

2013

Richard

TAPIA

CELEBRATION OF
DIVERSITY IN
COMPUTING
CONFERENCE

February 7 – 10, 2013 • Washington, D.C.

TAPIA 2013

12 Years of Celebrating Diversity in Computing 2013 Richard Tapia Celebration of Diversity in Computing Conference

**February 7–10, 2013
Washington, D.C.**

The 2013 Richard Tapia Celebration of Diversity in Computing Conference is organized by the Coalition to Diversify Computing, sponsored by the Association for Computing Machinery, and in cooperation with the IEEE Computer Society and the Computing Research Association. The conference celebrates the technical contributions and career interests of diverse people in diverse computing fields and strives to help all attendees — and especially students — build vital connections that will serve them well both professionally and personally. The 2013 conference — the seventh meeting in a biennial conference series that began in 2001 — will highlight innovative research and applications in computing sciences.

The conference aims to provide an educational and supportive networking environment for underrepresented groups across the broad range of computing and information technology, from science to business to the arts to infrastructure.

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

Featured Speakers

Friday, February 8

Plenary Speaker

8:30–9:15 a.m.

“Designing Software Systems that Comply with Privacy and Security Regulations”

Annie Anton, Georgia Tech

Plenary Speaker

9:15–10 a.m.

“Digital Vellum”

Vint Cerf, Google

Plenary Speaker

1:15–2 p.m.

“NSF Centers and Computational Networks”

Theresa Maldonado, National Science Foundation

Plenary Speaker

2–2:45 p.m.

“Using Monte Carlo Techniques to Speed the Multicore Design Cycle”

Jeanine Cook, New Mexico State University

Saturday, February 9

Plenary Speaker

8:30–9:15 a.m.

“Plug into the Supercloud”

Hakim Weatherspoon, Cornell University

Plenary Speaker

9:15–10 a.m.

“Crossing the Software Education Chasm using Software-as-a-Service and Cloud Computing”

Armando Fox, University of California, Berkeley

Ken Kennedy Distinguished Lecture

3:30–4:30 p.m.

“CyberSecurity — The Weak Link in Our Infrastructures”

Anita Jones, University of Virginia

Banquet Invited Address

6–8:30 p.m.

“Finding Your Niche, Making Your Mark”

Dot Harris, Director of the Office of Economic Impact and Diversity, Department of Energy (DOE)

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2013 Tapia Conference Organization

The 2013 Richard Tapia Celebration of Diversity in Computing Conference would not have been possible without the tremendous dedication and contributions of our sponsor, the Association for Computing Machinery, in cooperation with the IEEE Computer Society and the Computing Research Association, our supporting organizations, and our committee members. The Coalition to Diversify Computing, which organized Tapia 2013, extends a sincere thank you to everyone, including the participants, who made this event possible.

Sponsoring Organization

The Association for Computing Machinery (ACM)

<http://www.acm.org>

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

Cooperating Organizations

The IEEE Computer Society

<http://www.computer.org>

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

The Computing Research Association (CRA)

<http://www.cra.org>

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

expand opportunities for women and minorities, and improve public and policymaker understanding of the importance of computing and computing research in our society.

Organizer

The Coalition to Diversify Computing (CDC)

[http:// www.cdc-computing.org/](http://www.cdc-computing.org/)

The Coalition to Diversify Computing is a joint organization of the ACM, IEEE-CS and CRA. The goal of CDC is to address the shortfall of highly trained workforce of scientists and engineers capable of meeting the needs in the broad area of computing. CDC projects target students, faculty and professionals with expressed intent of increasing the number of minorities successfully transitioning into computing- related careers in academia, industry, and national laboratories. The diverse membership of CDC from academia, industry, and national laboratories enables a variety of different perspectives and approaches to be utilized in achieving the aforementioned goals.



Honoring the contributions of Prof. Richard Tapia and celebrating the technical contributions and career interests of diverse people in all fields of computing.

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 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.



Welcome to the seventh Richard Tapia Celebration of Diversity in Computing Conference!

Our conference celebrates diversity and inclusion in computing, and by all measures, we are the most diverse event in computing in terms of gender and ethnicity. I am honored to have been chosen to chair the 2013 Tapia Conference and hope you all find the conference to be a rewarding experience, just as I have found it rewarding to work with the organizing committee.

To get the most out of this conference, I encourage you to meet and talk to as many of your fellow attendees as you can. Seek out people you don't know and engage them. Share ideas and experiences. Also, please be sure to visit the information tables of our Tapia 2013 supporters. This is an excellent opportunity to learn about professional opportunities ranging from summer internships to career positions.

In April 2011 we decided to locate the 2013 Tapia Conference in the Washington, D.C. area in order to bring our community to one of the most vibrant research and high-tech communities in the nation. During the last eighteen months we have been working very hard putting together a fantastic program that includes a constellation of stellar speakers, a doctoral consortium, workshops, panels, birds-of-a-feather sessions, a student poster session, a banquet and dance. On the final day of the conference, we will also hold a town hall meeting at which you can provide feedback on this year's meeting and give us ideas for future Tapia conferences.

Our conference wouldn't be possible without the generous contributions from our industrial and academic supporters. Please take a moment to thank all the volunteers listed in this program. The conference is the result of their enthusiastic and at times heroic efforts.

On a personal note, I would like to dedicate this conference to the memory of our dearest friend and colleague, Tiki Suarez-Brown.

Juan E. Vargas

2013 Tapia Conference General Chair

In Memoriam: Tiki L. Suarez-Brown



It is with deep sadness that we mourn the passing of Tiki Suarez-Brown, an associate professor at Florida A&M University and an active member of the Tapia Conference organizing committee. Dr. Suarez-Brown was passionate about her teaching and deemed it her "calling." She was determined to get minority students more involved in STEM fields — Science, Technology, Engineering and Mathematics. She wanted her students to learn about the many opportunities available to them — and to ensure they were prepared to succeed. Her dedication led to her being named the FAMU Teacher of the Year for 2007–08.

Her passion carried over to helping the larger community as a volunteer for the Tapia Conference, the Grace Hopper Celebration of Women in Computing, and the annual SC conference. She was the deputy scholarship chair for the 2011 Tapia Conference. Among other responsibilities, she served as chair of the SC09 Broader Engagement (BE) Program, Communities chair of the SC10 Student Cluster Competition, and chair of the SC11 Student Volunteers program.

A devout Christian, Tiki was a member of the Greater Mount Pleasant Missionary Baptist Church in Tallahassee and Spread the Word Ministries in Atlanta. She is survived by her husband, Cedric.

Her signature phrase was "Be Bountifully Blessed," and those who knew her, worked with her, and learned from her considered themselves blessed for their time with her.

4 Tapia Schedule at a Glance

Thursday, February 7		Friday, February 8	
7:30 a.m.–5 p.m.	Doctoral Consortium Alexandria, McLean and Roslyn Rooms <i>Doctoral Consortium Leaders:</i> <i>Juan E. Vargas;</i> <i>Anthony Joseph, UC Berkeley</i> (Participation by advance acceptance only)	7 a.m.–6 p.m.	Registration open Arlington Registration Area
12 p.m.–8 p.m.	Registration open Arlington Registration Area	7–8 a.m.	Breakfast Salons 3 and 4
5–6p.m.	Welcome and Orientation for All Scholarship Awardees Salons 5 and 6 <i>Session Leaders: Richard Tapia,</i> <i>Jamika Burge, Tony Baylis</i>	8–8:30 a.m.	Opening Session Salons 3 and 4 Conference Welcome and Announcements <i>Tapia 2013 Conference Chair</i> <i>Juan Vargas</i> Welcome from the Coalition to Diversify Computing (CDC) <i>CDC Chair Juan Gilbert,</i> <i>Clemson University</i>
6–7:30 p.m.	Dinner Reception and one-minute presentations from supporters Salons 3 and 4 <i>Session leaders: Tapia 2013 General Chair Juan Vargas and Tapia 2013 Program Co-chair Tony Baylis</i>	8:30–9:15 a.m.	Plenary Speaker Salons 3 and 4 “Designing Software Systems that Comply with Privacy and Security Regulations” <i>Annie Anton, Georgia Tech</i>
7:30–10 p.m.	Information Exhibits with Tapia 2013 Contributors Salons 1 and 2, Arlington Foyer <i>Desserts will be served</i>	9:15–10 a.m.	Plenary Speaker Salons 3 and 4 “Digital Vellum” <i>Vinton Cerf, Google</i>
8:30–10 p.m.	Birds-of-a-Feather Session Salons 3 and 4 “Android vs. iPhone: What’s Your Personality?” <i>Session leader: Jasmine Bowers, Fort Valley State University, Georgia</i>	10–10:30 a.m.	Break — Exhibits area Salons 1 and 2, Arlington Foyer
8:30–10 p.m.	Beyond Broader Engagement LittleFe Parallel Computing Workshop Session 1 Salons A and B “The future is parallel, are you?” <i>Workshop leaders: Charlie Peck, Earlham College, Indiana</i> <i>Tom Murphy, Contra Costa College, California</i>	10:30 a.m.–12 p.m.	Panel Discussion Salon 5 “Faking It? Overcoming Imposter Syndrome” <i>Moderator: Danielle Cummings, Texas A&M University; Panelists: Suzanne J. Matthews, United States Military Academy; Delfina Eberly and Neville Bowers, Facebook; and Paul Taele, Texas A&M University</i>

10:30 a.m.–12 p.m.	Panel Discussion Salon 6 “Collaborative Cyber Security” <i>Moderator: Jeremy Epstein, National Science Foundation; Panelists: Gerry Dozier, North Carolina A&T; Alfredo Cruz, Polytechnic University of Puerto Rico; Grace Crowder, National Security Agency; Cherita Corbett, Computer Applied Physics Laboratory; Cyntrica Eaton, Norfolk State University</i>	2:45–5:15 p.m.	Workshop Salon 5 “Entrepreneurship Academy” <i>Speakers: Roger Werne, Lawrence Livermore National Laboratory; Chris Ford, U.S. Department of Energy and The Phoenix Foundation, Inc.; Omoju Miller, UC Berkeley; TBA, Latino Start-up Alliance, and Laura Weidman Powers, COD2040</i>
10:30 a.m.–12 p.m.	Panel Discussion Salons C, D and E “Technology Careers and Government” <i>Moderator: Jamika Burge, Information Systems Worldwide; Panelists: Dot Harris, Department of Energy; Jeffrey R.N. Forbes, National Science Foundation; Leteita Wooten, Office of Naval Intelligence; Shaun Gittens, Data Computer Corporation of America</i>	2:45–5:15 p.m.	Google Offsite Trip for Ph.D. Students [By advance invitation only]
12–1:15 p.m.	Networking Lunch Salons 3 and 4	2:45–5:15 p.m.	Beyond Broader Engagement LittleFe Parallel Computing Workshop Session 2 Salons A and B “The future is parallel, are you?” <i>Workshop leaders: Charlie Peck, Earlham College, Indiana; Tom Murphy, Contra Costa College, California</i>
1:15–2 p.m.	Plenary Speaker Salons 3 and 4 “NSF Centers and Computational Networks” <i>Theresa Maldonado, National Science Foundation</i>	2:45–5:15 p.m.	Workshop Salon 6 “Networking Security Cryptography” <i>Speakers: Alfredo Cruz, Jeffrey Duffany and Eduardo Meléndez, Polytechnic University of Puerto Rico</i>
2–2:45 p.m.	Plenary Speaker Salons 3 and 4 “Using Monte Carlo Techniques to Speed the Multicore Design Cycle” <i>Jeanine Cook, New Mexico State University</i>	5:15–5:45 p.m.	Student Poster setup Salons 4, 5 and 6
		5:15–6:30 p.m.	SkyView Lounge Meet Microsoft!
		5:15–6:30 p.m.	Dinner Reception Salons 4, 5 and 6
		6:30–8:30 p.m.	Student Research Poster Session Salons 4, 5 and 6 <i>Session Leader: Tony Drummond, Lawrence Berkeley National Laboratory</i> <i>Sponsored by XSEDE, the Extreme Science and Engineering Discovery Environment</i>

8:30 p.m.–10 p.m.

**Birds-of-a-Feather Session
Salons A and B**
**“Exploring Misconceptions in
Computing—Centered on Movies
and the Influence on Diversity in
the Computing Population”**

*Organizer: Nadine Shillingford
Wondem, Rose-Hulman Institute of
Technology*

8:30 p.m.–10 p.m.

**Birds-of-a-Feather Session
Salon 3**
**“Facing the Challenges of Big Data:
Tools, Techniques and Infrastructure”**

*Organizers: Christan Grant and
Pierre St. Juste, University of Florida;
Juan Sequeda, University of Texas at
Austin; Shaun Gittens, Data
Computer Corporation of America*

Saturday, February 9

7 a.m.–5 p.m.

Registration open

7–8 a.m.

**Breakfast
Salons 3 and 4**

8–8:30 a.m.

**Conference Announcements
Salons 3 and 4**

*Juan Vargas, Tapia 2013
Conference Chair
Jan Cuny, National Science Foundation*

8:30–9:15 a.m.

**Plenary Speaker
Salons 3 and 4**
“Plug into the Supercloud”

*Hakim Weatherspoon,
Cornell University*

9:15–10 a.m.

**Plenary Speaker
Salons 3 and 4**
**“Crossing the Software
Education Chasm using
Software-as-a-Service and Cloud
Computing”**

*Armando Fox, University of
California, Berkeley*

10–10:30 a.m.

**Break — Exhibits area
Salons 1 and 2, Arlington Foyer**

10:30 a.m.–12 p.m.

**Panel Discussion
Salon 5**

**“Launching Your CS Career —
Tips from Google”**

*Moderator: Hal Marz, Google
Panelists: Google engineers and
students*

10:30 a.m.–12 p.m.

**Panel Discussion
Salon 6**
**“Security, Trust and Privacy:
Perspectives across the
Academic Pipeline”**

*Moderator: William H. Robinson,
Vanderbilt University and National
Science Foundation. Panelists: Steve
Wicker, Cornell University; Carlos
Tadeo Ortega Otero, Cornell Univer-
sity; Ashley Tolbert, Auburn University*

10:30 a.m.–12 p.m.

**Panel Discussion
Salons C, D and E**
**“Career Tracks for Computational
Scientists and Engineers”**

*Moderator: Tony Drummond, Law-
rence Berkeley National Laboratory.
Panelists: Neville Bowers, Facebook;
Pietro Cicotti, San Diego Supercom-
puting Center; Mary Ann Leung,
Krell Institute; Patti Ordóñez Roza,
University of Puerto Rico Río Piedras
Campus; Sonia Sachs, Department
of Energy; Valerie Taylor, Texas A&M
University*

12–1:15 p.m.

**Lunch
Salons 3 and 4**

12–1:15 p.m.

**IT Career Opportunities with
Microsoft** (By advance invitation only)
Salons A and B

1:30–3:30 p.m.

**Plenary Panel
Salons 3 and 4**
**“Microsoft-Sponsored Fireside Chat
about Future Technologies”**

*Moderator: Valerie Taylor, Texas
A&M; Speaker: Rico Malvar,
Microsoft; Panelists: James Lakes,
Microsoft, Marcus Mitchell, Google;
Valentina Salapura, IBM; and
John Towns, NCSA*

3–3:30 p.m.

**Break
Salons 3 and 4**

3:30–4:30 p.m.

Ken Kennedy Distinguished Lecture
Salons 3 and 4
“CyberSecurity — The Weak Link in Our Infrastructures”
Anita Jones, University of Virginia

4:30–5:30 p.m.

Town Hall Meeting: An opportunity to offer feedback for future Tapia Conferences
Salons 3 and 4
Session Leader: Tapia 2013 Conference Chair Juan Vargas, Microsoft

5:30–6:15 p.m.

VIP Reception
(By invitation only for conference supporters)
SkyView Lounge
Reception Host: Tapia 2013 Conference Chair Juan Vargas

6:30–9 p.m.

Tapia 2013 Banquet and Award Ceremony
Grand Ballroom

Banquet Invited Address
“Finding Your Niche, Making Your Mark”
Dot Harris, Director of the Office of Economic Impact and Diversity, Department of Energy (DOE)

Presentation of 2013 Tapia Award to Juan Gilbert, Clemson University, by Professor Richard Tapia
Banquet Organizers: Phoebe Lenear, University of Illinois at Urbana-Champaign; and Josef Sifuentes, Rice University

9–11:30 p.m.

Closing Dance and Celebration
Grand Ballroom

Tapia Day by Day

Thursday, February 7

Registration Open 12–8 p.m.
Arlington Registration Area

7:30 a.m.–5 p.m.

Doctoral Consortium

Alexandria, McLean and Roslyn Rooms

(Note: Participation by advance acceptance only)

Doctoral Consortium Leaders: Juan E. Vargas; Anthony Joseph, UC Berkeley

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

5–6 p.m.

Welcome and Orientation for All Scholarship Awardees

Salons 5 and 6

Session Leaders: Richard Tapia, Rice University; Tapia 2013 Scholarship Chair Jamika Burge, Tapia 2013 Registration Chair Tony Baylis

All Tapia 2013 scholarship recipients are strongly encouraged to attend this session. Scholarship reimbursement procedures and conference participation expectations will be discussed. In addition, questions about submitting reimbursement requests and common mistakes made in the past will be addressed. Prevent reimbursement delays by attending this session.

6–7:30 p.m.

Dinner Reception and one-minute presentations from supporters

Salons 3 and 4

Session leaders: Tapia 2013 General Chair Juan Vargas and Tony Baylis

7:30–10 p.m.

**Information Exhibits with Tapia 2013 Supporters
Salons 1 and 2, Arlington Foyer**

The success of the 2013 Tapia conference is largely due to the financial support from leading members of the technology industry, national research community and academia. Supporting organizations will have representatives on hand during the conference to answer your questions and talk about graduate school opportunities, summer internships, faculty fellowships, post-doctorate internships and employment opportunities, as well as general information about their organizations. Please be sure to take advantage of the Information Sessions with Tapia 2013 Supporters

8:30–10 p.m.

**Birds-of-a-Feather Session: “Android vs. iPhone:
What’s Your Personality?”
Salons 3 and 4**

Speaker: Jasmine Bowers, Undergraduate senior majoring in mathematics and computer science at Fort Valley State University, Georgia

Abstract: The 21st century is indeed the century of advanced technology. Telephones have evolved from land lines to cordless phones to hand-held cellular devices. However, the decision of the best cellular phone remains an issue amongst all ages, genders and professions. One may ask “what phone fits my personality?” In order to help solve this social issue, I will conduct a series of surveys that will include information concerning the characteristics of people who purchase an Android operating system-based phone versus an Apple iPhone. The results will help potential buyers make better decisions in purchasing a cellular phone for their personal use. This research will be based on the statistical correlation between phone preferences and personal characteristics.

8:30–10 p.m.

**Workshop: “The future is parallel, are you?”
Salons A and B**

**Beyond Broader Engagement LittleFe Parallel
Computing Workshop Session 1**

*Workshop leaders: Charlie Peck, Earlham College, Indiana; Tom Murphy, Contra Costa College, California
Organizers: Raquell Holmes, Roscoe Giles and Tony Baylis, Beyond Broader Engagement*

Abstract: Faculty leads will give a short (30 minutes) introduction to HPC/parallel/distributed computing illustrating big problems. Students will then solve an analogous very small problem: calculating pi via an area under the curve (AUC) using the LittleFe/BCCD platform. Students will have about 1.5 hours to begin developing a solution to the problem using a summation of rectangular areas method. Teams will reassemble at 2:45 p.m. the next day, with solutions submitted by 5:15 p.m. Friday. Solutions will include their answer, their source code, and a write-up that describes their solution. Grading will happen on Friday night, and the awards will be given on Saturday for fastest solution of pi using a summation of rectangular areas method to five decimal places, 15 decimal places, 25 decimal places and 35 decimal places. The final award category will be for most decimal places of pi using a summation of rectangular areas method.

Format: Groups of 8–10 students will be assigned to a LittleFe table, which will have one of the trained student facilitators to lead the group, and hopefully each student, to successfully solving the problem.

Friday, February 8

Registration Open 7 a.m.–6 p.m.

7–8 a.m.

**Breakfast
Salons 3 and 4**

8–8:30 a.m.

**Opening Session
Salons 3 and 4**

Conference Welcome and Announcements

Tapia 2013 Conference Chair Juan Vargas

Welcome from the Coalition to Diversify Computing (CDC)

CDC Chair Juan Gilbert, Clemson University

8:30–9:15 a.m.

Plenary Session I

Salons 3 and 4

“Designing Software Systems that Comply with Privacy and Security Regulations”

Annie I. Antón, Chair, School of Interactive Computing, Georgia Institute of Technology

Properly protecting information is in all our best interests, but it is a complex undertaking. The fact that regulation is often written by non-technologists, introduces additional challenges and obstacles. Moreover, those who design systems that collect, store, and maintain sensitive information have an obligation to design systems holistically within this broader context of regulatory and legal compliance.

There are questions that should be asked when developing new requirements for information systems. For example ... How do we build systems to handle data that must be kept secure and private when relevant regulations tie your hands? When building a system that maintains health or financial records for a large number of people, what do we need to do to protect the information against theft and abuse, keep the information private, AND at the same time, satisfy all governing privacy/security laws and restrictions? Moreover, how do we know that we've satisfied those laws? How do we monitor for compliance while ensuring that we're monitoring the right things? And, how do you accomplish all this in a way that can be expressed clearly to end-users and legislators (or auditors) so they can be confident you are doing the right things?

We've been working on technologies to make these tasks simpler, and in some senses, automatic. In this talk, I will describe some of the research that we are conducting to address these problems. In addition, I will briefly discuss my experiences as a Cuban-American computer scientist.



Annie I. Antón is a Professor in and Chair of the School of Interactive Computing at the Georgia Institute of Technology in Atlanta. She has served the national defense and intelligence communities in a number of roles since being selected for the IDA/DARPA Defense Science Study Group in 2005–2006. Her current research focuses on the specification of complete, correct behavior of software systems that

must comply with federal privacy and security regulations. She is founder and director of ThePrivacyPlace.org. Antón currently serves on various boards, including the U.S. DHS Data Privacy and Integrity Advisory Committee, an Intel Corporation Advisory Board, and the Future of Privacy Forum Advisory Board. She is a former member of the CRA Board of Directors, the NSF Computer & Information Science & Engineering Directorate Advisory Council, the Distinguished External Advisory Board for the TRUST Research Center at U.C. Berkeley, the DARPA ISAT Study Group, the USACM Public Council, the Advisory Board for the Electronic Privacy Information Center in Washington, DC, the Georgia Tech Alumni Association Board of Trustees, the Microsoft Research University Relations Faculty Advisory Board, the CRA-W, and the Georgia Tech Advisory Board (GTAB). Prior to joining the faculty at Georgia Tech, she was a Professor of Computer Science in the College of Engineering at the North Carolina State University. Antón is a three-time graduate of the College of Computing at the Georgia Institute of Technology, receiving a Ph.D. in 1997 with a minor in Management & Public Policy, an M.S. in 1992, and a B.S. in 1990 with a minor in Technical and Business Communication.

9:15–10 a.m.

Plenary Session II

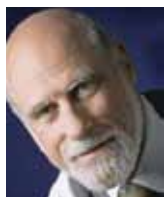
Salons 3 and 4

“Digital Vellum”

Vinton Cerf, Vice President and Chief Internet Evangelist, Google, and ACM President

We create complex digital objects using an endless array of application software. These objects often represent significant investment in time and energy by their creators. Some objects are intended for personal use. Some to share with friends. Some to sell. Some to rent. Some for public domain access and distribution. These digital objects can easily lose their value, becoming bags of useless, rotten bits, if the applications that can interpret them are no longer available or cannot be processed on the platforms currently available to users. This can happen for many reasons. The company making the application may go out of business or may stop supporting the application on older operating systems. They may no longer support older formats and may not provide a way to migrate from older to newer formats. New operating systems may not be able to run older applications. Many other scenarios can be imagined that lose access to digital content.

If we want content to have a chance of lasting a few thousand years, as vellum has done, we are going to need a strategy that will produce the moral equivalent of digital vellum. This talk will not solve the problem but it will provide some examples of problems that must be overcome to achieve the objective.



Vinton G. Cerf has served as vice president and chief Internet evangelist for Google since October 2005. In this role, he is responsible for identifying new enabling technologies to support the development of advanced, Internet-based products and services from Google. He is also an active public face for Google in the Internet world. Cerf is the former senior vice president of Technology Strategy for MCI. In this role, Cerf was responsible for helping to guide corporate strategy development from the technical perspective. Previously, Cerf served as MCI's senior vice president of Architecture and Technology. Widely known as one of the "Fathers of the Internet," Cerf is the co-designer of the TCP/IP protocols and the architecture of the Internet. In December 1997, President Clinton presented the U.S. National Medal of Technology to Cerf and his colleague, Robert E. Kahn, for founding and developing the Internet. Kahn and Cerf were named the recipients of the ACM Alan M. Turing award in 2004 for their work on the Internet protocols. In November 2005, President George Bush awarded Cerf and Kahn the Presidential Medal of Freedom for their work. In April 2008, Cerf and Kahn received the prestigious Japan Prize.

10-10:30 a.m.

Break in Exhibits area

Salons 1 and 2, Arlington Foyer

10:30 a.m.-12 p.m.

Panel Discussion: "Faking It? Overcoming Imposter Syndrome and Turning the Key to Success"

Salon 5

Moderator: Danielle Cummings, Texas A&M University; Panelists: Suzanne J. Matthews, United States Military Academy; Delfina Eberly and Neville Bowers, Facebook; and Paul Taele, Texas A&M University

Have you ever felt like a fraud? Do you fear that one day everyone will realize that you have absolutely no idea what you're doing? You are not alone! If you have trouble recognizing your accomplishments, if you often

find yourself attributing your success to timing, luck, or other people that you feel are more competent than you are, then this is the session for you. Many members of underrepresented groups, both male and female, have experienced Impostor Syndrome. It is especially common in computer science and engineering, where the learning environment can be extremely critical, intimidating, and where praise is hard to come by.

In this panel, students will meet four impostors who will share their personal struggles with impostor syndrome, and strategies they've used to cope and overcome these feelings. We will discuss the importance of celebrating the little things, overcoming isolation, and how true success lies in acknowledging your accomplishment and realizing your potential.

10:30 a.m.-12 p.m.

Panel Discussion: "Collaborative Cyber Security"
Salon 6

Moderator: Jeremy Epstein, National Science Foundation; Panelists: Gerry Dozier, North Carolina A&T; Alfredo Cruz, Polytechnic University of Puerto Rico; Grace Crowder, National Security Agency; Cherita Corbett, Computer Applied Physics Laboratory; Cyntica Eaton, Norfolk State University
Organizers: Kevin Griffin and Tony Baylis, Lawrence Livermore National Laboratory

This session will serve to give an overview of Cyber Security concepts. First a "Lightning Round" presentation will highlight current research/applications/successes in Cyber Security. The presentations will be similar to infomercials or movie trailer clips. They will be provocative in the sense that the audience gets excited about the potential of Cyber Security as a viable and rewarding career field. Then a more in-depth panel discussion will cover the following topics:

- Cyber's impact on the world
- Current Cyber Security challenges
- Different Cyber Security career paths
- Cyber security opportunities available within the different organizations

10:30 a.m.–12 p.m.

Panel Discussion: “Technology Careers and Government”

Salons C, D and E

Moderator: Jamika Burge, Defense Advanced Research Projects Agency (DARPA); Panelists: Dot Harris, Department of Energy; Jeffrey R.N. Forbes, National Science Foundation; Leteita Wooten, Office of Naval Intelligence; Shaun Gittens, Data Computer Corporation of America

People are often unaware of the technical career opportunities that are available in government. This panel is intended to provide a glimpse inside the technical careers within the United States government. Panelists range from senior-level officials with many years of experience, to recent Ph.D. awardees who are beginning their careers in government service. Our panel will have representation from the White House, the Department of Defense, the National Science Foundation, the Department of Energy and government contractors. Given that Tapia, the premiere conference in computing diversity, is convening in Washington, D.C., this panel serves as an excellent resource for attendees in helping them navigate the career options within our nation's capital.

12–1:15 p.m.

Lunch

Salons 3 and 4

1:15–2 p.m.

Plenary Session III

Salons 3 and 4

“NSF Centers and Computational Networks”

Theresa Maldonado, Division Director, the National Science Foundation

The Division of Engineering Education and Centers (EEC) at the National Science Foundation (NSF) provides programmatic oversight of two major multi-million-dollar programs: the Engineering Research Centers (ERC) and the Network for Computational Nanotechnology (NCN). For over 26 years, the ERC program has impacted the evolution of university-industry-government collaborations in engineered systems research, development, and deployment. The NCN has been in place for over 10 years, and it has already engaged over 180,000 users worldwide. In addition, the

programs have impacted engineering education and human resource development of students, postdocs, and the K–12 community. These centers and network have simultaneously altered institutional culture by embracing a diversity of students, postdocs, and faculty in the center activities. This talk will highlight technical achievements arising in these programs as well as how emphasizing diversity in their infrastructure has engendered the conversation about and the change in the recruitment, retention, and success of underrepresented groups in engineering. The EEC division is currently formalizing best practices of its impact on paving pathways towards diversity equity in engineering.



Dr. Theresa Maldonado is currently serving as Director of the Division of Engineering Education and Centers (EEC) in the Directorate for Engineering. She began her term at NSF in January 2011. Prior to joining NSF, Maldonado served as Associate Vice Chancellor for Research of the Texas A&M University System, which comprises 11 universities, seven state agencies and a health science center. At the same time, she served as the founding director of the Texas A&M Energy Institute. She is also Professor of Electrical and Computer Engineering at Texas A&M University in College Station. She previously held other leadership roles at the university, the Dwight Look College of Engineering, and the Texas Engineering Experiment Station.

Maldonado has had connections to NSF throughout her career. She is the immediate past chair of the NSF Committee on Equal Opportunities in Science and Engineering (CEOSE). From 1999 to 2001 she served as Program Director of Engineering Research Centers in the NSF Directorate for Engineering, and she was recognized with the Director's Award for Program Management Excellence as well as with other awards for her service towards the CAREER and ADVANCE programs.

Maldonado earned the Ph.D., M.S.E.E., and B.E.E. with Highest Honors degrees in electrical engineering, all from the Georgia Institute of Technology, and she is a registered Professional Engineer in Texas. She was inducted into the Inaugural Council of Outstanding Young Engineering Alumni at Georgia Tech in 1995. She was recognized by a number of awards throughout her academic career including a 1991 NSF Presidential Young Investigator Award. She is a Senior Member of IEEE and member of OSA, SPIE, AAAS, ASEE, and Sigma Xi.

2–2:45 p.m.

**Plenary Session IV
Salons 3 and 4**

“Using Monte Carlo Techniques to Speed the Multicore Design Cycle”

Jeanine Cook, Associate Professor, Klipsch School of Electrical and Computer Engineering at New Mexico State University

Cycle-accurate simulation is the dominant methodology for processor design space analysis and performance prediction. However, with multi-core, multi-threaded architectures, this method has become highly impractical as the sole means for design due to its extreme slowdowns. A statistical technique for modeling single- and multi-core processors that is based on Monte Carlo methods will be presented. We show that processor models of contemporary architectures can be developed and applied to performance prediction, bottleneck detection, and design space analysis.



Jeanine Cook is currently an Associate Professor in the Klipsch School of Electrical and Computer Engineering at New Mexico State University. She is the director of the Advanced Computer Architecture Performance and Simulation (ACAPS) Laboratory in the Klipsch School, where she and her students conduct research in the areas of processor and system simulation techniques, power optimization, performance modeling and prediction, workload characterization, and HPC emerging architectures. She received the B.S. degree in Electrical Engineering from the University of Colorado, Colorado Springs, in 1987; the M.S. degree in Computer Science from the University of Colorado, Boulder, in 1996; and the Ph.D. degree from New Mexico State University in 2002. She is a recipient of the 2008 Presidential Early Career Award (PECASE) for her research in computer processor performance modeling, and she received the Frank Bromilow Excellence in Research award in 2009.

2:45–5:15 p.m.

**Entrepreneurship Academy Workshop
Salon 5**

Organizer: Tony Baylis, Lawrence Livermore National Laboratory; Speakers: Roger Werne, Lawrence Livermore National Laboratory; Chris Ford, U.S. Department of Energy and the Phoenix Foundation, Inc.; Jennifer Arguello, Latino Startup Alliance; Omoju Miller, UC Berkeley Ph.D. candidate; Laura Weidman Powers, COD2040

What is entrepreneurship and how do you do it? How do I start a business? I have a great technology — can I start a company with it? What is my market and what will my product or service be? Will anybody buy my product, or as the venture capitalists say, will the dogs eat the dog food? All of these questions and more must be considered by the budding entrepreneur. There is a learned discipline that we will introduce that will address these questions and help the budding entrepreneur minimize mistakes and false starts, but there are no guarantees! These lessons come directly from the entrepreneurs in Silicon Valley and elsewhere who ventured into the world of entrepreneurship and had both successes and failures, frequently learning more from their failures than from their successes. We will also introduce the audience to an academic program on entrepreneurship available to them through the Internet and show an example of how it was used in an undergraduate environment.

2:45–5:15 p.m.

Google Offsite Visit for Ph.D. Students

(By advance invitation only)

2:45–5:15 p.m.

**Workshop: “The future is parallel, are you?”
Salons A and B**

Beyond Broader Engagement LittleFe Parallel Computing Workshop Session 2

*Workshop leaders: Charlie Peck, Earlham College, Indiana; Tom Murphy, Contra Costa College, California
Organizers: Raquell Holmes, Roscoe Giles and Tony Baylis, Beyond Broader Engagement*

2:45–5:15 p.m.

Networking Security Cryptography Workshop

Workshop leaders: Alfredo Cruz, Jeffrey Duffany and Eduardo Meléndez, Polytechnic University of Puerto Rico

Today's communication takes place through networks spread around the world. Information is the grail of many organizations, and this needs to be protected and secured while transmitted. Some tools have been developed, framed into areas such as cryptography and steganography.

We will present an overview of classical cryptography: substitution codes, transposition codes, cryptanalysis and frequency analysis. Also, a brief history of cryptography, modern cryptography (DES/AES) and its importance in World War II and for the Internet. Furthermore, we are going to discuss the strength of ciphers related to brute force attacks and the number of keys. Finally, a brief introduction to steganography will be given.

For the hands-on part of the workshop, students will be given an extreme crypto challenge: 10 encrypted messages of increasing difficulty to decipher. In addition, students will learn how to hide text inside a photograph. A laptop computer with wireless capability will be helpful but not required to participate in the workshop. Winners of the crypto challenge will be announced at one of the later sessions.

5:15–6:30 p.m.

Dinner Reception

Salons 4, 5 and 6

5:15–6:30 p.m.

Meet Microsoft!

SkyView Lounge

Drop in before or after the dinner reception to meet Microsoft employees, play Kinect, explore Microsoft's new Surface and Windows 8, and possibly win your own Surface or Kinect! This fun and informal party is open to everyone.

6:30–8:30 p.m.

Student Research Poster Session

Salons 4, 5 and 6

Session Leader: Tony Drummond, Lawrence Berkeley National Laboratory

Sponsored by XSEDE, the Extreme Science and Engineering Discovery Environment

The Tapia 2013 student research poster session is an opportunity for students to present their latest research results and methodologies to a wide conference audience and to network at the same time. This year, the posters competition is part of the ACM Student Research Competition (SRC). For the poster session, each author of an accepted poster will be assigned a space to display a printed research poster. These posters will remain up for the duration of the conference. On Friday evening, authors will present their posters in a reception attended by conference attendees and judges. The judges will have the opportunity to view the posters and talk to entrants about their work. The judges will then select the top five posters in the graduate and undergraduate categories as semi-finalists to advance to the third stage.

8:30–10 p.m.

Exhibit Area Open

Salons 1 and 2, Arlington Foyer

Desserts will be served

8:30–10 p.m.

Birds-of-a-Feather Session: "Exploring Misconceptions in Computing—Centered on Movies and the Influence on Diversity in the Computing Population"

Salons A and B

Organizer: Nadine Shillingford Wondem, Rose-Hulman Institute of Technology

Abstract: Several of the top computing-based movies such as Hackers and The Net portray computing in a way that the average computing student/professional may find almost comical. Unfortunately these misconceptions extend to TV shows as well. For example, one scene in a popular TV show (NCIS) shows characters McGee and Abby typing rapidly on the same keyboard (at the same time) as they try to prevent a possible cyber-attack. Some movies portray computing professionals as sexy and appealing (Swordfish) while others such as Office Space display computing professionals as very nerdy. Although most computing students/professionals may realize that these are misconceptions, others may be distracted from pursuing careers in computing because they do not believe that they fit these stereotypes.

The questions posed by this Birds-of-a-Feather (BoF) session are: (1) How do these misconceptions negatively affect the diversity of the computing population? (2) How can high schools and colleges counteract the fallacies of popular media on potential computing students?

We will begin the session with a presentation of a sample of movie/TV show clips. We will discuss the possible misconceptions portrayed in each clip with help from the audience. Negative implications of these misconceptions based on previous research will also be discussed. The audience will then break into groups to explore how high schools and colleges can introduce counteractive measures to reduce the effects of these misconceptions. Movie watching is a common pastime of the Western world. Unfortunately, the ideas portrayed in some of the movies may affect the diversity of the population of the computing field. The goal of this BoF is to bring the issue to the forefront and to explore ways that we can change its effects on any potential students' views of computing. Hopefully, the audience will continue the discussion and possibly implement some of the counteractive measures discussed in their home institutions.

8:30–10 p.m.

Birds-of-a-Feather Session: “Facing the Challenges of Big Data: Tools, Techniques and Infrastructure” Salon 3

Organizers: Christan Grant and Pierre St. Juste, University of Florida; Juan Sequeda, University of Texas at Austin; Shaun Gittens, Data Computer Corporation of America

The data deluge has created tremendous incentives in the research community to develop practical methods to unlock its perceived potential. Industry is also yearning for techniques which can provide competitive advantages through efficient analytical models. In this session we will first introduce the general background of big data. Following, we will have introductions of specific big data verticals by the organizers. Next, we will allow the attendees to introduce themselves and their research or areas of interest. We will end the BoF by dividing the room into groups, depending on their interests, where people can talk particulars. We expect this BoF to spur engagement between participants and possibly lead to future collaborations. Data has been called the new oil. It is important that we support attendees of the Tapia conference to become the oil barons and surveyors. The session will be a success if any group of attendees meet and form long-term collaborations.

Saturday, February 9

7 a.m.–5 p.m.

Registration open

Arlington Registration Area

7–8 a.m.

Breakfast

Salons 3 and 4

8–8:30 a.m.

Conference Announcements

Salons 3 and 4

Juan Vargas, Tapia 2013 Conference Chair

Jan Cuny, National Science Foundation

Tapia 2013 Conference Chair Juan Vargas

8:30–9:15 a.m.

Plenary Session V

Salons 3 and 4

“Plug into the Supercloud”

*Hakim Weatherspoon, Assistant Professor,
Cornell University*

Cloud computing is often compared to the power utility model as part of a trend towards the commoditization of computing resources. However, today's cloud providers do not simply supply raw computing resources as a commodity, but also act as distributors, dictating cloud services that are not compatible across providers. In this talk, I will discuss a new cloud service distribution layer, called a Supercloud, that is completely decoupled from the cloud provider. A Supercloud gives its users the illusion of their own homogenized private cloud (albeit, layered on top of one or more third-party providers). Under the hood, the Supercloud can include different hypervisors, hardware architectures, storage subsystems, and connectivity fabrics. Leveraging a nested paravirtualization layer called the Xen-Blanket, the Supercloud maintains the control necessary to implement hypervisor-level services and management. Using the Xen-Blanket to transform various cloud provider services into a unified offering, we have deployed a Supercloud across Amazon's Elastic Compute Cloud (EC2), IBM, and Cornell University, and performed live VM migration between the different sites. Furthermore, Superclouds create opportunities to exploit resource management techniques that providers do not expose, like resource oversubscription, and ultimately can reduce costs for users.



Hakim Weatherspoon is an assistant professor in the Department of Computer Science at Cornell University. His research interests cover various aspects of fault-tolerance, reliability, security, and performance of large Internet-scale systems such as cloud computing and distributed systems. Prof. Weatherspoon received his Ph.D. from the University of California at Berkeley and B.S. from the University of Washington. He is an Alfred P. Sloan Fellow and recipient of an NSF CAREER award, DARPA Computer Science Study Panel (CSSP), IBM Faculty Award, the NetApp Faculty Fellowship, Intel Early Career Faculty Honor, and the Future Internet Architecture award from the National Science Foundation (NSF).

9:15–10 a.m.

Plenary Session VI

Salons 3 and 4

“Crossing the Software Education Chasm using Software-as-a-Service and Cloud Computing”

Armando Fox, Professor in Residence, UC Berkeley

Via the remarkable alignment of cloud computing, software as a service (SaaS), and Agile development, the future of software has been revolutionized in a way that also allows us to teach it more effectively. Over the past three years we have been reinventing UC Berkeley’s undergraduate software engineering course to cross the longstanding chasm between what many academic courses have traditionally offered and the skills that software employers expect in new hires: enhancing legacy code, working with nontechnical customers, and effective testing. In our course, “two-pizza teams” of four to six students create a prototype application specified by real customers (primarily nonprofit organizations) and deploy it on the public cloud using the Rails framework and Agile techniques. Students employ user stories and behavior-driven design to reach agreement with the customer and test-driven development to reduce mistakes. During four two-week iterations, they continuously refine the prototype based on customer feedback, experiencing the entire software lifecycle—requirements gathering, testing, development, deployment, and enhancement—multiple times during a 14-week semester. Because of Rails’ first-rate tools for testing and code quality, students learn by doing rather than listening, and instructors can concretely measure student progress.

We have also successfully repurposed those same tools to support nontrivial machine grading of complete programming assignments, allowing us to scale the on-campus course from 35 to 115 students and offer a Massively Open Online Course (MOOC) to over 50,000 students. Indeed, to support instructors interested in adopting our techniques in their classes, we provide not only an inexpensive textbook and prerecorded video lectures to complement the curriculum, but also a set of questions and programming assignments that includes free autograding. Our experience has been that students love the course because they learn real-world skills while working with a real customer; instructors love it because students actually practice what they learn rather than listening to lecture and then coding the way they always have; and employers love it because students acquire vital skills missing from previous software engineering courses.



Armando Fox is Professor in Residence in UC Berkeley’s Computer Science Division as well as the Academic Director of the Berkeley Resource Center for Online Education (BRCOE). His research spans cloud computing in the AMP Lab (Algorithms, Machines and People), highly productive parallel programming in the Par Lab (Parallel Computing Laboratory), and most recently, online education. During his previous time at Stanford, he received teaching and mentoring awards from the Associated Students of Stanford University, the Society of Women Engineers, and Tau Beta Pi Engineering Honor Society. He was named one of the “Scientific American 50” in 2003 and is the recipient of an NSF CAREER award and the Gilbreth Lectureship of the National Academy of Engineering. In previous lives he helped design the Intel Pentium Pro microprocessor and founded a successful startup to commercialize his UC Berkeley Ph.D. research on mobile computing. He received his other degrees in electrical engineering and computer science from MIT and the University of Illinois and is an ACM Distinguished Member.

10–10:30 a.m.

Break in Exhibits area

Salons 1 and 2, Arlington Foyer

10:30 a.m.–12 p.m.

Panel Discussion: “Launching Your CS Career — Tips from Google”

Salon 5

Moderator: Hal Marz, Google; Panelists: Google engineers and students

A panel and interactive discussion with Google engineers and current students who have participated in Google Technical programs. Get advice and firsthand experience on how to make the most of your time as a student. We will also share insider tips on how to put your best foot forward when applying for future opportunities.

10:30 a.m.–12 p.m.

Panel Discussion: “Security, Trust and Privacy: Perspectives across the Academic Pipeline”

Salon 6

Moderator: William H. Robinson, Vanderbilt University, Outreach Director, NSF TRUST S&TC. Panelists: Steve Wicker, Professor, Cornell University; Carlos Tadeo Ortega Otero, Cornell University; Ashley Tolbert, Auburn University

The Team for Research in Ubiquitous Secure Technology (TRUST) (<http://www.truststc.org/index.html>) is focused on the development of cyber security science and technology that will radically transform the ability of organizations to design, build, and operate trustworthy information systems for the nation’s critical infrastructure (e.g., financial systems, healthcare systems, and cyber-physical systems). Without the full participation of a diverse workforce, the economic viability of the nation is threatened, and the creativity to shape future technology is lost. In the information security field, there is a severe shortage of women and underrepresented minorities serving as the scientists and engineers who defend cyberspace. However, too few women and underrepresented minorities are encouraged to pursue graduate education, where they can receive the necessary training to become the next generation of faculty members that inspire and educate even more women and underrepresented minorities.

For this panel, we envision a dual purpose. We will provide a forum to discuss the science of security across the different thrusts of the TRUST Center, namely financial, health, and physical infrastructures. The TRUST Center addresses technical, legal, policy, and economic issues affecting security, privacy, and data protection within our national infrastructure. The breadth of our challenge requires training across a wide range of disciplines. Therefore, we will also discuss pathways for graduate education, especially a Ph.D., for the information security field. In particular, we will discuss how research experiences for undergraduates (REUs) and publishing in major security conferences can impact a graduate career. Our panelists will represent the different stages of the academic pipeline (i.e., undergraduate student, graduate student, and faculty) to encourage discussion on technical topics as well as the general process of pursuing graduate research and education in cyber security.

10:30 a.m.–12 p.m.

Panel discussion: “Career Tracks for Computational Scientists and Engineers”

Salons C, D and E

Moderator: Tony Drummond, Lawrence Berkeley National Laboratory. Panelists: Neville Bowers, Facebook; Pietro Cicotti, San Diego Supercomputing Center; Mary Ann Leung, Krell Institute; Patti Ordóñez Rozo, University of Puerto Rico Río Piedras Campus; Sonia Sachs, Department of Energy; Valerie Taylor, Texas A&M University

This panel will focus on different career choices and opportunities for graduate and undergraduate students in computational sciences. Specifically, the panel will address:

- How to apply for jobs, scholarships and grants. Attendees will receive advice from leading professionals in computational sciences on key elements for writing successful applications for a number of opportunities ranging from graduate school to jobs in academia, government or industry.
- What is good about graduate school?
- Where should I go after graduate school?

The panel will talk about the personal elements that have influenced their career choices and share an expert view on what careers and opportunities are available in the field of computational science and engineering.

- How does an individual put their higher education to good use? Informing yourself about all possible professional pathways is the key to being a good leader, a creator of innovation, one of those that make a difference in the world and more importantly enjoy what you do for a living.
- Where and how to find what is available in the job market? This panel will provide feedback on places to look for jobs in your area. The success to finding a good career relies heavily in our ability to first identify the right opportunities.

In addition, the panelists will take questions from the audience.

12–1:30 p.m.

Lunch

Salons 3 and 4

12–1:15 p.m.

IT Career Opportunities With Microsoft

Salons A and B

Here is your opportunity to learn about exciting careers that will literally change the world. Talk to Microsoft recruiting, submit your resume, get interview tips. Come explore our diverse environment and learn how you can get involved and make a difference.

(By advance invitation only)

1:30–3:30 p.m.

Plenary Panel

“Microsoft-Sponsored Fireside Chat about Future Technologies”

Moderator: Valerie Taylor, Texas A&M; Speaker: Rico Malvar, Microsoft; Panelists: James Lakes, Microsoft, Marcus Mitchell, Google; Valentina Salapura, IBM; and John Towns, NCSA

The Microsoft-sponsored Fireside Chat will provide a diverse perspective on issues related to future technologies (e.g., up to five years out), different paths to get to the future technologies, and key areas that need to be explored now. The Fireside Chat will start with a presentation from Rico Malvar, followed by an interesting dialogue with our key panelists.



Henrique (Rico) Malvar is a Microsoft Distinguished Engineer and the Chief Scientist for Microsoft Research. He was born and raised in Brazil, where he was a professor of electrical engineering at University of Brasília before moving to

industry in 1994.. When he joined Microsoft in 1997, Rico started a signal processing group, which developed new technologies such as new media compression formats used in Windows, Xbox, and Office, microphone array processing technologies used in Windows, Tablet PCs, and Xbox Kinect, as well as machine learning technologies for music identification in Windows Media, junk mail filtering in Exchange, and others. The group also developed the first prototype of the RoundTable video-conferencing device. Rico was a key architect for the several media compression formats, such as WMA and HD Photo/JPEG XR, and made key contributions to the popular video format H.264, used in YouTube, Adobe Flash, digital TV, and many other applications. Rico has a Ph.D. in electrical engineering and computer science from the Massachusetts Institute of Technology in 1986. He has over 150 publications and over 110 issued patents in those areas. He received the Young Scientist Award from the Marconi International Fellowship in 1981, was elected a Fellow of the IEEE in 1997, received the Technical Achievement Award from the IEEE Signal Processing Society in 2002, and was elected a member of the U.S. National Academy of Engineering (NAE) in 2012.



James Lakes is the Director of Business Strategy & Operations for the Microsoft US Healthcare & Life Sciences (US HLS) group which drives sales, marketing and strategic engagement of customers and partners in the health provider, health plan, life sciences and health & human services verticals. Lakes is responsible for managing the rhythm of Microsoft's \$1.7B US Health & Life Sciences business, providing general business management support for US HLS General Manager Michael Robinson. He also drives the short- and long-term strategic planning, vision, direction and development process for US HLS sales, marketing, product development and organizational/people development.

Previously, he was one of the senior industry solutions strategists within Microsoft responsible for working directly with strategic partners and customers to drive Microsoft's healthcare vision and strategy and helping them develop new and innovative solutions leveraging Microsoft platform products and technologies. Lakes began his career with Microsoft in October 2002, after living in Europe for 12 years where he had a broad range of experiences e.g. professional athlete, management consultant, certified knowledge engineer, business development manager along with obtaining his M.Sc. in International Business & Strategy from the Copenhagen Business School.



Marcus Mitchell is an Engineering Director in Google's New York engineering center in Manhattan. He works in the GeoCommerce product area focusing on payments products for buyers and sellers on the web, particularly Google Wallet, and the global payments platform that underpins all of Google's consumer commerce efforts. In addition, Mitchell works with Google.org projects in NY such as the Crisis Response team and acts as an advisor for Google's initiatives to increase diversity in computer science and engineering. Previously at Google Mitchell has worked on personalization, search history and infrastructure, and he was part of the team that launched Google Checkout, one of Google's first non-advertising commerce initiatives. Before joining Google, Mitchell worked at BEA Systems and Plumtree Software (acquired by BEA in 2005). At Plumtree, Mitchell was a Vice President of Engineering where he led development for search, collaboration, content publishing, and business process management software for enterprises. Earlier in his career, Mitchell led software development at a search engine startup (Ripfire, acquired by Plumtree 2001) and at a special effects company (Digital Domain) focusing on big budget films and commercials. Mitchell holds a Ph.D. from Caltech in Computation and Neural Systems and a Bachelor's degree from Harvard University in Electrical, Computer, and Systems Engineering.



Valentina Salapura is an IBM Master Inventor and System Architect at the IBM T.J. Watson Research Center where she is helping IBM realize the value of cloud computing in the Services Innovation Lab. Previously, Salapura helped define IBM's future research agenda and strategy working with the worldwide IBM research organizations. Salapura was an architect and technical leader for the Power8 processor definition, and for the Blue Gene program since its inception. She has contributed to the architecture and implementation of several generations of Blue Gene Systems focusing on multiprocessor interconnect and synchronization and multithreaded, multicore architecture design and evaluation. Salapura is a recipient of the 2006 ACM Gordon Bell Prize for Special Achievements for the Blue Gene/L supercomputer and Quantum Chromodynamics. She is the author of over 60 papers and over 80 patents on processor architecture and high-performance computing. She received her PhD degree from Technische Universität

Wien in Vienna, Austria. Salapura is an IEEE Fellow, an ACM Distinguished Speaker and a member of the IBM Academy of Technology.



John Towns is Director of the Persistent Infrastructure Directorate at the National Center for Supercomputing Applications (NCSA) at the University of Illinois. He is also PI and Project Director for the Extreme Science and Engineering Discovery Environment (XSEDE) project. Towns plays significant roles in the deployment and operation of high-end resources, and Grid-related projects and is PI also on awards for various resources operated at NCSA. His background is in computational astrophysics utilizing a variety of computational architectures with a focus on application performance analysis. At NCSA, he provides leadership and direction in the support of an array of computational science and engineering research projects making use of advanced computing resources. He earned M.S. degrees in Physics and Astronomy from the University of Illinois and a B.S in Physics from the University of Missouri Rolla.

3-3:30 p.m. Break

3:30-4:30 p.m. Ken Kennedy Distinguished Lecture Salons 3 and 4

"CyberSecurity — The Weak Link in Our Infrastructure"

Anita Jones, University Professor Emerita, University of Virginia

During the latter half of the 20th century the world created a new infrastructure — the cyber, or information, infrastructure. It underpins many of the processes and activities of society. And information systems are integral to most other infrastructure on which society depends. Fundamentally, today's perimeter defense model on which most cyber security relies does not work, and cannot work. This talk will characterize the fragility and the failures of today's cyber security. It will review past research, the state of the art and the practice of information security today, and options for improvement.



Professor Anita Jones is a University Professor Emerita in the University of Virginia and a Professor of Computer Science in the School of Engineering and Applied Science, previously having served as chair of the Department of Computer Science.

She was sworn in as the Director of Defense Research and Engineering for the U.S. Department of Defense in June 1993. In that position she was responsible for the management of the DoD science and technology program. This included responsibility for the Defense Advanced Research Projects Agency, oversight of the DoD laboratories, as well as being the principal advisor to the Secretary of Defense for defense-related scientific and technical matters.

Professor Jones is past vice-chair of the National Science Board, which advises the President on science, engineering, and education as well as oversees the National Science Foundation. She is a senior fellow of the Defense Science Board and a member of the Charles Stark Draper Laboratory Corporation and a past member of the MIT Corporation Executive Committee. She has co-chaired the Commonwealth of Virginia Research and Technology Advisory Commission and has served on other government advisory boards and scientific panels for NASA, the National Academies, the Department of Energy, and the National Science Foundation. She is a member of the National Academy of Engineering, the American Philosophical Society and a Fellow of the Association for Computing Machinery, the Institute of Electrical and Electronics Engineers, the American Academy of Arts & Sciences, and the American Association for the Advancement of Science. She has received the Computing Research Association's Service Award, the Air Force Meritorious Civilian Service Award, the Department of Defense Award for Distinguished Public Service, and the IEEE Founders Award. The U.S. Navy named a seamount in the North Pacific Ocean for her.

She is currently a member of the Board of Directors of Science Applications International Corporation, and a trustee of In-Q-Tel and of Science Foundation Arizona. Other private sector experience includes serving as a trustee of the MITRE Corporation. Duke University, Carnegie Mellon University and the University of Southern California have awarded her Honorary Doctorate degrees. She is a founder and Council member of the Computing Community Consortium. She has published more than 50 technical articles and two books in the area of computer software and systems, cyber-security, and science and technology policy. In fall 2010, the National Academy of Engineering gave her the Arthur M. Bueche Award for contributions to science and technology policy advancement.

Jones holds an A.B. from Rice University in mathematics, a Master of the Arts from the University of Texas, Austin, in literature, and a Ph.D. in computer science from Carnegie Mellon University.

4:30–5:30 p.m.

Town Hall Meeting: An opportunity to offer feedback for future Tapia Conferences
Salons 3 and 4

Session Leader: Tapia 2013 Conference Chair Juan Vargas

What did you like most about Tapia 2013? What would you like to see at the next Tapia conference? Your help is needed with the planning of future events and programs related to increasing diversity in the field of computing. Voice your ideas or suggestions during the Town Hall Meeting, which will provide an open forum for discussions about future Tapia events.

5:30–6:15 p.m.

VIP Reception (By invitation only for conference supporters)
SkyView Lounge

Reception Host: Tapia 2013 Conference Chair Juan Vargas

6:30–9 p.m.

Tapia 2013 Banquet and Award Ceremony
Grand Ballroom

Banquet Invited Address

Dot Harris, Director of the Office of Economic Impact and Diversity, Department of Energy (DOE)



Dot Harris was nominated by President Barack Obama to be the Director of the Office of Economic Impact and Diversity at the United States Department of Energy. She was confirmed by the U.S. Senate on March 29, 2012. Ms. Harris brings nearly

30 years of management and leadership experience to this position, having served at some of the world's largest firms and leading a successful energy, IT, and healthcare consulting firm. As an Assistant Secretary at the Office of Economic Impact and Diversity, Harris leads the Department of Energy's efforts to ensure minorities and historically underrepresented communities are afforded an opportunity to participate fully in our energy programs. Harris oversees a corporate funding strategy for minority institutions, develops the current and future departmental workforce, works closely to develop small business contracting opportunities at the department,

and protects the civil rights of departmental employees and recipients of funding from the department.

Harris brings a wealth of knowledge to this work, having been deeply engaged in the energy sector, small business innovation, and strategic partnerships. Previously, she was the President and CEO of Jabo Industries, LLC, a minority-woman owned management consulting firm concentrated primarily in the energy, information technology and healthcare industries. Harris has also served as an executive at General Electric Company (GE) and held a number of leadership positions in GE's Energy and Industrial Systems businesses. Before joining GE, she was an officer and Vice President of Operations and Production for ABB Service, Inc. She also spent 12 years as Field Services Engineer and Services Manager with Westinghouse Electric Company. She holds a B.S. in Electrical Engineering from the University of South Carolina in Columbia, and a M.S. in Technology Management from Southern Polytechnic State University in Marietta, Georgia.

Presentation of the 2013 Richard A. Tapia Achievement Award

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

Banquet Organizers: Phoebe Lenear, University of Illinois at Urbana-Champaign; and Josef Sifuentes, Rice University

9–11:30 p.m.

**Closing Dance and Celebration
Grand Ballroom**

Music and dancing begin at 9 p.m.

Student Research Posters

Student Research Poster Session/Desserts Friday, February 8, 6:30–8:30 p.m. Salons 4, 5 and 6

A call for research posters led to more than 176 submissions by students in the United States, Puerto Rico, Mexico and as far away as Nigeria. Students will be on hand to discuss their research and answer questions during the Student Research Poster Session in Salons 4, 5 and 6. Students whose posters were accepted for presentation are:

"Improving Performance in Encrypted Networks through Issue Differentiation"

Antonia Allen, United States Military Academy

"Are You Distracted?"

Hanan Alnizami, Clemson University

"Evaluating the Effectiveness of Fault Tolerance Applications"

Julian Apodaca, University of New Mexico

"Using Eye-Gazing Data to Predict Radiologists' Cognitive Behavior during Breast Cancer Screening"

Shelby Becker, Saint Mary-of-the-Woods College

"Conformational Analysis of Small Molecule Systems with Applications to Protein Binding Studies using Statistical Temperature Molecular Dynamics CHARM"

Shanadeen Begay, Boston University

"Sweet Harvest: An Exergame for Increasing Flexibility and Warming Up for Intense Exercise"

Maybellin Burgos, University of North Carolina, Charlotte

"Exploring the Performance of the iRobot Create for Object Relocation in Outer Space"

Hasani Burns, Hampton University

"Using Numerical Modeling to Understand the Lipid Biosynthetic Pathway in Chlamydomonas reinhardtii"

Nicole Carbonaro, University of Maryland, Baltimore County

"Higher Order SSP Methods with Downwinding"

Sidafa Conde, University of Massachusetts, Dartmouth

"A Computational Framework for the Time-Frequency Modeling of Speech Systems"

Wilmarie Cosme-Blanco, University of Puerto Rico

"On Weak Chromatic Polynomials of Mixed Graphs"

Joseph Crawford, Morehouse College

"Team Coordination using AR Visualization of Ad-Hoc Networks"

Danielle Cummings, Texas A&M University

"Multiscale Multiphysics Coupling in Porous Media"

Paul Delgado, University of Texas, El Paso

"Evaluating the Ergonomics of BCI Devices for Research and Experimentation"

Joshua Ekandem, Clemson University

"Detecting Functional Equivalence and Similarity in Source Code"

Rochelle Elva, University of Florida

"Computational Signal Processing Techniques for Digital Hearing Aid System Design"

Sylmarie Davila-Montero, University of Puerto Rico

"Audio Fingerprinting Robust to Pitch Scaling"

Yesenia Díaz Millet, Polytechnic University of Puerto Rico

"The Effects of Semi-Autonomous Vehicle Malfunctions and Override Features on Driver Performance"

Jerone Dunbar, Clemson University

"Improving User Attention of Android Permissions with Visual Cues"

Daniel X. Fahey-Rosas, New Mexico Tech

"Web-based Testing for an Environmental Information Management System"

Elizabeth Barbosa, Inter American University of Puerto Rico, Lawrence Livermore National Laboratory

"Automatic Detection of Dangerous Scenes in Video Data over a Common Latent Space"

Omar U. Florez, Utah State University

"High Performance Data Visualization"

Paola Garcia, St. Thomas Aquinas College

"An Algorithm for Tracking Vertical Larynx Movement"

Chris Garry, University of Massachusetts, Dartmouth

"Decision Procedure Based Discovery of Rare Behaviors in Stochastic Differential Equation Models of Biological Systems"

Arup Kumar Ghosh, University of Central Florida

"Solving Epidemic Stochastic Differential Equation Models and Pure Stochastic Differential Equations Using Agent-Based Model"

Arup Kumar Ghosh, University of Central Florida

"Query-Driven Entity Resolution"

Christan Grant, University of Florida

"Web Implementation of the Spinning Cube of Potential Doom for Netflow Data Analysis"

Jhensen Grullón Sanabria, University of Puerto Rico

"Solazo Weather App (SWAP): Approximating the Weather"

Louis Alberto Gutierrez, Rensselaer Polytechnic Institute

"Botclouds: The threat of Botnets in Cloud Computing"

William Hill, Mississippi State University

"Televoting: An Alternative to Internet Voting for Military and Overseas Voters"

Jessica Jones, Clemson University

"Automatic Grading of the Creative Truss Design"

Hong-Hoe Kim, Texas A&M University

"Using Actigraphy Watches to Measure Sleep Activity in Subjects with Obstructive Sleep Apnea"

Dayanara Lebron, Universidad Metropolitana

"Searching for Geospace Data Using Google Earth"

Nishmar Cestero, Boston University

"Genetic Algorithms for Property Selection"

Travas Lenard, Fisk University

"Caesar: A Response Retrieval System for Conversational Agents"

Naja A. Mack, Clemson University

"Vulnerability Detection Strategies for Robot Swarms"

Nolan Miles, United States Military Academy
(to be presented by Stephen Rogacki)

"Investigating Differential Privacy and Utility Preservation in Machine Learning Classifiers"

Kato Mivule, Bowie State University

“Holdovers on Touchscreen Mobile Devices”*Jaye Nias, Bowie State University***“One Shot Gesture Recognition using RGBD Videos”***Oliver Nina, University of Central Florida***“Prototyping Complex Divider for the sFFT Implementation using BSV”***Irving Olmedo, University of Texas at Tyler***“HaptiGo: An Intelligent and Lightweight Tactile Vest for Improving Active Pedestrian Navigation Experiences”***Ayobami Olubeko, Texas A&M University***“A Cross-Platform Mobile Application for Storing and Accessing Fundamental Omics Knowledge in Bioinformatics and Computational Biology”***Olugbenga Oluwagbemi, Covenant University***“Clustering Methods in Leukemia Diagnosis”***Cristian W. Potter, Purdue University***“Semantic Tactile Messages — Designing Spatio-Temporal Tactile Messages”***Manoj Prasad, Texas A&M University***“Regulating Elastic Household Energy Loads for the Smart Grid”***Kathryn Ringland, Washington State University***“Tiger-PDD Mobile Help Toolbox”***Hansel L. Rios, Universidad Interamericana de Puerto Rico***“Energy Consumption Characterization of Privacy Preserving Algorithms for Participatory Sensing Systems”***Yanira Rivera, University of Puerto Rico***“A Participatory Design Process for Developing a Tool to Visualize Classroom Engagement” (Roy, Gupta and Daily)***Tania Roy, Clemson University***“Mimetic Methods Toolkit (MTK): An Object-Oriented API for Mimetic Discretization Methods for Partial Differential Equations”***Eduardo Sanchez, San Diego State University and Claremont Graduate University***“Reconstructing Phylogeny in the Wake of Polyploidy: The Curious Case of the Allopolyploid Bamboos”***Heather Scott, Jacksonville State University***“BioScape: A Modeling and Simulation Language for Bacteria-Materials Interactions”***Vishakha Sharma, Stevens Institute of Technology, NJ***“DNA Copy Number Alterations in Mouse and Human Breast Cancers”***Grace Silva, University of North Carolina at Chapel Hill***“Tallying Elections: OCR, Optical Scan, and Other Options”***Amber Solomon, Clemson University***“A Computational Linguistics Approach to Inflection in Human Speech and Semantic Differences”***Victoria Steeves, Simmons College***“Brain-Driven Intelligent Recommender System”***Jamal Thorne, Morehouse College***“Using Time Event Charts to Quickly Visualize Data Extracted from Electronic Devices”***Larisa Tudor, United States Military Academy***“Biological Reaction Network Modeling and Simulation with Stochastic Differential Equations”***Edgardo Vazquez-Rodriguez, Universidad Metropolitana***“Simulated Physical Devices for Automated Testing of the Argus System”***Raul Viera, University of Puerto Rico***“Highly Scalable On-the-Fly and Real-Time Interleaved Address Generation for UMTS/HSPA+ Turbo Decoder”***Aida Vosoughi, Rice University***“Signal Correlation Techniques for Delay-Doppler Estimation of Underwater Moving Objects”***Zaylis Zayas-Rivera, University of Puerto Rico***“Open Information Extraction for Spanish”***Alisa Zhila, National Polytechnic Institute, Mexico*

**Juan E. Gilbert**

Chair of Human-Centered
Computing in the School
of Computing at
Clemson University

Clemson University's Juan Gilbert to Receive 2013 Tapia Achievement Award

Prof. Juan E. Gilbert, Chair of Human-Centered Computing in the School of Computing at of Clemson University, has been named as recipient of the 2013 Richard A. Tapia Achievement Award for Scientific Scholarship, Civic Science, and Diversifying Computing. The award will be presented to Gilbert during the 2013 Richard Tapia Celebration of Diversity in Computing Conference.

The Tapia award recognizes an individual with outstanding achievements in scientific scholarship, a strong civic presence within the scientific community, and a dedication to the attainment of true ethnic diversity in computing and related disciplines. The ideal recipient is devoted to the principle of equity in both theory and practice, and has demonstrated leadership in applying creative solutions to the difficult social, cultural, technical and political problems of diversifying computing.

"Juan Gilbert epitomizes the ideals behind the Tapia award, from his inspired interactions with his students to his exemplary research publication record to his work in the real-world arena of accessible electronic voting," said Prof. Richard Tapia. "As a leader in efforts to develop more-diverse and well-qualified future generations of computer scientists, Juan's voice is one that resonates and is respected by the community."

Dr. Gilbert joined Clemson University in August 2009 and holds the Presidential Endowed Chair in Computing. Gilbert has research projects in spoken language systems, advanced learning technologies, usability and accessibility, ethnocomputing (culturally relevant computing) and databases/data mining. His research in electronic voting has resulted in the most accessible voting system interface ever created. Gilbert's data mining and user interface research has created Applications

Quest, a data mining and software analysis tool that allows admissions officers to address diversity in admissions while adhering to all judicial decisions on this matter. Prior to joining Clemson, Gilbert was a professor at Auburn University for nine years.

Gilbert has published more than 130 articles and given more than 200 invited talks and keynote presentations. In 2002, Dr. Gilbert was named one of the nation's top African-American Scholars by Diverse Issues in Higher Education. He was named a national role model by Minority Access Inc. He is also a National Associate of the National Research Council of the National Academies, an ACM Distinguished Speaker and a Senior Member of the IEEE Computer Society. He earned his M.S. and Ph.D. degrees in computer science from the University of Cincinnati, and his B.S. degree in Systems Analysis from Miami University in Oxford, Ohio.

Gilbert currently serves as chair of the Coalition to Diversify Computing, an organization that seeks to address the shortfall in computing professionals through the development of a diverse community that can effectively meet the computing demands of an evolving society. Gilbert's other honors include being named a Master of Innovation by Black Enterprise Magazine, a Modern-Day Technology Leader by the Black Engineer of the Year Award Conference, the Pioneer of the Year by the National Society of Black Engineers, and he received the Black Data Processing Association (BDPA) Epsilon Award for Outstanding Technical Contribution. Gilbert testified before the Congress on the Bipartisan Electronic Voting Reform Act of 2008 for his innovative work in electronic voting. In 2006, he was honored with a mural painting in New York City by City Year New York, a nonprofit organization that unites a diverse group of 17- to 24-year-old young people for a year of full-time, rigorous community service, leadership development, and civic engagement.

2013 Tapia Conference Supporters

Supporting Organizations

The success of the 2013 Tapia conference is largely due to the financial support from leading members of the technology industry, national research community and academia. Supporting organizations will have representatives on hand during the conference to answer your questions and talk about graduate school opportunities, summer internships, faculty fellowships, post-doctorate internships and employment opportunities, as well as general information about their organizations. Please be sure to take advantage of the Information Sessions with Tapia 2013 Supporters to be held in Salons 1 and 2 and the Arlington Foyer during the following times:

Thursday, February 7, 7:30–10 p.m.

Friday, February 8, 10–10:30 a.m.

Saturday, February 9, 10–10:30 a.m.

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[http://www.clemson.edu/ces/computing/
divisions/hcc.html](http://www.clemson.edu/ces/computing/divisions/hcc.html)



Empowering Leadership Alliance

empoweringleadership.org



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2013 Tapia Conference Organizing Committee

The 2013 Tapia Conference program is a reflection of the dedication and tireless efforts of volunteers from organizations around the country. Without their time and effort, and the support of their institutions, Tapia 2013 would not have been possible.



Juan E. Vargas (General Chair, Chair of Doctoral Consortium)

Juan Vargas has served as principal research manager for the Microsoft Research's Extreme Computing Group (MSR/XCG) since 2009. He was the university relations manager at Google from 2007 to 2009. From 1988 to 2007, Vargas was a professor of the Computer Science and Engineering Department at the University of South Carolina, where he taught and conducted research on data mining, Bayesian networks, embedded and distributed systems, sensor networks, and biomedical engineering. His research is published in more than 60 articles, several book chapters, and many conferences. He earned a Ph.D. from Vanderbilt University, a master's degree from CINVESTAV-IPN (that included the basic sciences of the medical program), and a bachelor's degree in electrical engineering from the University of Texas at El Paso (UTEP). Vargas received the 2008 Gold Nugget Award from UTEP, given each year to exceptional graduates from the College of Engineering.



Valerie Taylor (Organizer)

Valerie Taylor is the Regents Professor and Royce E. Wisenbaker Professor in the Department of Computer Science and Engineering at Texas A&M University. In 2003, she joined Texas A&M University as the Department Head of CSE, and remained in that position until 2011. Prior to joining Texas A&M, Dr. Taylor was a member of the faculty in the EECS Department at Northwestern University for eleven years. She has authored or co-authored over 100 papers in the area high performance computing. She is the director of the new Center for Minorities and People with Disabilities in IT (CMD-IT). Taylor is an IEEE Fellow and has received numerous awards for distinguished research and leadership, including the 2001 IEEE Harriet B. Rigas Award for a woman with significant contributions in engineering education, the 2002 Outstanding Young Engineering Alumni from the University of California at Berkeley, the 2002 CRA Nico Habermann Award for increasing the diversity in computing, and the 2005 Tapia Achievement Award for Scientific Scholarship, Civic Science, and Diversifying Computing. Taylor is a member of ACM. She earned her B.S. in ECE and M.S. in Computer Engineering from Purdue University in 1985 and 1986, respectively, and a Ph.D. in EECS from the University of California, Berkeley, in 1991.



Cynthia Lanius (Fund Raising Chair, Web Co-Chair)

Cynthia Lanius is an independent consultant helping to manage the National Science Foundation-funded Broadening Participation in Computing Alliance called the Empowering Leadership Alliance (empoweringleadership.org).



Elizabeth Bautista (Panels and BoFs Chair)

Elizabeth Bautista is leader of the Operations Technology Group at Lawrence Berkeley National Laboratory's National Energy Research Scientific Computing (NERSC) Center, a scientific facility for the Office of Science in DOE. She is actively involved with the Lab's outreach programs, those of the University of California Office of the President, Broader Engagement at the SC (Supercomputing) Conference, as well as the Grace Hopper Celebration of Women in Computing Conference. She has a B.S. in computer information systems and an M.B.A. in technical management from Golden Gate University.



Tony Baylis (Panels, Workshops and BoFs Co-Chair and Registration Chair)

Tony Baylis is a program manager in the Computation Directorate at Lawrence Livermore National Laboratory. He has myriad general responsibilities but he specifically manages the Computation Scholar Program, Diversity recruitment, and Program Development with HBCU/MSIs for Computation and the lab. He has over 20 years' experience in the field of computing, particularly high performance computing. Baylis's passion is mentoring and assisting students in all science disciplines to discover their path. He actively stays involved and connected to the majority of the students that he helps. Tony has been an active volunteer for various organizations, including ACM/IEEE SC conferences and the Richard Tapia Celebration of Diversity in Computing Conference. He is currently serving as Treasurer of ACM SIGGRAPH. In addition, he previously worked in the broadcasting industry as an independent consultant and contractor to the major television networks. Baylis earned a bachelor of arts degree in liberal arts and completed an A3 Illinois Technology Leadership Program at the University of Illinois. He is a proud father of five wonderful children and he spends as much time with them whenever possible.



Jamika Burge (Scholarships Chair)

Dr. Jamika Burge is a senior scientist at Information Systems Worldwide (i_SW), an information systems company in Arlington, Va., that provides high-end, advanced technical and research services to the U.S. government and other customers. She is currently serving as a Technical SME (Subject Matter Expert) supporting R&D programs for the Defense Advanced Research Projects Agency (DARPA) in the Information Innovation Office (I2O). Most recently, she was a postdoc in the College of Information Science and Technology at The Pennsylvania State University (2007–2009), where her research focused on wireless informatics for nonprofit organizations. Burge completed her Ph.D. in computer science from Virginia Tech, where she was an IBM Ph.D. Research Fellow. She has several publications in books and refereed conferences, and she is a member of ACM (CSE and CHI) and the Coalition to Diversify Computing, where she co-directs the Collaborative Research Experiences for Undergraduates (CREU) program and leads the Women of Color in Computing initiative.



Jon Bashor (Communications Chair)

Tapia 2013 marks the fourth time Jon Bashor has served as the conference communications chair. He has also served as communications chair for the SC03 and SC08 conferences, as well as the International Supercomputing Conference in Germany. His main job, though, is the communications and outreach manager for the Computing Sciences organization at Lawrence Berkeley National Laboratory. Decidedly non-technical, Bashor sees his job as making computational and scientific accomplishments understandable to a broad audience, as well as helping students understand the rewards of a career in scientific computing. Bashor earned his BA in political science from California State University, Bakersfield, and his master's in journalism from UC Berkeley.



Tony Drummond (Student Research Posters Chair)

Tony Drummond is a staff scientist in the High Performance Computing Research Department at Lawrence Berkeley National Laboratory. His research interests include linear algebra, scientific computing, atmospheric modeling and development of high performance software tools. He received his Ph.D. from the French Institute National Polytechnique de Toulouse, and did his postdoctoral work in the Atmospheric Sciences department at UCLA. He has other academic degrees from The University of Tulsa, The University of Texas at Austin and Universidad Francisco Marroquín in Guatemala City. In previous Tapia conferences, he has co-chaired and participated as a panelist in the Doctoral Consortium.



Juan E. Gilbert (Coalition to Diversify Computing Chair)

Juan E. Gilbert is an IDEaS Professor and Chair of the Human-Centered Computing Division in the School of Computing at Clemson University, where he leads the HCC Lab. He is also a Professor in the Automotive Engineering Department at Clemson University. Dr. Gilbert has research projects in spoken language systems, advanced learning technologies, usability and accessibility, ethnocomputing (culturally relevant computing) and databases/data mining. He has published more than 120 articles, given more than 190 talks and obtained more than \$18 million dollars in research funding. He is a Fellow of the American Association for the Advancement of Science (AAAS), an ACM

Distinguished Scientist and one of the 50 most important African-Americans in Technology. He received his BS in Systems Analysis from Miami University in Ohio and his M.S. and Ph.D. degrees in Computer Science from the University of Cincinnati.



Anthony Joseph (Doctoral Consortium Deputy Chair)

Anthony Joseph is an associate professor at the Electrical Engineering and Computer Sciences department at UC Berkeley. He has a Ph.D. in computer science from MIT. Joseph's primary research interests are in Internet security, mobile/distributed computing, and wireless communications (networking and telephony). He is part of the RAD Lab and is exploring these areas in current (SecML, DETER, D-Trigger) and former (Tapas, Tapestry, Reap and Sahara) projects.

Scholarship Application Reviewers

The Tapia 2013 Organizing Committee would like to thank everyone who reviewed the hundreds of scholarship applications submitted by students from around the country. The reviewers are:

Sadaf Alam, Nancy Amato, Yina Arenas, Elizabeth Bautista, Tony Baylis, Stacy Branham, A.J. Brush, Jamika Burge, Amirah Chinaei, Ernest Cross, Alfredo Cruz, Dilma da Silva, Shaundra Daily, Raheleh Dilmaghani, Cyntrica Eaton, Carla Ellis, Nikolova Evdokia, Sandra Faust, Natalie Gil, Tiffany Grady, Rean Griffith, Joshua Gross, Tracy Hammond, Jing He, Mark Jack, Anna Karlin, Laing Kwame, Rubin Landau, Mary Ann Leung, Patty Lopez, Yashema Mack, Brandeis Marshall, Suzanne Matthews, Damon McCoy, Debbie McCoy, Luis Melara, Deidra Morrison, Gail Murphy, Carolyn Nichol, Yolanda Rankin, Tiffany Reardon, Sekou Remy, Samuel Rodriguez, Holly Rushmeier, Ellen Spertus, Lydia Tapia, Jennifer Teig von Hoffman, Shawna Thomas, Damla Turgut, Juan Vargas, Luis Vicente, Cristina Villalobos, Mina Vora, Jennifer Welch, Pamela Williams, Dale-Marie Wilson and Yuqing Wu.

Congratulations to the Tapia 2013 Doctoral Consortium participants:

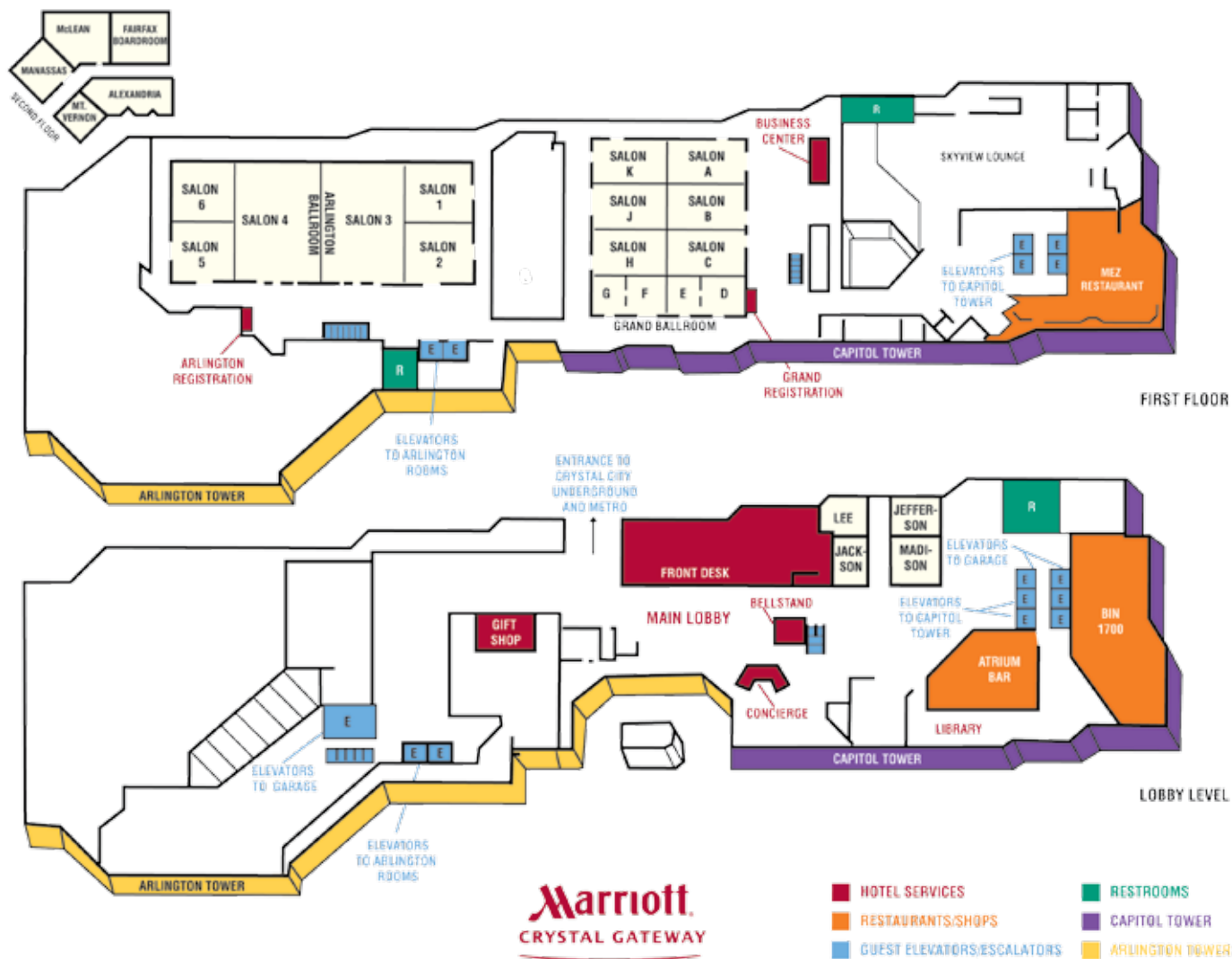
Elkin Garcia, University of Delaware; **Romisa Rohani Ghahari**, Indiana University-Purdue University Indianapolis; **Darakhshan Mir**, Rutgers University; **Troy Nunnally**, Georgia Institute of Technology; **Eric Fouh**, Virginia Tech; **Shannon Roberts**, University of Wisconsin-Madison; **Kato Mivule**, Bowie State University; **Afarin Pirzadeh**, Indiana University-Purdue University Indianapolis; **Pierre St Juste**, University of Florida; **Kristi Morton**, University of Washington; **Sam Jacobs**, Texas A&M University; **Christan Grant**, University of Florida; **Jerome McClendon**, Clemson University; **Paul Taelle**, Texas A&M University; **Danielle Cummings**, Texas A&M University; **Grace Silva**, University of North Carolina; **Jaye Nias**, Bowie State University; **Efsun Sarioglu**, George Washington University; **Ivor Addo**, Marquette University; **Dev Oliver**, University of Minnesota; **Jose Lugo-Martinez**, Indiana University

Student Research Poster Reviewers

The Tapia 2013 Organizing Committee would like to thank **Pietro Cicotti**, San Diego Supercomputing Center; **Mary Ann Leung**, Krell Institute; and **Karla Morris**, Sandia National Laboratories; for help in reviewing the more than 175 research posters submitted by students.

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