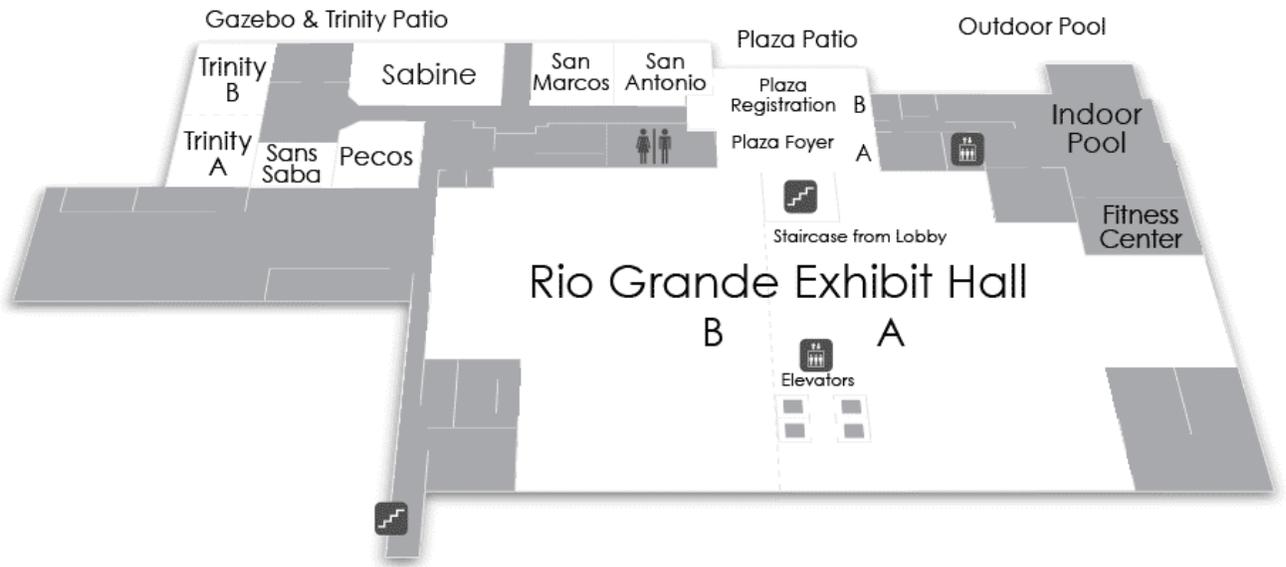
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Plaza Level (Lower Level)



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