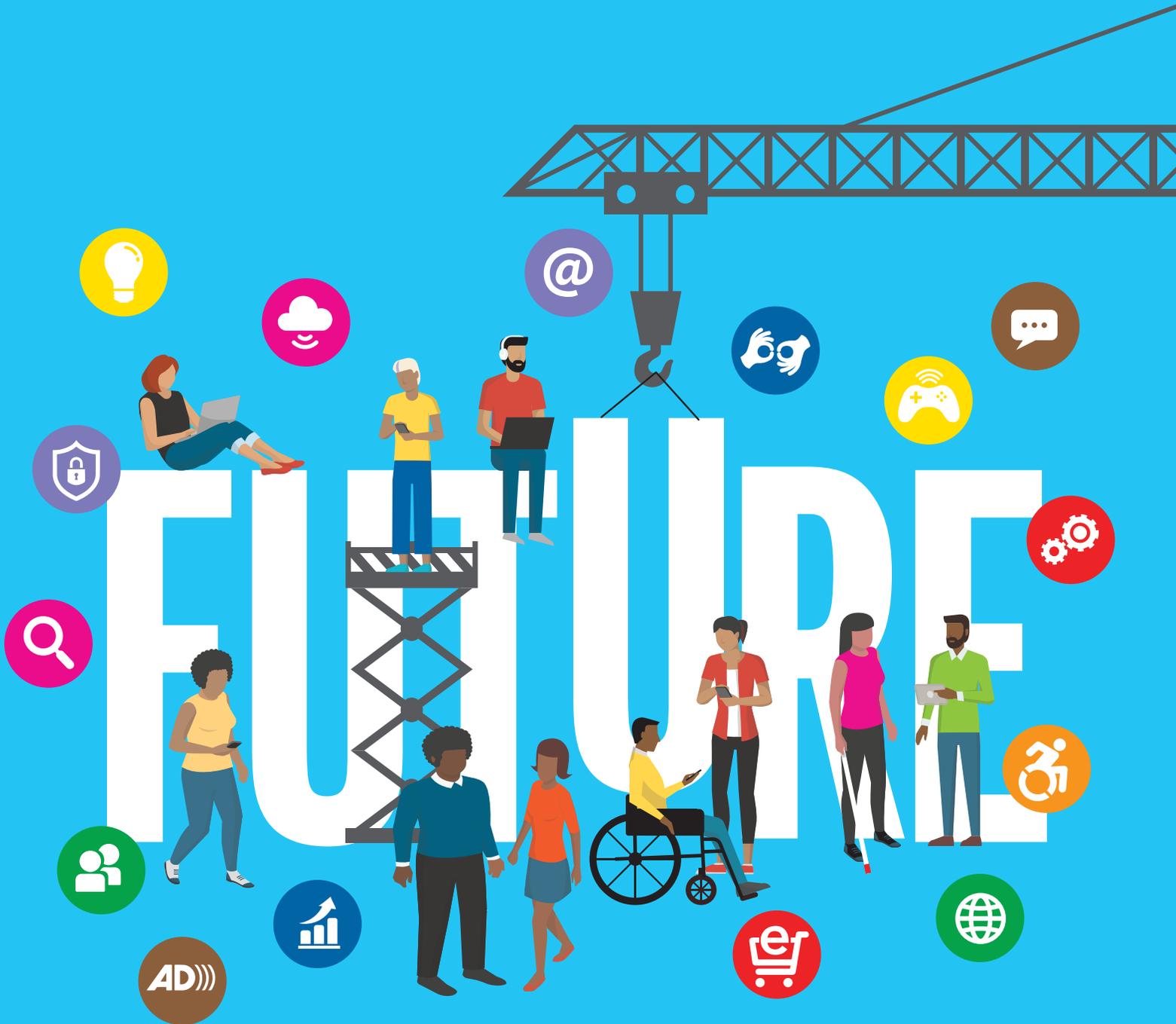


2019 ACM RICHARD TAPIA

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

DIVERSITY: BUILDING A STRONGER FUTURE



PRESENTED BY CMD-IT

SEPTEMBER 18–21, 2019 | SAN DIEGO, CA

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2019 ACM RICHARD TAPIA

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

SEPTEMBER 18–21, 2019 | SAN DIEGO, CA

The **2019 ACM Richard Tapia Celebration of Diversity in Computing Conference** is sponsored by the Association for Computing Machinery (ACM) and presented by the Center for Minorities and People with Disabilities in Information Technology (CMD-IT).

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

Diversity: Building a Stronger Future. The 2019 Tapia conference theme reminds us of the critical role of diversity in computing innovation and the creation of the future of all aspects of STEM. Engaging a diverse workforce results in solutions that benefit everyone and creates a stronger, brighter future.

A Stronger Future for Innovation: Providing innovative technology that arises from diverse perspectives with key insights to create unique solutions to challenging problems.

A Stronger Future for Knowledge: Bringing together diverse disciplines – science, engineering, and computing to create new technologies to solve unique problems.

A Stronger Future for Communities: Creating new technology to enrich and enhance the growth of diverse communities.

A Stronger Future for Life: Engaging diverse groups in the creation of technology provides the opportunities for everyone to improve the world.



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

The Center for Minorities and People with Disabilities in Information Technology (CMD-IT) is a non-profit organization with a vision to contribute to the national need for an effective workforce in computing and IT through synergistic activities related to minorities and people with disabilities. The vision is realized through the mission to ensure that under-represented groups are fully engaged in computing and information technologies, and to promote innovation that enriches, enhances, and enables these communities, such that more equitable and sustainable contributions are possible by all communities. CMD-IT is the presenter of the ACM Richard Tapia Celebration of Diversity in Computing and the organizer of the following programs:



FLIP Alliance

The goal of the NSF-funded FLIP (Diversifying Future Leadership in the Professoriate) Alliance is to address the broadening participation challenge of increasing the diversity of the future leadership in the professoriate in computing at research universities as a way to achieve diversity across the field. The FLIP Alliance brings together the departments responsible for producing the majority of the professoriate with individuals and organizations that understand how to recruit, retain, and develop students from underrepresented groups in order to create a network that can quickly and radically change the demographic diversity of the professoriate across the field of computing.

University Award

The annual CMD-IT University Award for Retention of Minorities and Students with Disabilities in Computer Science recognizes US institutions that have demonstrated a strong commitment to increasing the computer science baccalaureate degree production of minorities and students with disabilities, through effective retention programs. The award is sponsored by Microsoft.

Academic Careers Workshop

The goal of the annual workshop is to mentor under-represented assistant- and associate-level faculty and senior doctoral students about the academic career ladder. The workshop includes panels of diverse senior faculty talking about the tenure and promotion process, launching a research

program, professionalism, and a detailed session on proposal writing. In addition, the workshop includes a discussion about alternative career paths. The workshops are funded by NSF.

Student Professional Development Workshop

The annual workshop provides undergraduate and masters level computer science students with the unique opportunity to receive coaching and development from Industry professionals about the job application and interview processes. The workshop is held at the Tapia Conference.

WELCOME

FROM THE GENERAL CHAIR AND PROGRAM CHAIR

From the 2001 inaugural edition of the **Richard Tapia Celebration of Diversity in Computing** in Houston, Texas, the “Tapia” conference has been the premier conference venue to celebrate the innovation, creativity and richness that abound when we engender participation from broad and diverse communities in computing-related fields. Thankfully, the conference continues to thrive: the technical, professional and civic offerings have grown; the number of attendees has grown; and most importantly, the impact the conference has on all fields of computing has grown! Aiming to preserve these important legacies, with the deepest senses of honor, obligation, commitment and passion, we present to you the 13th Tapia conference, Tapia 2019. Our theme for Tapia 2019 is **“Diversity: Building a Strong Future.”**

This year’s conference evokes the basic yet irrefutable concept that diversity is a standard essential set of roots for computing innovation in the future. Conquering computing challenges going forward—while ensuring benefits across all global citizens—whether it is artificial intelligence, blockchain, cybersecurity, or a range of other subjects, requires the resources, talent, and experiences from a diverse collective. Just as we have embraced risk-taking, perseverance, and creativity as cornerstones of innovation, organizations and society must treat diversity with the same reverence. This should be reflected in leadership, strategies, and policies charging forward.

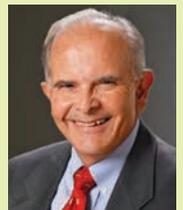
Each year the number of submissions to the conference has grown, and Tapia 2019 is no different. Thanks to record setting numbers of submissions, we hope you find this year’s offerings as exciting, educational, inspiring and diverse, as ever. We received a total of 127 Birds-of-a-Feather (BoFs), Workshop and Panel submissions. With the help of our Technical Program Chairs and committee members, we selected 20 BoFs, 44 Workshops and Panels. Our Poster Session will showcase 44 student posters (selected from 90 submissions). For the third time, alongside our poster program, Tapia hosts an ACM Student Research Competition (SRC), 28 of the 44 student posters are participating in this ACM SRC. Our distinguished and inspirational lineup of plenary and banquet speakers remind us that it is important to pay attention to the role models amongst us and those that have come before us. Finally, we complement these program activities with a series of professional and development panels, and the Wednesday Doctoral Consortium.

Tapia 2019 is only made possible through the commitment, hard work and financial support of a diverse set of people and organizations. We are deeply grateful to the Tapia 2019 Infrastructure and Technical Program Committees: these task forces that comprise volunteers from academia, research labs and industry form the heart and soul of the conference. We wish to acknowledge all sponsors of Tapia 2019, especially our Diamond, Platinum and Gold Sponsors. In part, their sponsorship supported the attendance of over 307 scholarship recipients and 5 Doctoral Consortium participants.

We close this welcome address with a few sincere wishes. We wish that the Tapia 2019 program exceeds all of your expectations. We wish that your Tapia 2019 experience provokes and stimulates new ideas that positively impact your professional and personal lives. We hope that you strengthen and form new connections with peers, mentors, and protégés, connections that will help you establish a powerful “diverse” networks and broaden your approach to viewing and solving computing and societal challenges. Lastly, we wish that each and every one of you realize your dreams and aspirations and help to render a brilliant, inventive, diverse new world of computing. Thanks for Strengthening Diversity and Building a Strong Future!



Joel Branch
Tapia 2019
General Chair,
Vice President of
AI Development,
Lucid, Inc.



David Martinez
Tapia 2019
Program Chair,
Associate Head
of Cyber Security
and Information
Sciences Division,
MIT – Lincoln
Laboratory

Joel Branch
Tapia 2019 General Chair,
Vice President of AI Development,
Lucid, Inc.

David Martinez
Tapia 2019 Program Chair,
Associate Head of Cyber Security and
Information Sciences Division,
MIT – Lincoln Laboratory

FEATURED SPEAKERS

FIRESIDE CHAT PLENARY PANELISTS



Charles Isbell
John P. Imlay, Jr.
Dean of College
of Computing,
Georgia Tech



Uthra Ramanujam
Executive Director,
Software Engineering
– Operations
Innovation and
Emerging Technology,
JP Morgan Chase



Maja Vukovic
Manager, Principal
Research Staff
Member, Cognitive
Service Management,
IBM T.J. Watson
Research Center



Joel Branch
Panel Moderator
Vice President of
AI Development,
Luca, Inc.

PLENARY KEYNOTE SPEAKERS



**Stephanie
Lampkin**
Founder & CEO,
Blendoor



Hector Ruiz
Founder and
Chairman,
Advanced
Nanotechnology



Jennifer Mankoff
Richard E. Ladner
Professor, Paul G.
Allen School of
Computer Science
and Engineering,
University of
Washington

BANQUET KEYNOTE SPEAKER



Ken Washington
Chief Technology
Officer, Ford Motor
Company

MEET DR. RICHARD TAPIA

Richard Tapia is a mathematician and professor in the Department of Computational and Applied Mathematics at Rice University in Houston, Texas. He is internationally known for his research in the computational and mathematical sciences and is a national leader in education and outreach.

Tapia's current Rice positions are University Professor (only the sixth individual afforded this title in the 100-year history of Rice University), Maxfield-Oshman Professor in Engineering, Director of the Center for Excellence and Equity in Education.

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

Among his many honors, Tapia was the first Hispanic elected to the National Academy of Engineering. In 1996 President Clinton appointed him to the National Science Board, where he served until 2002, and from 2001 to 2004 he chaired the National Research Council's Board on Higher Education and the Workforce. He has received the National Science Foundation's inaugural Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring; the Lifetime Mentor Award from the American Association for the Advancement of Science; the Distinguished Service to the Profession Award from the



Society for Industrial and Applied Mathematics; the Distinguished Public Service Award from the American Mathematical Society; the Distinguished Scientist Award from the Society for the Advancement of Chicanos and Native Americans in Science in addition to seven honorary doctorates. He was also the first recipient of the Computing Research Association's A. Nico Habermann Award for outstanding contribution to aiding members of underrepresented groups within the computing research community; 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; and given the "Professor of the Year" award by the Association of Hispanic School Administrators, Houston Independent School District, Houston, TX. In 2005, Tapia was recently honored with the 2017 American Association for the Advancement of

Science's Public Engagement with Science Award for his remarkable career blending world-class scholarship, admirable mentoring and profound contributions to science, technology, engineering and mathematics education and public engagement. In 2014 Tapia was awarded the National Science Board's Vannevar Bush award for his extraordinary leadership, inspiration, and advocacy to increase opportunities for underrepresented minorities in science, distinguished public service leadership in science and engineering, and exceptional contributions to mathematics in the area of computational optimization. The National Medal of Science is the highest award given to a scientist or engineer by the United States government.

In 2011, President Barack Obama presented the National Medal of Science to Tapia for his pioneering and fundamental contributions in optimization theory and numerical analysis and for his dedication and sustained efforts in fostering diversity and excellence in mathematics and science education.

While at Rice, Tapia has directed or co-directed more underrepresented minority and women doctoral recipients in science and engineering than anyone in the country, and has led several programs that have brought recognition to the university's commitment to diversity. Tapia recently established the Rice Summer Tapia Camps for high school students and teachers that offer campers an opportunity to work alongside STEM students, interact with renowned scientists, and participate in project based collaborative learning activities. Two professional conferences have been named in Tapia's honor, recognizing his contributions to diversity: Richard Tapia Celebration of Diversity in Computing conference and the Blackwell-Tapia Conference, whose founders described Tapia as a seminal figure who inspired a generation of African-American, Native American and Latino/Latina students to pursue careers in mathematics.

TAPIA ACHIEVEMENT AWARD

RICHARD A. TAPIA ACHIEVEMENT AWARD FOR SCIENTIFIC SCHOLARSHIP, CIVIC SCIENCE AND DIVERSIFYING COMPUTING

The Richard A. Tapia Achievement Award for Scientific Scholarship, Civic Science and Diversifying Computing is given annually to an individual who is a distinguished computational scientist, computer scientist or computer engineer and who is making significant contributions to civic areas such as teaching, mentoring, advising, and building and serving communities. The individual is also one who demonstrates extraordinary leadership in increasing the participation of groups who are underrepresented in the sciences.

The 2019 Richard A. Tapia Award winner is **Cristina Villalobos**, the Myles and Sylvia Aaronson Professor in the School of Mathematical and Statistical Sciences at the University of Texas Rio Grande Valley and Founding Director of the Center of Excellence in STEM Education. Cristina Villalobos is a leading mathematician in the fields of optimization, optimal control and modelling. Throughout her career she has significantly impacted different application areas through her research in optimization; impacting areas such as the treatment of eye disease and the design of antennas. In addition, Cristina has focused on strengthening STEM academic programs, providing resources for the academic and professional development of students and faculty, and increasing the number of underrepresented students attaining STEM degrees. She has been a leader in student mentoring, increasing the number of Hispanic students pursuing PhD's in mathematics.

Cristina's parents were born, raised, and married in Mexico and came to the US and worked in canning factories. She was the eldest of three children and was raised in Donna, Texas, in the Rio Grande Valley. She began her schooling at a Head Start Program, a school where her mother later worked as a custodian. During summers while in high school, she participated in the Texas Pre-Freshman Engineering program that was offered at a regional university and had her first exposure to computer science and physics. She had initially not planned to attend college, but she discovered University of Texas Austin when she went for a state competition. She became the first in her family to attend college when she entered UT Austin.

While at UT Austin her faculty mentors, Drs. Efraim Armendariz and Uri Treisman, guided her into summer research programs at places like UC Berkeley and to conferences like SACNAS where she met Dr. Juan Meza whom she later work with at Sandia National Laboratories.. The faculty in those programs encouraged her to attend graduate school. While an undergraduate, she met Dr. Richard Tapia and attended his Spend a Summer With a Scientist Program. She went on to attend Rice University for her PhD, with Richard Tapia as her co-advisor.

Cristina is currently working with colleagues in various areas modelling problems using optimization and solving them. With faculty in Electrical Engineering she is creating models around antennas. With other colleagues she is doing



mathematical biology by modeling potential drug therapies for battling retinitis pigmentosa. And with other colleagues, she is working on STEM Education issues to improve curricula and program development. She also just received a grant to reform Precalculus, Calculus 1, and Calculus 2 at the University level by infusing active learning thru recitation labs to increase pass rates since these are gateway courses for students entering STEM fields.

In 2011 her university was awarded one of three five year grants from the U.S. Department of Defense HBCU/ MI program to create a Center of Excellence in STEM Education. Their mission is to increase and retain the number of students going into STEM programs and strengthening STEM academic programs. All of this is done with the goal to develop Latino leaders for careers in academia, government, and industry. The Center of Excellence offers programs and workshops on a variety of topics such as applying for summer research programs, internships, and fellowships; applying to graduate school; resume writing; and creating successful posters, to name a few. Their goal is to increase the number of underrepresented minorities attending STEM graduate programs.

Cristina has secured over \$8M in grants as PI/CoPI. She was a member of The National Academies committee which published the 2018 report "Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce". In addition, she has been recognized at the national level for student mentoring and STEM leadership with the 2013 Distinguished Undergraduate Institution Mentor Award from the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) and a 2012 HENAAC Luminary Award from the Great Minds in STEM. She is also a recipient of the 2013 University of Texas Regents' Outstanding Teaching Award and recently received the 2016 American Association of Hispanics in Higher Education Service/Teaching Award. She also served on the SACNAS Board of Directors (2015-2017). Dr. Villalobos is a Ford Foundation Predoctoral Fellow and Alfred P. Sloan Scholar.

Cristina Villalobos' advice for students in STEM is advice she received from her mother: "Take the Initiative! Go out and ask questions. Don't wait for people to ask you what you need, go out and seek resources."

WEDNESDAY

SEPT. 18, 2019

10:00 AM – 9:00 PM

Lactation Room

Location: Palomar

12:00 PM – 5:00 PM

Doctoral Consortium

Sponsored by the National Science Foundation

By Invitation Only

Location: Mission Hills

12:00 PM – 9:30 PM

Quiet Room

Location: Miramar

1:00 PM – 7:00 PM

Exhibitor Setup

Location: Pacific Ballroom

1:00 PM – 5:00 PM

CMD-IT Student Professional Development Workshop

Sponsored by IBM, JPMorgan Chase, Qualcomm, and

Two Sigma

Pre-registration required

Location: San Diego B

DOE National Laboratories Workshop:

Learn About Large Datasets

Sponsored by the Department of Energy and

DOE National Laboratories

Location: San Diego A

5:30 PM – 6:00 PM

Newcomers Session and Scholarship Recipient Orientation

Location: San Diego B

6:00 PM – 7:30 PM

Welcome Reception & Fireside Chat: Misinformation Evolved: The Long Road Ahead

Location: Marriott Grand Foyer & Marriott 5

7:30 PM – 9:30 PM

Dessert and Career Fair

Location: Pacific Ballroom

WED

THURSDAY

SEPT. 19, 2019

8:00 AM – 9:00 AM
Breakfast on Your Own

FLIP Alliance Fellows and Faculty Breakfast

By Invitation Only

Location: San Diego A

STARS Breakfast

By Invitation Only

Location: Marriott 11

8:00 AM – 6:00 PM

Lactation Room

Location: Palomar

9:00 AM – 6:00 PM

Quiet Room

Location: Miramar

9:00 AM – 9:30 AM

Welcome & Announcements

Location: Marriott 5-9

9:30 AM – 11:00 AM

Plenary Keynotes

Location: Marriott 5-9

Making Accessibility

Jennifer Mankoff, Richard E. Ladner Professor in the Paul G. Allen School of Computer Science & Engineering, University of Washington

Hacking Human & Algorithmic Bias

Stephanie Lampkin, Founder and CEO, Blendoor

11:00 AM – 6:00 PM

Exhibit Hall Open

Location: Pacific Ballroom

11:10 AM – 12:10 PM

Private Student Poster Presenter Luncheon

Sponsored by Gold Industry Sponsors

By Invitation Only

Location: San Diego A

Broadening Participation in Computing: Best Practices for Academic Departments

Location: Marriott 2

Problem-Solving as a Strategy to Improve the Academic Performance at HSIs: A CAHSI and Google Pilot Project

Location: Marriott 3

Big Data Leads to Enormous Science: Innovative Research and Beyond at National Labs

Location: Marriott 12

Building Your Resume for a Tech Career

Location: San Diego B

Living in a 5G ERA: Smart Cars, Smart Cities and AI

Location: Marriott 4

Next-Generation Secure Computer Systems: Post-Quantum Cryptosystems

Location: Marriott 10

Artificial Intelligence & Computing in Cancer Imaging

Location: Marriott 1

From Zero to Job Search: Leveraging a Framework to Get Unstuck

Location: Marriott 13

12:15 PM – 1:45 PM

Tapia Student Poster Competition/ACM Student Research Competition (SRC) & Lunch

Sponsored by Gold Industry Sponsors

Location: Marriott Ballroom Foyer

BPC Lunch

By Invitation Only

Location: Torrey Pines 1

1:45 PM – 2:45 PM

Increasing Diversity in Computing: Sharing of Good Practices

Location: Marriott 2

Disability Disclosure in Education and Employment

Location: Marriott 12

Taking on the Technical Interview

Location: San Diego B

Are We Making a Difference? How to Design BPC Research to Demonstrate Impact

Location: Marriott 1

Challenges and Rewards of Working with Health Data

Location: Marriott 3

Leveraging Research to Improve the Experiences of Undergraduate Students of Color in Computing

Location: Marriott 10

BRISC-V: A RISC-V Open-Source Architecture Design Space Exploration Toolbox
Location: Marriott 11

A Critical Introduction to Machine Learning
Location: Marriott 12

Interested in Doing Cyber Forensics?
Location: Marriott 13

3:00 PM – 4:00 PM
Tech Talks
How 5G Enables Intelligent Connectivity

NextGen Intergrated Automation for Business and Tech Transformation
Sponsored by Qualcomm and JPMorgan Chase
Location: Marriott 1

Hispanics in Computing Community
Location: San Diego A

Increasing Diversity in Computing: A Call to Action
Location: Marriott 10

Spectral Analysis: An LGBTQIA+ Community in Scientific Computing
Location: Marriott 11

Navigating Tech with a Disability
Location: Marriott 12

Leveraging Technology to Improve Healthcare
Location: Marriott 13

Incorporating Diversity-Related Topics into a Traditional CS Course
Location: Marriott 4

Times Are Changing, Kids Think Differently, and Innovation is Evolving. Are You Ready?
Location: Marriott 2

Welcome, Parents: Influencing Inclusion at Any Level
Location: Marriott 3

4:00 PM – 4:30 PM
Refreshment Break
Pacific Ballroom Foyer

4:30 PM – 5:30 PM
Tech Talks

Collaboratively Achieving Quality Data in the Big Data Era

One Pipeline to Secure Them All: How DevSecOps Can Help Develop and Deploy Secure Applications
Sponsored by Two Sigma
Location: Marriott 1

The Future of Computing

How Office 365 is Safely Enabling the Integration of Intelligent Features into Productivity Apps
Sponsored by IBM and Microsoft
Location: Marriott 2

Resilience: Build the Skill
Location: Marriott 11

Learn About Open Source Software
Location: Marriott 10

Diversity includes Disability
Location: Marriott 4

Multistage Ranking for LinkedIn Feed
Location: Marriott 12

Black in Artificial Intelligence
Location: Marriott 13

A Conversation with Richard Tapia
Location: Marriott 3

5:30 PM – 6:30 PM
VIP Reception
By invitation only
Location: Marriott Terrace

7:00 PM – 8:30 PM
Anitab.org Community Reception
Location: San Diego B



FRIDAY

SEPT. 20, 2019

8:00 AM – 9:00 AM
Breakfast on Your Own**Autodesk Student Breakfast***By Invitation Only*

Location: San Diego B

STARS Breakfast*By Invitation Only*

Location: Marriott 11

8:00 AM – 5:00 PM**Lactation Room**

Location: Palomar

9:00 AM – 11:00 PM**Quiet Room**

Location: Miramar

9:00 AM – 9:30 AM**Announcements**

Location: Marriott 5-9

9:30 AM – 10:30 AM**Ken Kennedy Distinguished Lecture****Good Before Better: Building a Technology Tomorrow**

Hector Ruiz, Founder and Chairman, Advanced Nanotechnology

Location: Marriott 5-9

10:30 AM – 5:00 PM**Exhibit Hall Open for Graduate Application Review Clinics and Interviews with Sponsors**

Location: Pacific Ballroom

10:40 AM – 11:40 AM**SRC Round II**

Location: Torrey Pines 1

Inspiring Diverse Women in Computer Science Research

Location: Marriott 2

Dealing with Bias and Unfairness in AI

Location: Marriott 3

This is Grad School: What It Offers and How You Can Succeed

Location: Marriott 1

High Speed Networking (HSN): Moving Data, Fast, Easily, and Secure

Location: Marriott 4

Fairness in Machine Learning – A Hands-On Tutorial

Location: Marriott 10

The Art of Innovation & The Pitch

Location: Marriott 11

Overcoming Workplace Challenges: Trials, Tribulations, and Triumphs

Location: Marriott 12

Performing Confidence: Building a Stronger Future

Location: Marriott 13

Faculty Workshop Part I: NSF Funding Opportunities

Location: San Diego B

11:45 AM – 1:15 PM**General Lunch & Networking**

Location: Marriott 5-9

Faculty Networking Luncheon*Sponsored by Point72 Asset Management**By invitation only*

Location: San Diego A

1:15 PM – 2:15 PM**Rewriting the Code College Women in Tech Data Initiative – Findings and Recommendations**

Location: Marriott 2

Building Connections Between Computation and Health: Medical Informatics

Location: Marriott 3

Combating Federal Government Stereotypes: Diversity in the Federal Cybersecurity Workforce

Location: Marriott 12

All You Wanted To Know About Publishing Research But Were Afraid To Ask!

Location: Marriott 13

Faculty Workshop Part II: Effective Student Retention Strategies

Location: San Diego B

Teaching to Increase Equity in STEM (TIDES): Empowering the Underrepresented using culturally-responsive strategies and tackling bias

Location: Marriott 1

Persistent Strategies for Women and Underrepresented Minorities to Thrive in Tech

Location: Marriott 10

Driving Innovation Through Diversity

Location: Marriott 11

#HPCMatters: Transform the World with High Performance Computing (HPC)

Location: Marriott 4

2:30 PM – 3:30 PM**Increasing Diversity of Doctoral Programs: Insights from the Trenches**

Location: Marriott 2

Industry and Academia Efforts: Experiences with Google Faculty in Residence Program

Location: Marriott 13

Preparing Tomorrow's Ethical Decision-Makers in Computer and Data Sciences Today

Location: Marriott 1

STARS IGNITE: How to Ignite Efforts for Broadening Participation in Computing

Location: Marriott 3

Research is for Everyone!

Location: Marriott 4

Love Teaching? Consider a Teaching-Track Career!

Location: Marriott 10

Recognizing and Responding to Bias and Microaggressions

Location: Marriott 11

So You Think You Can Explain Tic-Tac-Toe: A STEM Communication Workshop

Location: Marriott 12

Wakanda Name You Got

Location: San Diego A

Snap Out of It: Overcoming Impostor Syndrome and Leveraging Your Value Proposition

Location: San Diego B

The Fallacy Objectivity: leveraging situated knowledges to advance computing for social justice

Location: San Diego C

3:30 PM – 4:00 PM

Refreshment Break

Location: Pacific Ballroom Foyer

4:00 PM – 5:00 PM

Tech Talks

Modernizing a Cancer Medications Platform: Stories, Diversity, and Lessons Learned

Deploying Envoy, How Lyft services millions of requests per second in a modern cloud infrastructure

Sponsored by Flatiron Health and Lyft

Location: Marriott 1

The William Test: A Minority Engineer's Guide to Evaluating Company Culture

Location: Marriott 4

Developing Allies to Create Opportunities

Location: Marriott 10

Giving Back While Moving Forward: Sharing Strategies for Integrating Research and Action for Equity and Inclusion into Your Computing Education and Career

Location: Marriott 11

Student Organizations: Creating a Community of Success for Latinx and other Underrepresented Students in Computing

Location: Marriott 12

Navigating the CS Major: Student and Faculty Best Practices

Location: Marriott 13

Podcasting in Computing – Using Sci-Comm to Broaden Participation

Location: San Diego A

Excelling at Your First Tech Job: Made Easy

Location: Marriott 3

6:00 PM – 11:00 PM

Banquet & Dancing

Location: Marriott 5-9

SATURDAY

SEPT. 21, 2019

POST CONFERENCE ACTIVITIES

8:00 PM – 5:00 PM

Quiet Room

Location: Presidio

8:30 AM - 11:30 AM

FLIP Alliance Focus Group

Location: Torrey Pines II

9:00 AM – 3:30 PM

STARS Celebration

Location: San Diego B

SAT

WEDNESDAY | PROGRAM SCHEDULE

1:00 PM – 5:00 PM

CMD-IT Student Professional Development Workshop

Sponsored by IBM, JPMorgan Chase, Qualcomm, and Two Sigma

Pre-registration required

Location: San Diego B

The CMD-IT Student Professional Development Workshop will provide undergraduate and masters level computer science students with the unique opportunity to receive coaching and development from industry professionals. Students will learn the best practices for resume writing, preparing for the rigors of the (technical/behavioral) interview process and social media presence. The workshop includes a Resume Clinic where students can get 1:1 advice from professional industry volunteers on their resumes.

DOE National Laboratories Workshop: Learn about Large Datasets

Sponsored by the Department of Energy and DOE National Laboratories

Workshop is open to the first 150 participants. Participants must attend Tutorial Part I Introduction to participate in the SIGHT and Open ACC Tutorials

Location: San Diego A

Learn about large datasets from three National Laboratories! In this 4-hour tutorial series, get to know the types of research performed by scientists at Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), and Oak Ridge National Laboratory (ORNL). As research becomes larger and interdisciplinary, so does the data they accumulate. Prior to any analysis on these large datasets, you will need tools to organize, analyze and visualize the results.

Using the background of research done at these facilities, the tutorial leaders from each Lab will discuss the following topics and provide an interactive experience in using these tools:

The Grand Unified File Indexing (GUFI) system, winner of a 2018 Research & Development Top 100 Award (the most prestigious innovation awards program for the past 56 years, honoring great R&D pioneers and their revolutionary ideas in science and technology.) is a hybrid indexing

capability designed to assist storage administrators and users in managing their data. GUFI is designed using a new, hierarchical approach to indexing file metadata, allowing rapid parallel searches across many internal databases. Queries that would previously have taken hours or days can now be run in seconds.

SIGHT (<https://www.olcf.ornl.gov/olcf-resources/rd-project/sight/>) is an exploratory visualization tool for large scale datasets supporting Ray Tracing, remote and interactive scientific visualization, parallel I/O and large scale displays. SIGHT is a custom solution for easy exploration of particle based datasets. OpenACC is a programming model for developing portable High Performance Computing applications using hardware accelerators, such as General Purpose Graphics Processing Units (GPGPUs). OpenACC provides a relatively easy way to transform a serial program into a parallel one using the power of accelerator technology. This mini-tutorial will provide an introduction to GPUs, an overview of accelerator programming models, and the specifics of OpenACC. In addition, attendees will be given access to the Oak Ridge Leadership Computing Facility's Ascent system for a hands-on tutorial. Ascent is an IBM 16-node Power9 system, with 2 Power9 CPUs and 6 NVIDIA V100 GPUs per node.

The tutorial series format is as follows:

Part 1: Introduction of Labs by each tutorial leader and will include a discussion of the types of research performed at each Lab that use these tools. There will be a demonstration of GUFI and a discussion on how this data management and organization tool can benefit you prior to data analysis. (1 hour and 10 minutes)

Part 2: Tutorial of SIGHT. (55 minutes)

Part 3: Tutorial of OpenACC. (1 hour 40 minutes)

Doctoral Consortium

By Invitation Only

Location: Mission Hills

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

WEDNESDAY | PROGRAM SCHEDULE

2019 Doctoral Consortium Research Topics

GIPSim: Low level power modeling for resiliency in Side Channel attack on GPUs

Saoni Mukherjee, Northeastern University

Design and Evaluation of Intergenerational Health Collaboration System within the Family

Jomara Sandbulte, Pennsylvania State University

Spatial Partitioning: From Macro To Nano Scale

Harsha Gwalani, University of North Texas

Crowdsourcing Big Data Applications in Agriculture

Bianna B. Posadas, University of Florida

Using Storytelling to Understand the Technological and Experiential Requirements of Interactive Improvisational Agents

Lara J. Martin, Georgia Institute of Technology

5:30 PM - 6:00 PM

Scholarship Recipient Orientation & Newcomers Session

Location: San Diego B

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

6:00 PM - 7:30 PM

Welcome Reception & Fireside Chat

Location: Marriott Grand Foyer & Marriott 5

Misinformation Evolved: The Long Road Ahead

Advances and misuse in deep learning and the increasing sophistication of social media technologies have enabled highly evolved methods of creating and disseminating misinformation, or that information which is deliberately intended to deceive. Prominent examples of modern misinformation applications include highly-convincing video “deep-faking” using generative adversarial neural networks, customized phishing techniques using natural language processing and bot technology, and hyper-targeted media dissemination toward specific communities using a range of large-scale network analysis and data harvesting techniques. According to recent accounts from researchers

and practitioners, there lies a long road ahead in staying off modern misinformation techniques and campaigns, and the challenge is exasperated by the growing incentives to deceive, as well as the growing availability of tools to produce deceptive media. This fireside chat will address the above topics, and aim to identify opportunities for future research and solutions.

Moderator: **Joel Branch**, Lucid, Inc

Speakers: **Charles Isbell**, John P. Imlay, Jr. Dean of College of Computing, Georgia Tech; **Uthra Ramanujam**, Executive Director, Software Engineering – Operations Innovation and Emerging Technology, JP Morgan Chase; **Maja Vukovic**, Manager, Principal Research Staff Member, Cognitive Service Management, IBM T.J. Watson Research Center

BIOGRAPHIES:

Charles Isbell

Charles Isbell is the John P. Imlay, Jr. Dean of College of Computing at Georgia Tech. He has a BS from Georgia Tech and a PhD from MIT. Charles’ research area is machine learning. He also pursues reform in computing education. In addition to appearing in the technical and popular media, he has presented congressional testimony on both his work in online education and machine learning. He is an AAAI Fellow and a Fellow of the ACM. Appropriately, his citation for ACM Fellow reads “for contributions to interactive machine learning; and for contributions to increasing access and diversity in computing.”

Maja Vukovic

Maja Vukovic is a Research Manager and a Principal Research Staff Member at IBM T.J. Watson Research Center, in Hybrid Cloud Research. Maja leads a research team with focus on AI driven application modernization, AI driven insights and automation in hybrid cloud systems.

Maja has received numerous IBM Outstanding Technical Achievement Awards and IBM Research awards for her technical leadership. Maja is an IBM Master Inventor with over 90 patents issued. She is a Member of IBM Academy of Technology. Maja is a Senior IEEE Member and an IEEE TCSVC Award Winner - Women in Services Computing in 2018. Maja holds a PhD from University of Cambridge in UK.

WEDNESDAY | PROGRAM SCHEDULE

Uthra Ramanujam

Uthra Ramanujam is an Executive Director at JPMorgan Chase & Co. and heads the Machine Learning and Emerging Technology Group, which supports Consumer Operations. She has delivered several key initiatives in the last two years which include Intelligent Automation (RPA), Machine Learning (ML) Models that have won the Banking in Technology Award in London, UK, and the Outstanding Tech Team of the Year at the Central Ohio 2018 BizTech Awards, Columbus Business First Magazine. She is very proud to be an Expert Engineer alumni, which is a very esteemed Technical Leadership Program within JPMorgan Chase & Co. Uthra also was awarded the 2018 Rising Star Award by the Women's Bond Club (NY). She has filed for 3 patents covering Intelligent Automation, Data Loss Prevention for Cloud Utilization and ML Powered Agent Guidance.

Joel Branch

Dr. Joel W. Branch is Vice President of AI Development at Lucid, Inc., where he oversees the development of capabilities for streamlined AI solutions for large-scale distributed computing and big data enterprise platforms. Previously, Dr. Branch was a manager in the Advanced Technology Group at ESPN, where he worked on predictive analytics for sports data and media. Prior to ESPN, he was a Research Staff Member at the IBM T.J. Watson Research Center where he investigated a range of challenges in enterprise computing, including business application discovery and failure prediction, and resource management for wireless sensor networks. Dr. Branch also enjoys occasional stints in the classroom and has served as adjunct professors at both NYU Polytechnic Institute and Columbia University in New York, NY. Dr. Branch's research has resulted in over 20 patents and over 20 publications. Dr. Branch received his B.S. in Systems and Computer Science from Howard University, and his Ph.D. in Computer Science from Rensselaer Polytechnic Institute. He is passionate about the promotion of diversity and equality in the STEM community. Most importantly, Joel enjoys life by spending time with family, friends, and perfecting his BBQ skills. He is a proud native of the suburbs of Chicago, IL.

7:30 PM - 9:30 PM

Dessert & Career Fair

Location: Pacific Ballroom

The Career Fair includes representatives from our supporters from industry, academia, government and non-profit organizations supporting individuals in computing.

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8:00 AM – 9:00 AM

Breakfast On Your Own

FLIP Alliance Fellows and Faculty Breakfast

By Invitation Only

Location: San Diego A

STARS Breakfast

By Invitation Only

Location: Marriott II

9:00 AM – 9:30 AM

Welcome & Announcements

Location: Marriott 5-9

9:30 AM - 11:00 AM

Plenary Keynotes

Location: Marriott 5-9

Jennifer Mankoff, Richard E. Ladner Professor in the Paul G. Allen School of Computer Science & Engineering, University of Washington

Making Accessibility

With the increasing power and flexibility of technologies available to consumers, we are seeing a revolution in how assistive technology (AT) is being created and by whom. This talk will highlight the potential of these technologies for people with disabilities, as well as the challenges that end users face in leveraging them effectively to address AT issues.

BIOGRAPHY:

Jennifer Mankoff's research focuses on assistive technologies for equal access, health and wellness, and takes a multifaceted approach that includes machine learning, 3D printing, and tool building. Jennifer applies a human-centered approach that combines empirical methods and technical innovation. For example, she has designed 3D-printed assistive technologies for people with disabilities.

She received her PhD at Georgia Tech, advised by Gregory Abowd and Scott Hudson, and her B.A. from Oberlin College. Her previous faculty positions include UC Berkeley's EECS department and Carnegie Mellon's HCI Institute. Jennifer is a member of the CHI Academy and has been recognized with an Alfred P. Sloan Fellowship, IBM Faculty Fellowship and Best Paper awards from ASSETS, CHI and Mobile HCI.

Stephanie Lampkin, Founder and CEO, Blendoor

Hacking Human & Algorithmic Bias

As AI/ML drives the growth of predictive, omniscient and omnipresent technologies the impact of human and algorithmic bias becomes potentially more and more dangerous. There is already evidence that the AI used for hiring, criminal justice, and facial recognition yields unfavorable outcomes for already marginalized demographics of people. Stephanie Lampkin, Stanford, Microsoft, and MIT alum, now founder & CEO of Blendoor will share her personal experiences and professional insights on how to hack bias; enabling emerging technologies to level the playing field instead of widening gaps.

BIOGRAPHY:

Stephanie Lampkin, TEDx speaker and former downhill ski racer, has graced the cover of The Atlantic, Fortune 40 under 40, MIT Tech Review 35 under 35 and Forbes to name a few. She is the founder & CEO of Blendoor, software that mitigates unconscious bias in hiring. With a 15 year career in the tech industry founding two startups and working in technical roles at Lockheed, Microsoft, and TripAdvisor, Stephanie is now using her talents to build augmented intelligence and people analytics that help us see people better.

11:10 AM – 12:10 AM

Private Student Poster Presenter Luncheon

Sponsored by Gold Industry Sponsors

By Invitation Only

Location: San Diego A

PANELS AND WORKSHOPS

Broadening Participation in Computing: Best Practices for Academic Departments

Location: Marriott 2

The issue of diversity in computing is one that is particularly salient for computing departments in universities and colleges. Given that students in these departments today will define the composition of the computing talent pool tomorrow, it is imperative for departments to recruit and retain a diverse student body. This panel will bring together a group of faculty members with expertise in broadening participation in computing (BPC) in order to identify policies and practices that have the potential to be effective or create

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obstacles for departments and faculty working toward broadening participation of computing to all students. This panel will discuss what policies and programs are particularly effective for increasing diversity and retaining students in the field with particular attention to measures that should be taken to ensure that other issues that the departments are facing (e.g., the rapid growth in enrollments) do not negatively impact diversity in computing and provide suggestions on steps departments can take (e.g., developing departmental BPC plans) to broaden participation in computing.

Moderator: **Burcin Tamer**, Computing Research Association

Speakers: **Jeff Forbes**, Duke University; **Elva Jones**, Winston Salem State University; **Ran Libeskind-Hadas**, Harvey Mudd College; **Ron Metoyer**, University of Notre Dame

Problem-Solving as a Strategy to Improve the Academic Performance at HSIs: A CAHSI and Google Pilot

Location: *Marriott 3*

In this panel, we want to share our experiences with Problem-Solving courses from different perspectives: from the developers of the courses, the adopters, the students, and Googlers. We expect to share what works and what needs to improve overall and in each institution. In addition, we want to share the strategies and resources used and the product we have developed. CAHSI Alliance was formed in 2004 as a grassroots effort to increase the number of Hispanic students who pursue and complete baccalaureate and advanced degrees in the Computer and Information Sciences and Engineering areas. CAHSI uses as part of the strategies to achieve its main goal: PLTL, ARG, and problem-solving courses. Problem-solving courses were originally developed in consultation with Google by UTEP, California State at Dominguez Hill, and NMSU and during the last year adopted by UPR-Mayaguez, UPR-Arecibo, CSU Stanislaus, TAMU CC, North Eastern Illinois University, and Kean University.

Moderator: **Nayda Santiago**, University of Puerto Rico at Mayaguez

Speakers: **Eliana Valenzuela-Andrade**, UPR-Arecibo; **Melanie Martin**, California State University, Stanislaus; **Martine Ceberio**, University of Texas at El Paso; **Akkady Tchaba**, Northeastern Illinois University; **Carlos E. Colon-Barrios**, University of Puerto Rico – Arecibo; **Josilene Quintana**, California State University, Stanislaus

Big Data Leads to Enormous Science: Innovative Research and Beyond at National Labs

Location: *Marriott 12*

Panelists will discuss how data science problems and solutions derived at national labs are inherently different to those from industry or academia. They will focus on how access to high performance computing, experimental user facilities and how the wide range of disciplines working in close proximity at national labs leads to cutting-edge research.

Moderator: **Divya Banesh**, Los Alamos National Laboratory

Speakers: **Sreeranjani (Jini) Ramprakash**, Argonne National Laboratory; **Anh Tu Quach**, Lawrence Livermore National Laboratory; **Anne Sabine Berre**, Oak Ridge National Laboratory; **Jacqueline Scoggins**, Lawrence Berkeley National Laboratory

Building Your Resume for a Tech Career

Location: *San Diego B*

Unsure of your resume or looking for guidance in developing it? Come learn resume prep tips and tricks from Google and Pandora recruiters to help you prepare for your future technical career. Don't forget to bring a copy of your resume to the session as this is an interactive opportunity to receive coaching on how to improve your resume.

Speakers: **Chris Trinh**, Google; **Blaine Bilal**, Google

Living in a 5G ERA: Smart Cars, Smart Cities and AI

Location: *Marriott 4*

4G wireless network was a defining step in telecommunication achieving true mobile broadband. This paved the way for mobile phones users to watch events such as the Super Bowl in real time and for mobile apps such as Netflix and Youtube to stream HD videos. Now 4G, has reached an inflection point where it can no longer support the growing capacity and performance demands from emerging industry verticals such as autonomous driving and wireless virtual reality. This workshop dives into what is 5G, its future applications and its importance as an essential building block for the future of computing.

Speaker: **Damilola Apatira**, Intel

Next-Generation Secure Computer Systems: Post-Quantum Cryptosystems

Location: *Marriott 10*

The recent trend in the field of quantum computers has confirmed that it is only be a matter of time before these computer systems become functional and readily available. Quantum computers hold the promise of a significant computational power increase. These computer systems will be able to efficiently compute solutions for many computational problems that are NP-hard on conventional

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machines. While this development presents many compute opportunities, it also deepens our current cybersecurity crisis by making many of the classical cryptosystems non-secure or critically weakened. For instance, with quantum algorithms capable of efficiently solving the integer factorization and discrete logarithm problems, RSA, ECC and ElGamal will all need to be reexamined and strengthened, since these computational problems form the core of their security. In this workshop, first, we will present a brief history and evolution of quantum computing and computers. Second, we will introduce a set of highly-optimized, parameterizable hardware modules to serve as post-quantum primitives for faster design space exploration of post-quantum cryptosystems, especially, cryptosystems using Ring-LWE algorithms. This post-quantum primitive set consist of the four frequently-used security components: the public key cryptosystem (PKC), key exchange (KEX), oblivious transfer (OT), and zero-knowledge proof (ZKP). The OT is used in many privacy-preserving applications, e.g., DNA database and machine learning. Similarly, ZKP is used in a number of applications, for example, it has been proposed as a candidate for next generation blockchain algorithms. These primitives will serve as the fundamental building blocks for constructing secure systems in the post-quantum era.

Speaker: **Michel Kinsy**, Adaptive and Secure Computing Systems Laboratory, Boston University

Artificial Intelligence & Computing in Cancer Imaging

Location: *Marriott 1*

Recent advances in artificial intelligence and data science are increasing the role of computation in the diagnosis and treatment of cancer. For general patient populations, data science is being used to identify which treatment courses are best for specific patients. Mathematical models derived from this type of data analysis are important and being used to guide clinical trials. In radiation oncology, computation is instrumental in the development and optimization of radiation treatment plans. The planning process is heavily dependent on imaging and artificial intelligence is being employed to automatically delineate critical organs, such as lungs, heart, and spinal cord, as well as the tumor. Three areas of cancer imaging and computing will be discussed. First, a basic overview of cancer and its treatment will be presented, with a focus on radiation oncology for thoracic malignancies and its reliance on both imaging and computational methods. Next, the computational aspects of the imaging needed for cancer

treatment, as well as how artificial intelligence and machine learning are advancing medical image analysis, will be discussed. Finally, we will present the methods and computing requirements needed to develop automated machine learning algorithms for predicting patient-specific treatment responses for liver cancer, and how these models can be used to inform clinicians about which treatments will be the most effective for individual patients. Throughout the discussion, we will highlight both clinical and research career opportunities for computational scientists interested in cancer therapy or medical image analysis.

Moderator: **Eric Ramirez**, University of Texas MD Anderson Cancer Center

Speakers: **Edward Castillo**, Beaumont Health Research Institute, Rice University; **Richard Castillo**, Emory University; **David Fuentes**, University of Texas MD Anderson Cancer Center

From Zero to Job Search: Leveraging a Framework to Get Unstuck

Location: *Marriott 13*

Searching for a job is intimidating. Whether you are nervous to start your job search, or in the middle and feeling overwhelmed, you are not alone. How do you go from “What do I want to do with my life?” to feeling ready to interview? In this workshop we’ll talk about what to do when you’re feeling stuck and present a practical framework that makes the job hunt manageable. Thousands of articles dole out resume tips and cover letter advice, but what do you do when you’re feeling too frustrated, defeated, or paralyzed to take action? We’ll unpack the part of the job search no one is talking about (but everyone is experiencing): the very real feelings that can keep us from moving towards our goals. Then we’ll dive deep into shifting your focus to reignite your momentum. Executing on your job search starts way before you interview, but how does this big undertaking break down into action items? We’ll present a framework that breaks the job search into phases, starting from what you want for yourself and what you want in a company, through professional presence, networking, applying, and interviewing. We’ll walk through each phase, talking about what questions you’ll answer there, and identifying specific steps to take. You’ll leave feeling energized with manageable next steps for your job search, the tools to unstick yourself, and the confidence that you’ll be able to tackle the next phase when you’re ready.

Speakers: **Kate Reading**, Asana; **Christine Nowicki**, Choice Insights

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12:15 PM to 1:45 PM

BPC Luncheon

Location: Torrey Pines 1

Tapia Student Poster Competition/ACM Student Research Competition (SRC) & Lunch

Location: Marriott Ballroom Foyer

The Tapia technical student poster session provides an opportunity for undergraduate and graduate students to present their latest research results and methodologies to a wide conference audience. Winners of the top posters (1st, 2nd, & 3rd place) will be recognized at the conference banquet. Tapia 2019 is again hosting an ACM Student Research Competition (SRC), sponsored by Microsoft Research.

The ACM SRC consists of two phases: (1) poster presentation (being part of the traditional research poster session), and (2) research talk. In Phase 2, selected students will give a short presentation of their research before a panel of judges in a special session at Tapia 2019. The winners of the ACM SRC competition at Tapia will be invited to participate in the ACM Student Research Competition Grand Finale.

GRADUATE STUDENT POSTERS

Where did the Political News Event Happen? Primary Focus Location Extraction in Different Languages

Presenter: Maryam Bahojb Imani (University of Texas at Dallas)

Real Time Cryptojacking Detection In Browsers

Presenter: Meenakshy Balachandran (Carnegie Mellon University)

Images Complement Text in Extracting Possessions from Social Media

Presenter: Dhivya Chinnapp (University of North Texas)

Image Disambiguation with Deep Neural Networks

Presenter: Omar DeGuchy (UC Merced)

Utilizing Delay Tolerant Networking in Unmanned Aerial Vehicle Applications

Presenter: Xava Grooms (University of Kentucky)

Enforcing Deep Generative Priors in Phase Retrieval with Optimal Recovery Guarantees

Presenter: Oscar Leong (Rice University)

Smart Learning through Enhanced Concentration and Contextual Search

Presenter: Sushmita Manikandan (University of Southern California)

Recommending Personalized Healthy Food Through EM Algorithms

Presenter: Jermaine Marshall (University of Notre Dame)

Parameterized Heuristics for Incomplete Weighted CSPs

Presenter: Atena MTabakhi (Washington University in St. Louis)

The CATDroid Framework for Testing Context-sensitive Mobile Applications

Presenter: Shraddha Piparia (University of North Texas)

Virtual Stage Sensors: Alternative Approaches for Smartphone-Based Crowdsourced Water Level Measurements

Presenter: Yusuf Sermet (University of Iowa)

Implications of Gamification on Women Students performance in Computer Science

Presenter: Leila Zahedi (Florida International University)

UNDERGRADUATE STUDENT POSTERS

Crowdsourced Joins for Filter Queries

Presenter: Cienn Givens (Harvey Mudd College)

Augmented Reality Platform for Collaborative Service Robots

Presenter: Amel Hassan (Tufts University)

Gender Representation in Computer Systems Publications

Presenter: Rhody D. Kaner (Reed College)

Victim-Centric Domestic Violence Safety Mobile App

Presenter: Carlos Nieves (Polytechnic University of Puerto Rico)

ACM SRC COMPETITION POSTERS

GRADUATE STUDENT POSTERS

Towards Efficient Management of Disasters and Public Health Emergencies: A Modified Heuristic Model for Routing and Logistics Optimization

Presenter: Sampson Akwafuo (University of North Texas)

Compiling for Quantum Annealers

Presenter: Ramin Ayanzadeh (UMBC)

Automated Change-point Detection in Time Series

Presenter: Tahiya Chowdhury (Rutgers University)

Fast Brain and Pelvis SynCT Generation for Real-time MR-only Treatment Planning

Presenter: Hajar Emami (Wayne State University)

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HybridBooster : Hybrid sampling with boosting for imbalanced data classification

Presenter: Akram Farhadi (University of Georgia)

Non-Random Teleportation in Random Walk Based Network Sampling

Presenter: Trenton W. Ford (University of Notre Dame, iCeNSA)

Towards Approximating Expected Job Completion Time in Dynamic Vehicular Clouds

Presenter: Aida Ghazizadeh (Old Dominion University)

Touchless Performance in Non-Preferred Hands

Presenter: Pantea Habibi (University of Illinois at Chicago)

Machine Learning Over the Wireless Edge

Presenter: Parisa Hassanzadeh (New York University)

ADQTest: An AI-based Data Quality Test Approach

Presenter: Hajar Homayouni (Colorado State University)

3D-TMT: A Novel, Touch-Based Variant on an Existing Neuropsychology Examination

Presenter: Raniero Lara-Garduno (Texas A&M)

FlexiLight: Toward Flexible and Practical Processing In memory

Presenter: Marzieh Lenjani (University of Virginia)

GPU-Based Parallel Indexing Framework for Concurrent Spatial Query Processing

Presenter: Zhila Lewis (University of South Florida)

A Novel Model for Determining Network Performance Boundaries in Delay Tolerant Networks in Low-cost Smart Cities

Presenter: Oluwashina Madamori (University of Kentucky)

ClassifyTE: Stacking-Based Framework for Hierarchical Classification of Transposable Elements

Presenter: Manisha Panta (University of New Orleans)

Reachability Analysis for Contact Networks of Moving Objects

Presenter: Zohreh Raghebi, University of Colorado Denver

Analysis of Cellular Feature Differences of Astrocytomas with Distinct Mutational Profiles Using Digitized Histopathology Images

Presenter: Mousumi Roy (Stony Brook University)

Comprehending Code: Understanding the Relationship between Reading and Math Proficiency, and 4th-Grade CS Learning Outcomes

Presenter: Jean Salac (University of Chicago)

A Unified Kernel SVM for Multiclass and Multilabel Classification

Presenter: Seyedeh Hoda Shajari (University of Florida)

Gluing metric space using Vietoris-Rips complex

Presenter: Aakriti Upadhyay (University at Albany, SUNY)

UNDERGRADUATE STUDENT POSTERS

An End-to-End Framework for Landslide Erosion Analysis

Presenter: Hameed Abdul (University of Southern Mississippi)

Handling Missing Values in Joint Sequence Analysis

Presenter: Alexandra Ballow (Youngstown State University, Lawrence Berkeley National Lab)

Bison Hack the Yard

Presenter: Lauren R. Clayton (Howard University)

Environmental Monitoring using Wireless Sensors

Presenter: Jesus Izquierdo (Johnson C. Smith University)

Numerical Simulation of Calcium Waves in a Cardiomyocyte Modeled by a System of Seven Coupled Partial Differential Equations

Presenter: Gerson Kroiz (University of Maryland, Baltimore County)

Attack of the Clones: Manipulation-Resistant Recommender Systems in Practice

Presenter: Andong Li Zhao (University of Michigan, Ann Arbor)

A Machine Learning Approach for Phenotype Clustering to Reduce Healthcare Cost

Presenter: Karan D. Luthria (University of Maryland, Baltimore County)

Exploring the Reliability of the NYC Subway System

Presenter: Phuong Nguyen (Baruch College, Microsoft)

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1:45 PM to 2:45 PM

PANELS AND WORKSHOPS

Increasing Diversity in Computing: Sharing of Good Practices

Location: Marriott 2

This panel will provide an opportunity for representatives from the NSF-funded Broadening Participation in Computing Alliances and other organizations to share their good practices about increasing diversity in computing. The NSF BPC Alliances were established to increase the number and diversity of college graduates in the computing and computationally-intensive disciplines. The Alliances are national and regional collaborations of academic institutions, educators, professional societies, community organizations, and industry partners. The panel will begin with an introduction to the following NSF BPC Alliances and other organizations: AccessComputing, CAHSI, CMD-IT, CRA-WP, ECEP, IAAMCS, NCWIT, and STARS. Each panelist will be given two minutes to share information about the organization and how the programs have broadened participation in computing. Each organization will be given one round table for interaction with attendees. After the introduction, the audience will be invited to join the particular round table of the organization of interest to get more details about the organization and its programs. After 15 minutes, the audience will be invited to visit a new table. This will be done until the end of the session. Hence, attendees will have an opportunity to learn about different organizations via a world cafe setting.

Moderator: **Valerie Taylor**, CMD-IT

Speakers: **Jamie Payton**, Temple University; **Ayanna Howard**, Georgia Institute of Technology; **Richard Ladner**, University of Washington; **Ann Gates**, University of Texas at El Paso; **Jannie Fernandez**, NCWIT; **Debra Richardson**, University of California, Irvine; **Juan Gilbert**, University of Florida

Disability Disclosure in Education and Employment

Location: Marriott 12

Students with disabilities often have questions about if, when, and how they should share information about their disability in the context of education and employment. It is important to be strategic and intentional about these conversations, customizing their approach based on their personal preferences and changing their approach in different settings. Panelists will describe their experiences disclosing disability in both education and employment settings and offer advice to others who are navigating these conversations. Participants can learn about strategies for disability disclosure

and ways to best support individuals with disabilities in education and employment.

Moderator: **Brianna Blaser**, University of Washington
Speakers: **Robert Parke**, University of Southern California; **Rua M. Williams**, University of Florida; **Ivan Brugere**, Salesforce Research; **Synge Tyson**, **Christopher J. Ware**

Taking on the Technical Interview

Location: San Diego B

The job search (be it for an internship or a full-time) for a software engineering position usually involves one or more technical interviews. We'd like to provide tips, tricks, strategies and practice to help you present your technical abilities during this often stressful process.

Moderator: **Antoine Picard**, Google

Speakers: **Eric Yurko**, Google; **Cynthia Lee**, Stanford University

Are We Making a Difference? How to Design BPC Research to Demonstrate Impact

Location: Marriott 1

The NSF has communicated the importance of Broadening Participation in Computing (BPC) by including BPC as a required component of proposals across the Computer and Information Science and Engineering core programs. This call to action creates a need for collective understanding of how to demonstrate the impact of BPC initiatives through research. Through our experience in conducting a large-scale national computing inclusion project, the STARS Computing Corps program, we address three overarching challenges specific to conducting BPC research: experimental design, managing research costs, and measuring longitudinal impact with credible evidence. In this workshop, we share the qualitative and quantitative research framework that supports the STARS model, describe the approaches toward BPC research challenges, and interactively discuss the challenges and lessons learned from our practice. We will engage workshop participants in generating research questions and crafting designs for their BPC initiatives through small and large group activities.

Speakers: **Audrey Rorrer**, UNC-Charlotte, STARS; **Huifang Zuo**, University of Chicago

Challenges and Rewards of Working with Health Data

Location: Marriott 3

With the advent of legally-mandated electronic health records (EHRs) in the United States, the rapid increase of available consumer-grade health sensors, and other

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large-scale health data collection efforts, we have a rich trove of healthcare data that surely contains valuable insights for helping people live happier, healthier lives. However, from patient and provider perspectives, healthcare innovation is coming at a slow pace. Healthcare data is notoriously difficult to work with for a variety of reasons, including technical constraints such as data processing capabilities and difficulties in interchange formats, as well as ethical and legal constraints such as privacy, safety, and equity. In this technical workshop, we explore what a few types of medical data look like “behind the scenes” and some of the difficulties we’ve encountered in extracting meaningful information for patients and providers, giving examples of why innovation might seem slow. We will also share the rewarding impacts of putting in the hard work to understand and use the data wisely. Additionally, we will provide our audience with some artificially generated, but representative, health data, and challenge them to work together in groups to experience for themselves some of the challenges and rewards that come with working with health data.

Speakers: **Lauren Cairco Dukes**, Verily; **Jesse Gronsbell**, Verily

Leveraging Research to Improve the Experiences of Undergraduate Students of Color in Computing

Location: *Marriott 10*

While a significant amount of research has focused on efforts to increase women’s representation in computing in recent years, less attention has been paid to the experiences of students of color, and there has been even less of a focus on students with intersecting identities, such as women of color. That said, current research and funding efforts have identified a need for increased knowledge about the experiences of students of color in computing. This workshop focuses on the efforts of a multi-campus research study (i.e., BRAID Research) of undergraduate computing students to address questions relating to the representation and experiences of students of color in computing that we hope will inform broadening participation efforts. Through the workshop, participants will have the opportunity to learn about this research and engage in small and large group conversations about what we are learning about the experiences of students from underrepresented groups. The target audience for this workshop includes students, faculty, and administrators seeking to learn more about research

focused on students of color in computing and discussing strategies to utilize this knowledge to create inclusive computing communities.

Speakers: **Linda J. Sax**, UCLA; **Kathleen J. Lehman**, UCLA; **Kari George**, UCLA; **Julia Karpicz**, UCLA; **Daisy Ramirez**, UCLA

BRISC-V: A RISC-V Open-Source Architecture Design Space Exploration Toolbox

Location: *Marriott 11*

With the introduction of the RISC-V instruction set architecture (ISA) and its rapidly growing ecosystem and community, there may be a unique opportunity to broaden participation in computer architecture design to groups who have been traditionally severely underrepresented. The RISC-V being an open, royalty-free, ISA with many extension specifications, it offers a high degree of customization and represents an attractive option for many applications, ranging from machine learning accelerators to secure computer systems design. In this workshop, we will present the BRISC-V toolbox - the Boston University RISC-V based architecture design exploration suite for education and research. BRISC-V is comprised of different processor architectures, a graphical user-interface (GUI) tool to automate fast complete system generations, and a RISC-V assembly simulator. During the session, we will (1) introduce the BRISC-V tool, (2) show its functionalities, and (3) run hands-on design exploration examples with the attendees.

Included with the BRISC-V Tool suite are (i) different complexity RISC-V cores (e.g., single-cycle core, multiple-cycle, and reconfigurable pipelined), (ii) a programmable memory system with reconfigurable multi-level cache subsystems, (iii) a parameterized interconnect network, (iv) BRISC-V explorer GUI for automatic synthesizable Verilog core and multicore system generation, and (v) the BRISC-V simulator for software RISC-V instruction emulation. BRISC-V is an in-browser tool, therefore, it requires no installation and avoid all OS dependencies for an easy, fast, and intuitive use of the tool. It allows participants to experiment with the RISC-V ISA features and to quickly bring up complete and fully working architectures.

Speaker: **Michel Kinsy**, Adaptive and Secure Computing Systems (ASCS) Laboratory, Boston University

A Critical Introduction to Machine Learning

Location: *Marriott 4*

What is machine learning? Textbooks give aspirational, inward-facing definitions; public treatments are vague, hype-filled, and misleading; and critics of machine learning

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seldom give a sense of its technical content. This introduction gives a practical overview and tutorial of machine learning focusing on its key strength and limitation: finding robust statistical correlations to use as “predictions.” Machine learning is more flexible than statistics in the correlations it manages to find, but has limitations relating to the circumstances in which we would want to make predictions, the meanings of prediction, and the ways in which previously observed correlations can fail to generalize. This workshop presents machine learning in the context of a key distinction between modeling whose goal is prediction and modeling whose goal is explanation, including the counterintuitive trade-off between the two goals, and takes participants through an applied case illustrating the difference. Using the Titanic dataset example from a Datacamp tutorial, the starting point of a critique of machine learning from Meredith Broussard’s “Artificial Unintelligence: How Computers Misunderstand the World” (MIT Press, 2018), this workshop will have participants build a decision tree in R for ‘predicting’ survival aboard the Titanic. This will lead into core issues of overfitting, and of predictive vs. explanatory modeling. Going beyond existing materials on this dataset, the machine learning approach will be contrasted with both a social statistical approach modeling the relationship between survival and demographics, and a humanistic approach that looks at narrative aspects of lives lost.

Speaker: **Momin M. Malik**, Harvard University

Interested in Doing Cyber Forensics?

Location: *Marriott 13*

This workshop will demonstrate some of the skills involved in doing cyber forensics. It will also show the plethora of tools and open source software (free and available on the internet) that have been developed to do cyber forensics. Malware likes to hide... but it cannot go very far. The audience will discover how the traces and effects of malware are “preserved” in various computer artifacts (i.e., logs, files, disks, RAM memory, even “erased” files, etc.). Knowing where to look and having the right set of tools may uncover some unexpected things! Among them are indicators of intrusion or compromise and malware. After a brief overview, the audience will see, first-hand, an examination of some artifacts, and, with the use of specialized tools, see how evidence of malware can be uncovered and detected. This workshop is intended for students and early to mid-career professionals who are interested in learning more about cyber security. The audience will also see what tools they can begin to download for their own use for malware analysis. At the

end of the workshop, the audience will gain an appreciation of the depth of knowledge and the skill that is required for doing cyber forensic analyses.

Speaker: **Dr. Maria Vicente Bonto-Kane**, University of Texas at San Antonio, United States Air Force

3:00 PM to 4:00 PM

TECH TALKS

Sponsored by *Qualcomm and JPMorgan Chase*

Location: *Marriott 1*

How 5G Enables Intelligent Connectivity

5G puts the world at your fingertips, with its ultra-fast data rates, ultra-low latency, and connectivity nearly anywhere. So what makes 5G unique? Why is it inevitable? How is Qualcomm pioneering the technology and making 5G a reality? Come to this talk to learn more about the technology, its use cases, and explore a new realm of intelligent connectivity.

Speaker: **Lulu Wang**, Qualcomm

NextGen Integrated Automation for Business and Tech Transformation

The delivery speed and quality of software at JP Morgan Chase is improving daily, though organizational and structural challenges impede the goal of end-to-end automation. Disparate engineering practices and maturity levels have resulted from organizational alignment to a line of businesses model, made more challenging with increased scale. The technology process focus to date has been to streamline and automate the execution steps, from the application standpoint, by using Continuous Integration tools (i.e. Jenkins) and integrating the code build, validation and deployment processes to ensure that code quality threshold metrics are achieved. The next level of process maturity is the integration of an application’s build and deploy automation process with the process for “Automated Environment Provisioning” aka “Elastic Environments.”

Speaker: **Ravi K. Maduposu**, JPMorgan Chase

BIRDS OF A FEATHER SESSIONS

Hispanics in Computing Community

Location: *San Diego A*

The Hispanics in Computing community was founded a few months before the Tapia 2009 Conference. Since then, the group has been meeting at this annual conference. The group has grown in numbers and online presence

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(Facebook, LinkedIn, and <http://www.hispanicsincomputing.com/>). The impact of this gathering in our community has been tremendous. Several members of the community that attended our BoF as young graduate students are now in tenure track positions or employed in research organizations. Once again, we propose to hold our annual BoF at the Tapia Conference. The gathering will allow many of us to meet face to face and discuss issues facing Hispanics. As the undergraduate population attending Tapia grows, it is important to serve as mentors for the new students starting their careers in computing. The goal for this year's gathering is to explore how to do virtual mentoring to help increase ties within the community.

BOF Organizers: **Patricia Ordóñez**, University of Puerto Rico, Río Piedras; **Nery Chapetón-Lamas**, MiraCosta College; **Juan F. Sequeda**, Capsenta; **Brianna Posadas**, University of Florida

Increasing Diversity in Computing: A Call to Action

Location: Marriott 10

The goal of the BoF is to bring together attendees who have some evidence-based strategies for broadening participation in computing with those who are interested in identifying effective actions to broaden participation. The focus is on strategies for K-12, higher education (undergraduate and graduate students), and professionals (industry, academia and government). The IEEE Computer article presents some effective strategies in the different areas by different organizations. The article is a good start, but we significantly more is needed to identify a list of effective strategies. The BoF allows us to continue identifying effective strategies from the broader community. This information will be maintained on the CMD-IT website to be available to the broader community, with appropriate links. Further, the BoF will be used as a call to action, in terms of identify the actions that people can take in the workplace or institution environment to increase diversity in computing.

BOF Organizers: **Valerie Taylor**, CMD-IT; **Telle Whitney**, formerly of Anita Borg institute

Spectral Analysis: An LGBTQIA+ Community in Scientific Computing

Location: Marriott 11

Spectral Analysis is a Birds of a Feather session for the LGBTQIA+ community. The session organizers hope to provide an open and accepting environment for members of our community to interact and network, as well as provide an opportunity to share community issues and seek

feedback from our peers. This event is open to all members of the community who wish to improve acceptance and provide greater opportunities to their peers of minority gender identities and sexual orientations. Allies are strongly encouraged to participate.

BOF Organizers: **Carissa Holohan**, Argonne National Laboratory; **Daniel Gens**, Lawrence Berkeley National Lab

Navigating Tech with a Disability

Location: Marriott 12

Having a disability in tech makes for a different set of challenges in computing classes, community participation, careers, and more. This session will provide an opportunity for disabled people in tech to discuss disability disclosure, ableism, accessibility, accommodations, and other aspects of having a disability in tech, whether that be in academia, the workplace, or online. The organizers will pose a series of questions to participants and facilitate informal discussion about having a disability in tech. A variety of perspectives, backgrounds, and disability representation are welcome.

BOF Organizer: **Lauren C. Siegel**, North Carolina State University

Leveraging Technology to Improve Healthcare

Location: Marriott 13

It is an exciting time to be in healthcare technology! A growing number of our medical records are in electronic formats. Advances in sensors and displays provide much more data to help train and support both patients and providers in their everyday health related tasks. There is also a large set of data that is not strictly health-related, but provides insight into a person's health, including text messages, data from exercise trackers, and recorded speech. Please join us for this birds of a feather where we will consider together the opportunities and challenges ahead for using technology to improve health. We will consider topics such as: difficulties working with health care data, ensuring that the benefits of technology healthcare extend to those in underserved populations such as those in rural settings or in socioeconomically disadvantaged groups, and ethical considerations of security, privacy, and "doing no harm" in a healthcare context.

BOF Organizers: **Lauren Cairco Dukes**, Verily; **Tania Roy**, New College of Florida; **Jesse Gronsbell**, Verily; **Toni Pence**, University of North Carolina Wilmington; **Elham Ebrahimi**, University of North Carolina Wilmington; **Jerome McClendon**, Clemson University, **Larry F. Hodges**, Clemson University

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Incorporating Diversity-Related Topics into a Traditional CS Course

Location: Marriott 4

In order to create inclusive, supportive environments in academic Computer Science settings, it is critical that undergraduate students gain an understanding of the major issues around diversity, inclusion, and belonging in the field of computing, and that faculty members signal that they value diversity via their teaching. However, a common refrain among even the most well meaning instructors is that “these topics just don’t fit into the class I’m teaching.” This session will explore ways in which instructors can integrate diversity-related topics into “traditional” CS courses, i.e. courses that are not specifically focused on diversity or social issues. Going beyond best practices for inclusive teaching, participants in this BOF will work together to identify opportunities to include these topics in lectures, homeworks, reading assignments, in-class activities, labs, and recitations. Additionally, we will discuss other ways that instructors can signal that they value diversity, e.g. through TA hiring and course policies.

BOF Organizer: **Christian Murphy**, University of Pennsylvania; **Anya Mushakevich**, University of Pennsylvania; **Carolyn Ryan**, University of Pennsylvania;

Times Are Changing, Kids Think Differently, and Innovation is Evolving. Are You Ready?

Location: Marriott 2

In this interactive conversation, we will discuss your company’s readiness for a generation that thinks differently. We will take a moment to explore our minds as it pertains to Generation Z and beyond, and see how you or your company ranks on the readiness scale. In the next five to ten years, organizations will be turning to current students as employees and leaders for their companies. As a result, we must identify ways to interact with students at an early age encouraging early career exposure. By the end of this session, attendees will have: (1) Engaged in meaningful conversation; celebrating diversity and inclusion in STREAM related programs. (2) Gained a better understanding as to why students are not connecting the dots between today’s education and future career opportunities. (3) Identified ways to increase or create purposeful student engagement for the goal of career readiness.

BOF Organizer: **Niamani Knight**, S.T.R.E.A.M. Kids Expo™

Welcome, Parents Influencing Inclusion At Any Level

Location: Marriott 3

Whether you’re leading your company’s Parent ERG, designing a parental leave policy, or facing the identity crisis that comes from transitioning to parenthood on a team where you’re the only one; Creating inclusion is hard, especially when it feels like you’re asking for yourself. Let’s share ideas about what’s been successful in our own organizations, and what we’d like to advocate for next. What would make the modern workplace into one we’re excited to be a part of? Possible areas of discussion: What does inclusion mean for parents? What is the role of benefits in inclusion? How do you make the business case for the need of parents? How do you influence cultural support as well as policy support? What does good allyship look like? What are strategies for influencing a team to be more inclusive when you are not in a position of authority?

BOF Organizer: **Kate Reading**, Asana

4:30 PM to 5:30 PM

Tech Talks

Sponsored by Two Sigma

Location: Marriott 1

Collaboratively Achieving Quality Data in the Big Data Era

With big data becoming ubiquitous, ensuring diverse data sets are high quality is a more prevalent yet ambiguous task. Accuracy and validity depend on the data source. Thresholds of acceptability vary on intended use. The importance of quality varies between cases. In this talk, we discuss a method employed to collaboratively gather data quality measurements and checks from data experts.

Speaker: **Stephanie Mertz**, Two Sigma

One Pipeline To Secure Them All: How DevSecOps Can Help Develop and Deploy Secure Applications

We live in a world where each day we depend more and more on technology. However, in recent years, we’ve seen that most technology is vulnerable and can be hacked. When cyber risk is at an all-time high, how do we ensure that the applications that contain our personal information are secure? By embracing DevSecOps, the strategy of integrating security checkpoints into the software development life cycle, we can ensure that the pace of security is on par with the pace of application development and deployment. This presentation will cover the importance and benefits of DevSecOps and how it can help developers create secure applications.

Speaker: **Aditi Chaudhry**, Two Sigma

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Tech Talks

Sponsored by IBM and Microsoft

Location: Marriott 2

The Future of Computing

Advancements in technology are accelerating, creating new opportunities for companies towards transformation of industries and growth in businesses. Artificial intelligence (AI) has emerged as key disruptor. The future of computing is anchored in three core principles and ideas and I will explore future of bits, neurons and qubits.

Speaker: **Sandeep Gopisetty**, IBM Distinguished Engineer, Director of AI, Systems & Solutions Research, IBM

How Office 365 is Safely Enabling the Integration of Intelligent Features into Productivity Apps

Machine learning is changing the world. Virtual Assistants, natural language translation, and transcription are new categories of applications that are only possible because of ML. It is becoming pervasive across industries and applications, and is ultimately part of every engineer's toolkit for turning data into value.

While ML is changing the world it brings with it a host of challenges around data protection, data privacy, data retention and deletion, geodata residency restrictions, fair use of data, and many others. These challenges are of particular importance to Office 365 which processes, on behalf of the users and organizations it hosts, a large collection of highly sensitive and valuable business and personal data. Protecting that data and assuring it is used only in accordance with laws, regulations, and the policies and wishes of the users and organization that own the data is of paramount importance.

During this talk, we will give an overview on some of the ways Office 365 enables intelligent features to be built while providing that protection and that assurance, which is part of continuously re-earning the trust of the organizations and users whose data we process.

Speaker: **Rafael Barcelos**, Microsoft

BIRDS OF A FEATHER SESSIONS

Resilience: Build the Skill

Location: Marriott 11

This session presents the opportunity for attendees to learn and discuss the issues they face in regards with hardship and setback. Given the challenges facing scientists and engineers in the lab, office, and at home feelings of exhaustion, dissatisfaction, and unproductivity can be difficult to avoid. However, there is always a light at the end of the

tunnel and strengths that can be improved. In this interactive workshop, we will discuss concrete strategies to adapt to adversity and improve resilience (i.e., accepting change, taking decisive actions and staying flexible). The attendees will be able to get tips to become more resilient and to help attendees revive and think more positively after a hardship or setback.

BOF Organizers: **Xiomara Calderón-Colón**, The Johns Hopkins - Applied Physics Laboratory; **Danielle Hilliard**, The Johns Hopkins - Applied Physics Laboratory

Learn About Open Source Software

Location: Marriott 10

The meme "GitHub is the new resume" describes a modern expectation for competitiveness in tech coding jobs where GitHub serves as a repository for Free and Open Source Software (FOSS) projects. However, higher education computer science departments have been slow to adapt their curriculum to include FOSS principles and skills. Come to this BoF with your questions about open source software. What skills and applications do you need to know? How do you select an FOSS project and then where do you start? Is coding the only way to be an FOSS contributor? Importantly, learn about activities that are diversifying FOSS such as EquitableTech workshops and paid internships from Outreachy and Google Summer of Code. We will also describe open source college classes that are being taught by faculty members of the POSSE and Humanitarian HFOSS communities.

BOF Organizers: **Alberto Roca**, Diverse Scholar; **Rosario Robinson**, AnitaB.org; **Chris Murphy**, University of Pennsylvania.

Diversity includes Disability

Location: Marriott 4

There is great diversity among individuals with disabilities, but there are also many common experiences. This Birds of a Feather session will bring together people who have a disability or who are interested in supporting individuals with disabilities. The session will be inclusive to all disabilities - including those related to vision, hearing, mobility, learning, mental health, neurodiversity, and health. The goal of the session is to learn from each other about strategies for achieving success and ensuring that computing fields are welcoming and accessible to individuals with disabilities. Topics discussed will include: accessibility in computing education, disclosing disability in interviews, and recruiting and retaining employees and interns with disabilities. The session will

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include information about internships, mentoring, and career development opportunities for students with disabilities as well as resources for educators and employers who would like to be more welcoming and accessible to individuals with disabilities.

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

Multistage Ranking for LinkedIn Feed

Location: *Marriott 12*

LinkedIn's personalized feed is made up of news, articles, jobs, and activities from the member's professional network. Whenever a user visits their feed, a large heterogeneous set of feed updates need to be retrieved and ranked in a scalable manner. In order to accomplish this goal, we utilize a multistage ranking system, where the earlier stages focus on candidate generation over homogenous feed updates and the later stages focus on ranking and blending of heterogeneous feed update candidates incorporating business objectives such as freshness and diversity. In this paper, we have given an overview of this system and our approach in designing and evaluating the machine learning models involved at different stages.

BOF Organizer: **Madhulekha Arunmozhi**, LinkedIn

Black in Artificial Intelligence

Location: *Marriott 13*

Artificial intelligence is changing the world. From new devices and software to impactful societal implications, the modern impact of artificial intelligence is ubiquitous. Clearly, these advances have also brought about new challenges, uncovering issues of bias and fairness, and revealing issues about representation. This "birds of a feather" will engage participants in a discussion of the building blocks of modern artificial intelligence. We will further discuss issues of bias and fairness in artificial intelligence, how they arise — particularly as a result of under-representation, and what our community can do to address these issues. In addition to the technical topics, we will introduce the Tapia community to the Black in AI organization, and discuss ways to get involved, avenues for receiving and providing mentorship, and suggestions for getting started in research or applied artificial intelligence.

BOF Organizers: **Emmanuel Johnson**, University of Southern California; **Sanmi Koyejo**, University of Illinois at Urbana - Champaign

A Conversation with Richard Tapia

Location: *Marriott 3*

This session is intended to be motivational and is directed at students. By sharing both my professional and personal life story, including the many adversities and the many successes. I want to let students know that "si se puede". Yes it is possible to go from a humble beginning to the top of your career dreams, but this path could likely be long and winding with many challenges and obstacles. However, we must not lose sight of the pot of gold at the end of the path. After this initial share I hope to have meaningful discussions centered on questions from the attending students.

Moderator: **Valerie Taylor**, CMD-IT

Speaker: **Richard Tapia**, Rice University

5:30 PM to 6:30 PM

VIP Reception

By invitation only

Location: *Marriott Terrace*

7:00 PM – 8:30 PM

AnitaB.org Community Reception

Location: *San Diego B*

AnitaB.org has been a community partner of CMD-IT for many years. Join AnitaB.org communities for a reception to connect with Systems, our affinity communities and special interest groups. Learn about our Technical programs: Google Summer of Code, Google Code In, Outreachy and how you can get involved. We partner with companies and other organizations on technical conferences, learning opportunities and technical skill setting. Meet leaders and community members and hear about their conferences and programs such as BlackComputeHER, Black Women in Computing Coding Workshop, Latinity and Arab Women in Computing conference. Hear about our global local communities in New York, Washington, DC, Los Angeles, London and Tokyo and the incredible programming that is having social and economic impact. And finally but not least, we'll discuss Grace Hopper Celebration and Hopper x 1s and how you can get involved in many volunteer and leadership opportunities. Bring your questions, grow your network and make strong connections in a broader technical community.

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8:00 AM – 9:00 AM

Breakfast on Your Own

Autodesk Student Breakfast

By invitation only

Location: San Diego B

STARS Alliance Breakfast

By invitation only

Location: Marriott 11

9:00 AM - 9:30 AM

Announcements

Location: Marriott 5-9

9:30 AM - 10:30 AM

Plenary Speaker

Ken Kennedy Distinguished Lecture

Location: Marriott 5-9

Hector Ruiz, *Founder and Chairman, Advanced Nanotechnology*

Good Before Better: Building a Technology Tomorrow

Even as technology is busy changing our today, tomorrow remains uncertain. We see two possible futures emerging — one bright and inclusive, the other bleak and divided. Which world comes to pass depends entirely on the decisions being made in today's classrooms and laboratories. With technologies such as AI, these challenges can't just be how or what to build, but why. Your answer to why will make the difference between a technology-rich future that elevates human potential, or one that just accelerates the status quo or worse. With a unique perspective informed by his career as a pioneering technologist and passionate community advocate, Dr. Hector Ruiz is determined to help a new generation of innovators rise to meet the enormous risks and rewards before them.

BIOGRAPHY:

Dr. Hector Ruiz, an accomplished chief executive and technology luminary, is driven by the idea that technology and education dramatically improve people's lives. Hector has helped build and guide top-tier global technology companies (including Texas Instruments, Motorola, and AMD) while also promoting exploration of technology's ability to address social issues. Today, Hector serves as founder and chairman of Advanced Nanotechnology, and as advisor to individuals, corporations, and governments on breakthrough technology initiatives.

Hector fundamentally believes that technology and education open doors for people and can enable them to be more informed, voting citizens, which is critical for a strong democracy. His evolving portfolio of organizations and investments represent his passion to continually explore new frontiers for creating positive impact.

As CEO of AMD, Hector spearheaded the 50/15 initiative setting an aggressive goal to have half the world connected to the Internet by 2015. He received numerous accolades, including: the Semico Bellwether Award (2009); Executive of the Year - 2005 (EE Times); CEO of the Year - 2005 (Electronic Business); and Top 25 Business Leader - 2006 (FORTUNE Magazine). During this time, Hector successfully published the book, *Slingshot: AMD's Fight to Free an Industry from the Ruthless Grip of Intel*, a book that vividly recounts his bet-the-company decision in 2005 to file an antitrust case against its much larger rival.

Hector currently serves on UT's College of Engineering Foundation Advisory Council. In 2006, he was selected as a Distinguished Engineering Graduate of UT-Austin and later as Distinguished Alum of Rice University. In 2012, he was selected for the Distinguished Alumni Award, the Texas Exes' highest honor. Hector currently serves as a Trustee Emeriti of Rice University and is on the Board of Trustees of the RAND Corporation and the Board of Directors of Breakthrough Austin. Prior to these appointments, Hector served as a member of President George W. Bush's Council of Advisors for Science and Technology. He also served on the Board for Spansion Inc., Darden Restaurants, the Eastman Kodak Co., and the Semiconductor Industry Association.

10:30 AM – 5:00 PM

Graduate Application Review Clinics and Interviews with Sponsors

Location: Pacific Ballroom

Academic sponsors (faculty and staff from a university) will hold 1-on-1 meetings with students in their exhibit booth on (1) discussing the university's recruitment information or/and (2) conducting graduate application clinics. For the graduate application clinics, a student is encouraged to bring in their resume draft and optionally but desirably their personal statement draft to gather improvement feedback from academic sponsors. 1-on-1 meeting slots are recommended to be 15 mins each but academic sponsors can decide on the time duration dependent on the needs and demands from both parties.

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10:40 AM – 11:40 PM

Posters

SRC Competition Round II

Location: Torrey Pines I

PANELS AND WORKSHOPS

Inspiring Diverse Women in Computer Science Research

Location: Marriott 2

In 2018 Google created the ExploreCSR program that funds 15 research focused workshops for undergraduate women. The stated goal for the program is to “help undergraduate women to enhance their research skills, create a sense of community with peers and faculty, instill confidence to problem solve beyond the classroom, and inspire and motivate them toward careers in research.” At least four of these programs strongly recruit women of color and/or women with disabilities. This panel will explore the experiences of women of color and/or with disabilities in these four ExploreCSR workshops. These experiences present a window on how intersectionality plays a role in the motivation of these women to pursue research and/or graduate degrees. How do their identities, backgrounds and roles in society drive these women in one direction or another? The discussion will include strategies for including women of color and/or with disabilities in advanced research and to increase their motivation to do so.

Moderator: **Brianna Blaser**, University of Washington

Speakers: **Martine Ceberio**, University of Texas at El Paso; **Latifa Jackson**, Howard University; **Nayda Santiago**, University of Puerto Rico, Mayaguez; **Richard Ladner**, University of Washington

Dealing with Bias and Unfairness in AI

Location: Marriott 3

Machine learning algorithms can encode a discriminative bias when training them with real data in which underrepresented groups are not properly characterized. Then a question quickly emerges: how can we make sure AI does not discriminate against people from minority groups because of the color of their skin, gender, or ethnicity? Even more, as the tech industry does not represent the entire population, underrepresented populations in computing such as women, Hispanics, African-Americans, Native Americans have limited control over the direction of machine learning breakthroughs. In this panel, we claim that it is our responsibility to advance the progress of artificial intelligence by exposing this problem and proposing reliable solutions based on solid research. This will be done by increasing the presence of members of underrepresented groups that are able to build solutions and algorithms to advance the progress of this field towards

a direction in which bias and unfairness are accordingly addressed. As we are surrounded with lots of data, machine learning algorithms have the potential to automate decisions for common people, who are not necessarily aware of how these techniques work. While we expect this technology to be aligned to the values of our society, the reality is that data sets collected to feed machine learning algorithms also embody the underlying unfairness of the society we live in.

Moderators: **Patricia Ordóñez**, University of Puerto Rico, Río Piedras

Speakers: **Juan Gilbert**, University of Florida; **Brianna Posadas**, University of Florida; **Kori Inkpen**, Microsoft; **Tianlu Wang**, Virginia Tech

This is Grad School: What It Offers and How You Can Succeed

Location: Marriott 1

For many students, graduate school is at worst an unknown, and at best simply misunderstood. Medical and law school have well-known pathways (e.g., pre-law and pre-med programs), while STEM graduate school does not. Outstanding opportunities for students are lost in this obscurity. Students from underrepresented minority (URM) groups start college with equal interest in STEM as other groups, but are often not seen as “graduate school material” and the idea of going to graduate school is often not even offered. Without providing a better understanding of what graduate school means for their careers, how to get there, and how to succeed, academic diversity efforts face a monumental task. This workshop aims to demystify graduate school, from selecting a program to how a competitive application is crafted and guidance to success. We will tackle questions such as: What is grad school? Why go to grad school? When go to grad school? What programs exist? How grad school differs from undergrad? Where to go for grad school? How to apply? How is it funded? How to survive and succeed? Life after grad school? Guidance on topics surrounding these questions will be provided based on statistics and empirical evidence from years of recruiting for top Universities. Criteria used to evaluate competitive graduate school applications, distilled from faculty at multiple universities, will be presented to attendees. After completion of the workshop, attendees will be able to better strategize their path from undergrad, through graduate school, and into the start of a successful professional career.

Speakers: **David Ramirez**, Princeton University; **CJ Barberan**, Rice University; **Julie Yun**, Princeton University

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High Speed Networking (HSN): Moving Data, Fast, Easily, and Securely

Location: Marriott 4

This presentation will focus on the high-speed networks of High Performance Computing System - the nervous system that provides access to and unleashes the power of the supercomputer to file systems and computation. After a brief introduction to HPC networking, you will learn how HPC networking is the same and yet very different from networking in the wild. You will learn about advanced high speed networking technologies and fabric, including high speed Ethernet, InfiniBand and the Intel® Omni-Path Architecture. Finally, you will have an opportunity to learn about how these technologies are deployed at Los Alamos National Laboratory in support of its world-class high performance computing platforms, which are used to research and solve national grand-challenge scientific problems.

Speakers: **Jesse Martinez**, Los Alamos National Laboratory; **Carolyn Connor**, Los Alamos National Laboratory; **David Carlson**, Los Alamos National Laboratory

Fairness in Machine Learning – A Hands-On Tutorial

Location: Marriott 10

Machine learning (ML) drives an increasing number of economic, scientific, and social decisions. Therefore, a practical understanding of ML is crucial for students in computer science and related disciplines. Unfortunately, much work has shown that black-box ML models reproduce the biases found in data, e.g., by race, gender, or other protected attributes. This tutorial gives students without previous ML experience a hands-on understanding of how detrimental biases on race, gender or other data affects real-world ML applications. We introduce fair ML models which counter-act these biases. Students should come away with (1) an understanding of how underlying data introduces detrimental bias, (2) a hands-on understanding of the ML models used and (3) high-level challenges for incorporating fairness in ML.

Speakers: **Ivan Brugere**, Salesforce Research; **Anuj Karpatne**, Virginia Tech

The Art of Innovation & The Pitch

Location: Marriott 11

With the rapid evolution of computing into areas such as artificial intelligence and the Internet of Things, the field has never been more multidisciplinary. For young, creative and diverse individuals looking to use computational tools to create potentially disruptive technologies, the ability to market themselves and their ideas is a valuable skill set. In this interactive workshop, we will focus on what defines a good innovator, providing participants with key tools to

stimulate idea generation and peer collaboration. Given the challenge problem, “How would you design computational tools or devices that balance connectivity and privacy for our generation and beyond?”, attendees will ultimately refine their ideas and pitch it to an evaluation panel. The panel, consisting of pre-identified leaders attending the conference with both academic and industrial backgrounds that have volunteered to serve as judges, will evaluate and provide constructive feedback on the presented concepts. This workshop is highly interactive, and is intended to build networking skills and sell ideas that one is passionate about. All participants will receive MIT Lincoln Laboratory Innovation T-shirts and coins and the team with the best pitch will receive additional prizes.

Speakers: **Raoul Ouedraogo**, MIT Lincoln Laboratory; **Crystal Jackson**, MIT Lincoln Laboratory; **Todd Thorsen**, MIT Lincoln Laboratory

Overcoming Workplace Challenges: Trials, Tribulations, and Triumphs

Location: Marriott 12

Tackling today's most challenging problems in computing requires diverse perspectives, innovative ideas, and collaboration across all aspects of STEM. However, creating a space for all ideas to be heard, respected, and valued means acknowledging and addressing the implicit and explicit biases and micro-aggressions that members of underrepresented groups face and then taking specific actions for positive growth and change. The goals of this panel are to engage the Tapia community in discussions about the kinds of challenges that exist in our community, discuss strategies for confronting and/or overcoming them in the workplace, how to intervene or support colleagues when micro-aggressions are active, and identify what each and every person can do to promote inclusivity and equality in computing. Each of us is accountable for our actions, whether it is our attitudes toward another, what we do to break the cycle when we see it or to have the courage to point it out when it plays out in normal life. If you're a member of an underrepresented group or an ally, come contribute to a discussion where all voices are heard — let's create an open discussion on how to build a stronger, equal, and inclusive future!

Moderator: **Melissa Abdelbaky**, Rutgers University

Speakers: **Dorian Arnold**, Emory University; **Elizabeth Bautista**, Lawrence Berkeley National Laboratory; **Carissa Holohan**, Argonne National Laboratory; **Jennifer Halstead**, Hernet Unified School District; **LaWana Richmond**, University of California, San Diego

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Performing Confidence: Building a Stronger Future

Location: Marriott 13

Confidence includes belief in one's past achievements, current competence, and future ability to succeed. However, repeated research studies have shown that societal, psychological, systemic messages contribute to self-doubt for women and minorities when it comes to their abilities in STEM disciplines. This interactive session creates the opportunity for participants to discover their personal approach and style that boosts their self-confidence via performance and improvisation! Improvisational performance is the ability to be present in the moment, to enact embodied responses that embrace cognition and emotion. The workshop combines presentation, experiential exercises with critical reflection, and discussion to help the participants develop and create instances of confidence – voice, posture, emotions – that will increase their ability to overcome doubts and challenges at work. Our goal is to build a stronger future by enabling a diverse STEM workforce of tomorrow that is unhindered by the doubts they have accumulated, or those that have been projected on to them.

Speakers: **Raquell M. Holmes**, Improvscience; **Bushra Anjum**, Doximity

Faculty Workshop Part I: NSF Funding Opportunities

Location: San Diego B

The faculty workshop consists of one panel, followed by lunch, and a second panel. This first panel is focused on NSF Funding Opportunities. The panelists include Kenneth Calvert, Division Director for Computer and Network Systems (CNS) in the CISE Directorate, and Kevin Thompson, Program Director at the Office of Advanced Cyberinfrastructure (OAC) and Program Manager of the following programs: International Research Network Connections (IRNC), the Campus Cyberinfrastructure (CC), the Cybersecurity Innovations for Cyberinfrastructure (CICI), and the Transition to Practice (TTP) designation under the Secure and Trustworthy Cyberspace (SaTC) program. Ken and Kevin will provide an overview of CISE and discuss various funding opportunities at the National Science Foundation.

Moderator: **Valerie Taylor**, President and CEO of CMD-IT; Director of MCS, Argonne National Laboratory;

Panelists: **Kenneth Calvert**, Division Director of CNS, National Science Foundation; **Kevin Thompson**, Program Director of OAC, National Science Foundation

11:45PM - 1:15PM

General Lunch & Networking

Location: Marriott 5-9

Faculty Networking Luncheon

Sponsored by Point72 Asset Management

By invitation only

Location: San Diego A

1:15 PM – 2:15 PM

PANELS AND WORKSHOPS

Rewriting the Code College Women in Tech Data Initiative – Findings and Recommendations

Location: Marriott 2

Data collected from the Rewriting the Code fellows and members have already led to insights from this significant population of college women in tech. The women have shared first-hand experiences from many campuses, insights into their recruiting experience with a variety of companies, facts and impressions from their internships, and ultimately, we've learned a great deal about what goes into their selection of an internship or full-time position. The 2019 College Women in Tech Data Initiative has been designed to analyze and interpret data to create key corporate learnings that will benefit companies looking to hire women for technology roles. For example: a. What aspects of an internship best predict whether an individual will return for a full-time position? b. What recruiting initiatives are most effective at increasing the number of female hires? c. What initiatives are best at increasing brand awareness among college women? d. How does a company's recruiting process impact a candidate's perception of the company and final decision to accept the offer? e. How does the window of time provided to the candidate impact their decision to accept an offer? f. Do female candidates negotiate their offers and if so, what are the outcomes?

Moderator: **Jade Barricelli**, Rewriting the Code

Speakers: **Myra Gupta**, Rewriting the Code; **Sue Harnett**, Rewriting the Code; **Owen Astrachan**, Duke University

Building Connections Between Computation and Health: Medical Informatics

Location: Marriott 3

Medical informatics is a rapidly growing field at the nexus of computer science, engineering, health/medicine, social sciences, and multiple other fields. Research environments for people involved in medical informatics span homes and community settings, clinics and hospitals, and basic biological discovery. Research topics for medical informatics range from data analytics applied to complex electronic health record data sets, user-centered design of health management mobile apps intended for use at home, implementation and evaluation of artificial intelligence (AI) for identifying best

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options in cancer treatment, and many other areas. The opportunities for getting involved in medical informatics are practically limitless. However, like many other science- and technology-focused fields, medical informatics struggles with issues related to diversity and inclusion. While the underlying causes of these issues are difficult to diagnose, one current area of emphasis is on expanding public awareness of and knowledge about medical informatics. The goal of the panel is to provide audience members with an overview of the medical informatics field, review educational and career pathways in the field, and provide personal experiences of the panelists in their career paths within medical informatics.

Moderator: **Kim Unertl**, Vanderbilt University Medical Center

Speakers: **Tiffani Bright**, IBM; **Yalini Senathirajah**, University of Pittsburgh School of Medicine

Combating Federal Government Stereotypes: Diversity in the Federal Cybersecurity Workforce

Location: Marriott 12

The threats we face - digital and physical, man-made, technological, and natural - are more complex and the threat actors more diverse, than at any point in our history. The Cybersecurity and Infrastructure Security Agency (CISA) is the Nation's risk advisor, working with partners to defend against today's threats and collaborating to build more secure and resilient infrastructure for the future. CISA is at the heart of mobilizing a collective defense as we lead the Nation's efforts to understand and manage risk to our critical infrastructure. One such mission is to diversify the cybersecurity workforce. Our partners in this mission span the public and private sectors. We seek to help organizations better manage risk and increase resilience using all available resources, whether provided by the Federal Government, commercial vendors, or their own capabilities. These panelists will demonstrate how they combat federal government stereotypes and share their personal struggles as cybersecurity professionals. Furthermore, the audience will learn how different federal, private, and non-profit actors all contribute to helping build the national capacity to defend against cyber attacks. This cross cutting panel will talk directly to students, aspiring and current cybersecurity professionals, and managers across all levels. Each panelist will provide a 3-5 minutes introduction, followed by an interactive conversation with Q&A from the moderator.

Moderator: **Latasha McCord**, U.S. Department of Homeland Security

Speakers: **Danielle Santos**, National Institute of Standards and Technology; **Jennine Gilbeau**, U.S. Department of Homeland Security; **Clarence Williams**, U.S. Department of Veteran Affairs

All You Wanted To Know About Publishing Research But Were Afraid To Ask!

Location: Marriott 13

Publishing your research can be scary, specially for graduate students who are just starting on the research journey. The goal of this workshop is to demystify the research publication process. We will discuss the following topics: general approaches to preparing the manuscript; the different types of conference submissions (papers, posters, etc.); how are reviewers selected and who is the mysterious reviewer 2; understanding conference program committees (and journal editorial boards); how to prepare to present at conferences; and how impact is measured for your publications. This workshop builds on the successful workshop presented at TAPIA 2019 where the general student consensus was "why haven't we been told about this before?"

Speakers: **Juan F. Sequeda**, Capsenta Labs; **Manuel A. Pérez-Quiñones**, University of North Carolina, Charlotte

Faculty Workshop Part II: Effective Student Retention Strategies

Location: San Diego B

The second part of the faculty workshop will focus on effective strategies for student retention of underrepresented students, as it is recognized that good retention is important to improve student graduation rates. This session will consist of a presentation from the recipient of the CMD-IT University Award for Retention of Minorities and Students with Disabilities in Computer Science. The presentation will be followed by engaging discussions about recruiting, yield, retention and graduation of underrepresented students in undergraduate Computer Science programs. The session provides an opportunity for participants to share effective retention practices.

Teaching to Increase Equity in STEM (TIDES): Empowering the Underrepresented Using Culturally-Responsive Strategies and Tackling Bias

Location: Marriott 1

Teaching to Increase Diversity and Equity in Science (TIDES) is a subdivision of the Project Kaleidoscope and is dedicated to increase the learning outcomes and retention of students historically underrepresented in the Science, Technology, and Engineering and Mathematics

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(STEM) disciplines, particularly computer science. Studies by the National Science Foundation indicate that less than 5% of Latinas complete a doctoral degree in STEM and within computer fields the number is much lower. A main problem alluring Latinas to fields like Computational Biology (CB) is how to preserve their femininity in these male-dominated careers. Consequently, an empowering program “Cybernetic Girls can be Pinky” to allure Latinas into CB was implemented with a series of culturally-responsive strategies in three core Biology courses. The Molecular and Cell Biology Laboratory implemented the Small World Initiative (SWI) where students conducted a research project with local soils. All SWI modules were translated to Spanish and students identified more than 25 unique isolates with antimicrobial activities using CB tools. To fully empower undergraduate students, we also provided a Women in Science Course that emphasized the accomplishments of Latinas currently in Science. At the faculty level, we started regional meetings in collaboration with the Project Kaleidoscope (PKAL) and invited STEM faculty at Hispanic Serving Institutions to share their success stories. The meetings not only contemplated their best practices, but also highlighted the culturally-responsive strategies implemented that resulted in an increased retention of Latinos in their STEM classrooms.

Speakers: **Lilliam Casillas Martinez**, University of Puerto Rico Humacao; **Patricia Ordóñez**, University of Puerto Rico Río Piedras

Persistent Strategies for Women and Underrepresented Minorities to Thrive in Tech

Location: Marriott 10

It is no secret that the technical world is a challenging space for women and underrepresented minorities to succeed. A key point of inquiry is how to be effective about improving the situation so that everyone can thrive in their careers and leaders in tech. In this session Pratima Gluckman elaborates on the themes in her book “Nevertheless She Persisted: True Stories of Women Leaders in Tech” which was published in May 2018. In 2016, Pratima Gluckman decided to capture the untold stories of women who have broken the glass ceiling in the tech world. After doing in-depth interviews of a diverse set of 19 women leaders, she wrote up the women’s stories and wove the stories together with essays full of insight. With humor paired with inspirational storytelling and prescient advice, Pratima Gluckman clearly explains proven strategies to achieve career success for women and underrepresented minorities.

Speakers: **Pratima Gluckman**, VMware Corporation; **Jay Gluckman**, Pratima Rao Gluckman Group

Driving Innovation Through Diversity

Location: Marriott 11

Today, product development teams are more global and diverse. Working with different cultures benefit teams bringing different points of view and perspectives. Research has found that diverse teams are more innovative. Organizations are becoming more intentional in building a global mindset in product development by building diverse teams. In this talk, we will review the benefits of diversity, how to create a global mindset in teams and building a culturally competent organization.

Speaker: **Claudia Galvan**, Early Stage Innovation

#HPCMatters: Transform the World with High Performance Computing (HPC)

Location: Marriott 4

What is high performance computing (HPC) and what is its impact on scientific advancements? What are ways to gain exposure to HPC? What opportunities can launch you into an HPC career? Learn about HPC and the many different careers and opportunities in this field. We will share our personal experiences that ignited our interest in HPC, and discuss ways of transitioning into this field. The workshop will cover both an introduction to parallel computing in HPC and a hands-on section with a proxy application and a potential extension for building a cluster with real hardware.

Speakers: **Anh T. Quach**, Lawrence Livermore National Laboratory; **Kathleen S. Shoga**, Lawrence Livermore National Laboratory; **Stephanie Brink**, Lawrence Livermore National Laboratory

2:30 PM – 3:30 PM

PANELS AND WORKSHOPS

Increasing Diversity of Doctoral Programs: Insights from the Trenches

Location: Marriott 2

This panel will provide an opportunity for representatives from the NSF-funded INCLUDES FLIP (Diversifying Future Leadership in the Professoriate in Computing at Research Universities) Alliance to share insights on lessons learned about diversifying the doctoral programs at the FLIP institutions. The goal of the FLIP Alliance is to address the broadening participation challenge of increasing the diversity of the future leadership in the professoriate at computing at research universities, by increasing the diversity of the doctoral programs at the institutions that are the top producers of CS faculty. Since the inception of the FLIP Alliance in 2017, significant progress has been made with increasing the diversity of graduate admissions and recruiting. The panel will

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include four of the FLIP Faculty Advocates to discuss some key changes that have taken place at their universities in terms of graduate recruiting and admissions with respect to increasing diversity of their doctoral students. The session will be interactive, encouraging questions from the audience.

Moderator: **Charles Isbell**, Georgia Institute of Technology

Speakers: **Armando Fox**, University of California, Berkeley; **Robert Frederking**, Carnegie Mellon University; **Hakim Weatherspoon**, Cornell University

Industry and Academia Efforts: Experiences with Google Faculty in Residence Program

Location: *Marriott 13*

In this panel, a few of the faculty selected to Google's Faculty in Residence (FIR) Program in 2018 will discuss their experiences from the program with emphasis placed on project-based learning [3]. During the month-long Google FIR program, faculty worked with program managers in Google University Relations and Engineering Education and with Google Engineers from different departments. Among the many aspects of the program, these stood out the most in preparing our students from a technical standpoint: the technical interview, testing, code review, and project-based learning. After receiving training on Google's software engineering best practices, each faculty member designed and developed individual projects with the goal of bringing project-based learning techniques into their department's curriculum while at the same time supporting diverse and inclusive classrooms. Each project was unique and focused on perceived needs in their academic programs. Diversity and inclusion of students' backgrounds and experience level were prominent in project design and considerations. The projects span from lower to upper level courses and included cross-curriculum experiences outside of the traditional classroom. The panelists will describe their class projects designed during the FIR program which feature project-based learning, their outcomes and lessons from implementing it in their classes, and also share their experiences in other aspects of the FIR program.

Moderator: **Alvaro Monge**, California State University Long Beach

Speakers: **Lynne Grewe**, California State University East Bay; **Kathy Kanemoto**, Merced College; **Susan Wang**, Mills College

Preparing Tomorrow's Ethical Decision-Makers in Computer and Data Sciences Today

Location: *Marriott 1*

Today's computer and data science students will be involved in making decisions that help determine the future of the human experience. Recent events related to social media,

autonomous vehicles, and predictive algorithms reveal that ethics conversations must extend beyond computer viruses, identity theft, and hacking. Ethical discussions now must involve issues of transparency, mental and physical health, accessibility, diversity, the environment, and the list is growing. Furthermore, if careful thought is not put into the ethics side of technological development, the results can be disastrous. Yet technology is moving so rapidly that post-graduation is too late for these future decision-makers to begin the ethics discussion. Undergraduate and graduate education is the place to begin integrating ethics discussions into the curriculum, making it a natural part of the design process. This workshop will allow the attendees to experience several short modules that could be included into computer science curriculum and that tie ethics directly to the subject matter. Early modules will lay the groundwork for ethical decision making and articulating an ethical stance. Later modules will provide opportunities for applying what was learned to decisions in a particular area in computing. Each module is designed to be engaging, relevant, and unique. Participants will be actively involved in discussion and thought-provoking exercises throughout the workshop. The goal of the workshop is not to push any particular ethical agenda, but to encourage participants to be rational thinkers and to not just react on an emotional level when faced with an ethical dilemma.

Speakers: **Lori Carter**, Point Loma Nazarene University; **Catherine Crockett**, Point Loma Nazarene University; **Morgan Wheeler**, Point Loma Nazarene University; **Whitney Featherston**, Point Loma Nazarene University

STARS IGNITE: How to Ignite Efforts for Broadening Participation in Computing

Location: *Marriott 3*

The STARS Computing Corps IGNITE program provides a low barrier to entry for people, especially faculty and students at academic institutions, to engage in meaningful efforts for broadening participation in computing (BPC). STARS provides training, resources, and a community for people committed to BPC to help them lead grass-roots BPC activities that build computing community, identity, and sense of belonging within their home institutions. Workshop attendees will be actively engaged in identifying opportunities for BPC efforts within their own institutions/communities and provided with a set of resources that can be tailored for their particular BPC project needs. Specifically, workshop participants will collaboratively identify the intersection of local needs and challenges, the passion and skills of potential volunteers, and existing institutional/community resources. This STARS approach to the creation of grass-roots BPC activities helps computing professionals, including faculty and students, realize their ambitions to increase diversity, access,

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equity, and inclusion in computing. With just-enough & just-in-time training to support BPC activities at participants' home institutions, this STARS IGNITE mini-workshop provides resources & a foundation for future efforts.

Speakers: **Jamie Payton**, Temple University, STARS Computing Corps; **Tiffany Barnes**, North Carolina, STARS Computing Corps

Research is for Everyone!

Location: Marriott 4

This technical workshop is targeted to undergraduate students with the objective of exposing them to research and encouraging them to get engaged with research projects at their own University or elsewhere in Summer research programs. Exposure to research is a critical factor that affects future consideration for graduate studies. Too few undergraduates from underrepresented groups consider research as a career path, and, as a result, their numbers in graduate programs are severely lagging behind their already low percentages in undergraduate programs in computing disciplines. The main objective is to show that research is doable, can be fun, and opens up many rewarding career opportunities. We will introduce students to exciting applications of computer science and to research opportunities. We will talk briefly about research in Computer Science to get everyone with a shared understanding of what research is, and what differentiates a research project from other academic activities. We will do short guided hands-on activities in small groups to read and discuss a research paper. We will provide specific examples of research projects in areas such as game development, virtual reality, machine learning, natural language processing, and robotics. We will focus on research projects in Artificial Intelligence (AI), but the issues are similar in other areas of computer science. There is an acute shortage of AI professionals and over 50% of the positions require a graduate degree with a research component, hence this experience will expose students to the opportunities in this area.

Speakers: **Maria Gini**, University of Minnesota; **Monica Anderson**, University of Alabama; **Nate Derbinsky**, Northeastern University; **Shana Watters**, University of Minnesota

Love Teaching? Consider a Teaching-Track Career!

Location: Marriott 10

A teaching-track faculty career can be incredibly fulfilling, and happens to be in incredibly high demand right now, as computer science departments all around the country are struggling with the explosion in student interest. However,

many undergraduate and graduate students, despite having had positive experiences as lab and teaching assistants, are unaware the career path even exists. There are often misconceptions about teaching-track faculty careers as well. Students may not realize that many of these positions don't require a PhD or a degree in computing education, offer sabbatical and housing support, allow the candidates to decide for themselves how much research they intend to engage, are well-paying, and can provide tremendous job satisfaction and international visibility. Faculty with diverse backgrounds have a lot to bring to the table, in terms of serving a diverse student body and shaping CS education. Students in CS0 and CS1 can be inspired by seeing instructors that look like them and are displaying enthusiasm around the material and computer science writ large. This panel will serve as an opportunity for three seasoned teaching faculty to share how they got into the field, their experience, and their advice for students. Panelists will also describe what the positions look like outside their own institutions. There will be ample room for questions. We hope this panel offers an opportunity to find out why this hidden gem of a career might be right for you!

Moderator: **Dan Garcia**, UC Berkeley

Speakers: **Christine Alvarado**, UC San Diego; **Jeff Forbes**, Duke University

Recognizing and Responding to Bias and Microaggressions

Location: Marriott 11

Unfortunately, the work of advocating for diversity and addressing biased statements often falls on people from minoritized or marginalized groups. The workshop seeks to help Tapia attendees build their capacity to recognize and respond to bias in their environments. Attendees will learn and practice strategies for addressing biased statements. This will be facilitated by playing four rounds of a research-based game learning approach developed by the NSF funded project CTeachingTips.org (1339404, 1821136). All attendees will receive a printed copy of the game and a link to download and print more copies. A version of this workshop was well attended and well received in previous years at SIGCSE and Tapia.

Speakers: **Colleen M. Lewis**, Harvey Mudd College; **Catherine Ashcraft**, National Center for Women and Information Technology, University of Colorado at Boulder; **Wendy DuBow**, National Center for Women & Information Technology, University of Colorado at Boulder; **Kyla McMullen**, University of Florida

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So You Think You Can Explain Tic-Tac-Toe: A STEM Communication Workshop

Location: Marriott 12

Excellent communication skills on technical material are needed for successful participation in the top jobs in both industry and academia. Improving communication skills among minorities and underrepresented groups will serve to improve representation and therefore build a stronger future for the scientific nation. In this workshop, we'll discuss the effectiveness of several science-related graphics. Then, you'll get to see if you can do better by designing a graphic that communicates a seemingly simple fact about Tic-Tac-Toe. Participants will gain experience in communicating technical content and will learn strategies that they can employ in their future oral and visual communications. This workshop is hosted by the Tapia Center for Excellence and Equity at Rice University and is based on the curriculum behind the Center's innovative STEM and communication summer camp for K12 students and educators.

Speakers: **Paul Hand**, Rice University; **Leticia Velazquez**, Northeastern University; **Richard Tapia**, Rice University

Wakanda Name You Got

Location: San Diego A

Wakanda, land of Vibranium, home of the Black Panther. The citizens of Wakanda have a brave king, advanced technology, and really cool names. King T'Challa has granted us permission to bestow honorary Wakandan names to the masses. I will demonstrate how we can use data science techniques to translate one's name to a traditional Wakandan name.

Speakers: **William Hill**, Lawrence Livermore National Laboratory; **Tiffany Andrews**, 18F

Snap Out of It: Overcoming Impostor Syndrome and Leveraging Your Value Proposition

Location: San Diego B

Have you ever felt like a fraud at your school or job, despite your accomplishments? Success should build confidence, not shake it, but it can be an ongoing struggle for many women and underrepresented minorities in STEM. In fact, most of your peers have likely experienced self-doubt – feeling like an impostor – at some point in their education and careers. Research shows that nearly 70% of people have experienced “impostor syndrome,” a psychological phenomenon in which individuals doubt their accomplishments and fear being exposed as a fraud. Dr. Dena Haritos Tsamitis developed strategies to shatter impostor syndrome through research, coaching and her experience working with graduate students at Carnegie Mellon University.

In this workshop, participants will learn how to customize actionable strategies to overcome impostor syndrome and then craft and leverage their personal value proposition as part of a successful career strategy.

Speaker: **Dena Haritos Tsamitis**, Carnegie Mellon University Information Networking Institute

The Fallacy Objectivity: Leveraging Situated Knowledges to Advance Computing for Social Justice

Location: San Diego C

Despite recent attention to problems of bias in computing and the negative consequences these biases have on marginalized communities, the work of cultural relevancy, broadening participation, mitigating machine bias, and examining research and development ethics is still undervalued by the computing research field at large. In this workshop, organizers will relate their experiences with the field's resistance to attending to matters of social justice in computing. Organizers engage the audience in a series of activities exploring how critical analysis of the positive and negative consequences of technology in society is an essential part of ethical, robust, transformative technological advancement.

Speakers: **Rua M. Williams**, University of Florida; **Jeremy A. M. Waisome**, University of Florida; **Kyla McMullen**, University of Florida; **Emma Drobina**, University of Florida

3:30 PM – 4:00 PM

Refreshment Break

Location: Pacific Ballroom Foyer

4:00 PM – 5:00 PM

TECH TALKS

Sponsored by Flatiron Health and Lyft

Location: Marriott 1

Modernizing a Cancer Medications Platform: Stories, Diversity, and Lessons Learned

Cancer is the second leading cause of death in the United States and the American Cancer Society estimates that about one-third of all people in the United States will develop cancer during their lifetimes. There have been a number of breakthroughs in medications for the treatment of cancer and there are more options than ever before. The formulary of an oncology electronic medical record system is the backbone of making these medications available to important parts of the system such as regimens (drugs given using several different medications which may be given at the same time, or one after another for a specific period of time). We've spent a good amount of time and resources refactoring the formulary

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of Flatiron's electronic medical records application and have learned a lot and would like to share this with you.

We'll tell you stories about a brief history of cancer, the evolution of oncology medications, our story of rebuilding a formulary, the engineering challenges we faced and how diversity of thought can help improve the direction of projects. We'll explain why we believe these stories are important, the lessons we learned from them, and the major diversity gaps that currently exist throughout the world of cancer medication.

Speaker: **Ina Ochoche**, Flatiron Health

Deploying Envoy, How Lyft Services Millions of Request per Second in a Modern Cloud Infrastructure

Lyft completed its first ride back in 2012. Over the last seven years the number of rides being done per day has increased steadily and Lyft now performs well over a million rides day and is one of the preeminent transportation providers in the United States today. Suffice to say, to manage a fleet of millions of rides all over the U.S. Lyft's infrastructure has had to develop significantly and this evolution has led to Lyft building and open sourcing one of the leading service proxies for maintaining cloud networks today. During this session we will walk through how Envoy Proxy came to be, the way Lyft has deployed Envoy in its systems, and how it helps keep Lyft on the edge of cloud infrastructure technology today.

Speaker: **Anthony Velazquez**, Lyft

BIRDS OF A FEATHER SESSIONS

The William Test: A Minority Engineer's Guide to Evaluating Company Culture

Location: *Marriott 4*

The Joel Test is a well known metric for evaluating the quality of a software engineering team. Every since Joel Spolsky wrote his classic blog post, engineers have been using his methodology as a way to determine if a company is a good place to work. As an engineer from an underrepresented group, there are usually other factors to heavily consider that fall outside the realm of the Joel Test. I'm dubbing these concerns The William Test, a list of 9 factors that minority engineers can use to evaluate the culture of a company. The William Test can be used both by prospective employees and current employees to evaluate the cultural fitness of their team. It can even be used by company leadership as an actionable checklist for creating a more inclusive environment for underrepresented employees.

BOF Organizer: **William Hill**, Lawrence Livermore National Laboratory

Developing Allies to Create Opportunities

Location: *Marriott 10*

While most engineering and technology managers are well-intended and support a diverse and inclusive workplace, the overwhelming number of leadership positions fail to reach minorities. How does one break through the glass ceiling, grab a seat at the table or just get an opportunity to be in the room? The goal of the interactive panel is to share experiences and techniques to tactfully empower themselves, locate and support allies, and find mentors and sponsors in order to enhance career growth. Ms. Hilliard has often been in the position of being the only female or minority; however, bolstered by allies she has become a leader in her organization. Dr. Davis started at JHU/APL after graduate school and navigated the corporate/research laboratory environment and obtained leadership positions, where he found allies, mentors, and sponsors that helped him grow technical and professional throughout the process. Let's develop allies to enhance your opportunities.

BOF Organizers: **Danielle Hilliard**, Johns Hopkins University Applied Physics Lab; **Cleon Davis**, Johns Hopkins University Applied Physics Lab

Giving Back While Moving Forward: Sharing Strategies for Integrating Research and Action for Equity and Inclusion into Your Computing Education and Career

Location: *Marriott 11*

The current CS for All movement reflects a need to provide opportunities for every person to learn computer science, as a matter of equity. Many students and faculty have a desire to contribute to society; since access to computing education is limited, finding ways to use computing to give back is particularly valuable. In this session, we will discuss strategies for individual students and faculty to develop and lead efforts focused on improving inclusion, equity, and diversity in computing. Exemplary student-led efforts include peer mentoring, peer tutoring, K12 outreach, socially relevant research opportunities, and service learning. In this BoF, we invite students and faculty to seek and share resources that can lower the barriers for students to engage in outreach and research for broadening participation in computing. We will also discuss strategies for choosing projects that leverage local resources and opportunities, promote personal professional development, and contribute to institutional improvement.

BOF Organizers: **Jamie Payton**, Temple University; **Tiffany Barnes**, North Carolina State University

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Student Organizations: Creating a Community of Success for Latinx and other Underrepresented Students in Computing

Location: Marriott 12

In recent years, the participation of Latinx and other underrepresented students in the field of computing has increased. Still, many are first-generation college students with little background in computing and often lack the support needed to succeed in this field. For this reason, at the University of Illinois at Chicago (UIC), we have created the Latinx Organization for Growth in Computing and Academics (LOGiCA), a student organization that aims to support underrepresented students by encouraging participation in computing, providing academic support, and facilitating the development of technical and professional skills. LOGiCA is involved in outreach to prospective students, peer mentoring, and also organizes student-led workshops and industry talks. In this session, we will share our experience forming LOGiCA and discuss the importance of student organizations in reaching out to Latinx and other underrepresented students in computing and creating communities where they can develop their academic and professional skills alongside peers.

BOF Organizers: **Erick Vaquero**, University of Illinois at Chicago; **Boris J. Pisabaj**, University of Illinois at Chicago; **Gonzalo A. Bello**, University of Illinois at Chicago

Navigating the CS Major: Student and Faculty Best Practices

Location: Marriott 13

This birds-of-a-feather session brings together students and faculty to uncover effective strategies for learning and teaching Computer Science. We hope to learn about factors that motivate students to pursue the major. Research reports factors like role models, peer and family support, and mentors. We are also interested in the activities and tools that facilitate student learning like study groups, competitive programming websites (e.g., HackerRank), programming communities (e.g., StackOverflow), and hackathons. Learning about motivating factors and educational strategies of students help faculty identify ways to support their learning. Faculty can share effective pedagogies used; research shows that flipped classrooms, peer instruction, pair programming, rubber-duck debugging, and project-based learning are effective for CS education. Students will learn about the intuition behind teaching practices and provide feedback to refine them. The session provides opportunities to synergize students' and instructors' ideas and collect best practices we can share with the community.

BOF Organizers: **Paul Salvador Inventado**, California State University, Fullerton; **Alvaro Monge**, California State University, Long Beach

Podcasting in Computing - Using Sci-Comm to Broaden Participation

Location: San Diego A

In partnership with the National Center for Women and Information Technology (NCWIT), the Institute for African-American Mentoring in Computing Sciences (iAAMCS) premiered Modern Figures Podcast, which seeks to elevate the voices of black women in computing. This work came on the heels of discussions around the need to highlight the stories of minoritized populations in technology. As our organizations seek to create opportunities for diverse students and faculty, we believe it should also provide space for the stories of their trials, success, challenges, achievement, and perseverance to be shared. Science communication (sci-comm) is how we effectively articulate our work to diverse audiences. The hosts of Modern Figures Podcast present this BoF as an opportunity to discuss ways to engage in non-technical communication to promote the stories of diverse researchers in your domain. We want to learn ways you may be engaged in sci-comm and share our successes with you.

BOF Organizers: **Jeremy A. M. Waisome**, University of Florida; **Kyla McMullen**, University of Florida

Excelling at Your First Tech Job: Made Easy

Location: Marriott 3

Finding your first job after college can be quite challenging, but what is even more challenging is keeping up with what the job demands. Your first job demands more than just strong academics. You will need different industry skills to deliver at work every day, which more often than not, are not covered in your college academic syllabus. With the advent of massive open online courses (MOOCs), access to the learning resources has become easier than ever before. However, the process of online learning can be overwhelming with a variety of MOOC providers. The goal of the session is to empower those who are early in their careers, with resources for relevant skills that their jobs demand. We will share tips to stay motivated throughout the learning process. By the end of the session, attendees will leave with a curated list of resources of current software industry skills in demand.

BOF Organizers: **Harshitan Kasera**, LinkedIn; **Pankhuri Sharma**, LinkedIn

PROGRAM SCHEDULE

FRIDAY

6:00 PM – 11 PM

Banquet and Dancing

Location: Marriott 5-9

Banquet Keynote: Ken Washington, Chief Technology Officer, Ford Motor Company

BIOGRAPHY:

Dr. Ken Washington

Dr. Ken Washington is chief technology officer, Ford Motor Company. In this role, Washington leads Ford's worldwide research organization, overseeing the development and implementation of the company's technology strategy and plans, and plays a key role in the company's expansion into emerging mobility opportunities. He reports to Jim Farley, president, New Businesses, Technology & Strategy, Ford Motor Company.

Prior to joining Ford, he was vice president of the Advanced Technology Center at Lockheed Martin Space Systems Company. In this role, Washington was responsible for leading a team of scientists and engineers in performing research and development in space science and related R&D.

Previously, he served as Lockheed Martin Corporation's first chief privacy officer, a role in which he built the company's privacy program, set the privacy strategy direction and established a team of privacy professionals to execute the strategy. Washington also previously served as the vice president and chief technology officer for the Lockheed Martin internal IT organization, where he was responsible for shaping the future of the corporation's information technology enterprise.

Prior to joining Lockheed Martin in February 2007, Washington served as chief information officer for Sandia National Laboratories, where he also previously served in a variety of technical, management, and program leadership positions.

Washington serves on the board of McKesson Corporation, a global leader in healthcare supply chain management solutions, retail pharmacy, healthcare technology, community oncology and specialty care. He was born in 1960. He has a bachelor's, master's and doctorate degree in Nuclear Engineering from Texas A&M University and is a fellow of the MIT Seminar XXI program on International Relations.

Dance Party and DJ Booth

Sponsored by Lyft

SATURDAY

POST CONFERENCE ACTIVITIES

8:30 AM - 11:30 AM

FLIP Alliance Focus Group

By invitation only

Location: Torrey Pines II

Breakfast will be served followed by a focus group discussion.

9:00 AM – 3:30 PM

STARS Celebration

Pre-registration Required

Location: San Diego B

The 15th annual STARS Celebration is a full-day event for college students and faculty who are interested in becoming leaders that take action to broaden participation in computing. The program features sessions on best practices in broadening participation in computing, hands-on training workshops for conducting computer science outreach programs for K-12 students, professional development sessions for both faculty and students, and a student poster session highlighting computing research, outreach, and service projects. We welcome existing members of the STARS Computing Corps as well as newcomers who are interested in learning about how to take action and connect to national resources for broadening participation in computing! The STARS Celebration is a separate conference co-located with the Tapia 2019 Conference.

CONFERENCE ORGANIZATION

2019 Tapia Conference

The 2019 ACM Richard Tapia Celebration of Diversity in Computing Conference is possible because of the tremendous dedication and contributions of many organizations and volunteers from the computing community. We very much appreciate the significant support, time, and excellent input. We extend a sincere thank you to everyone, including our attendees, for making this conference possible.

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www.cmd-it.org

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

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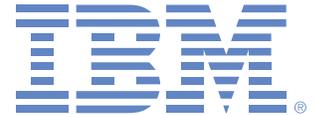
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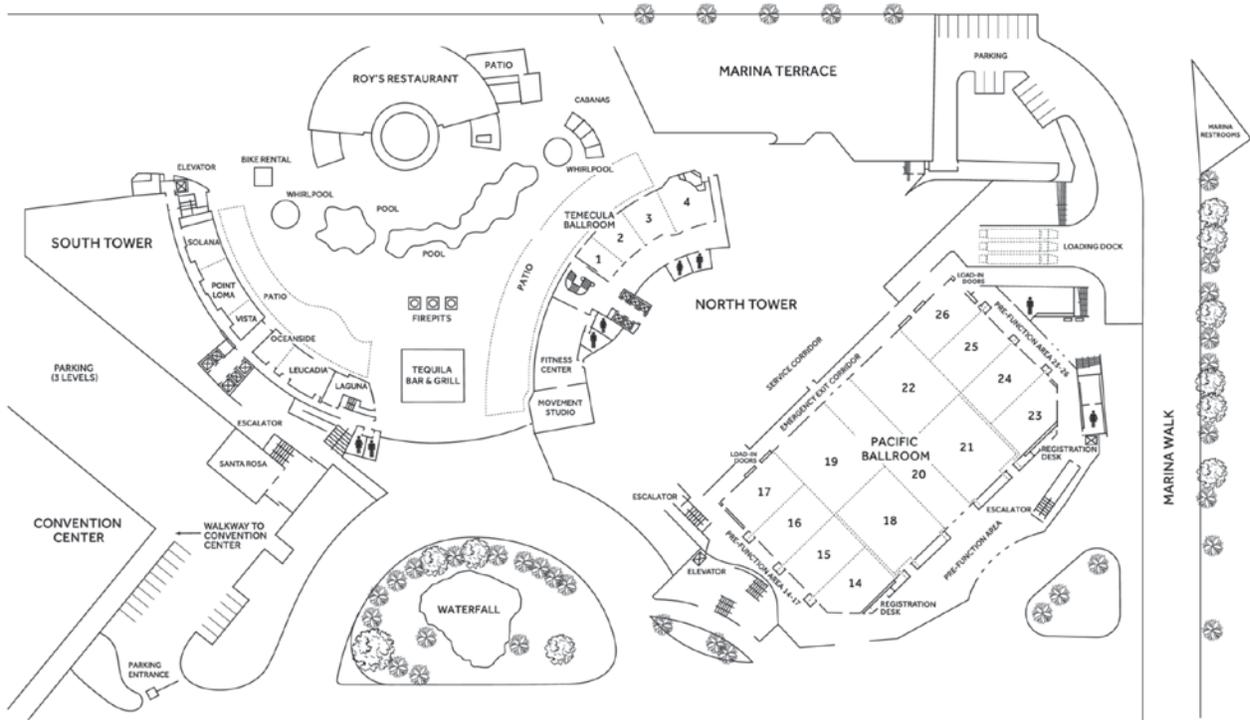


2019 CONFERENCE APP

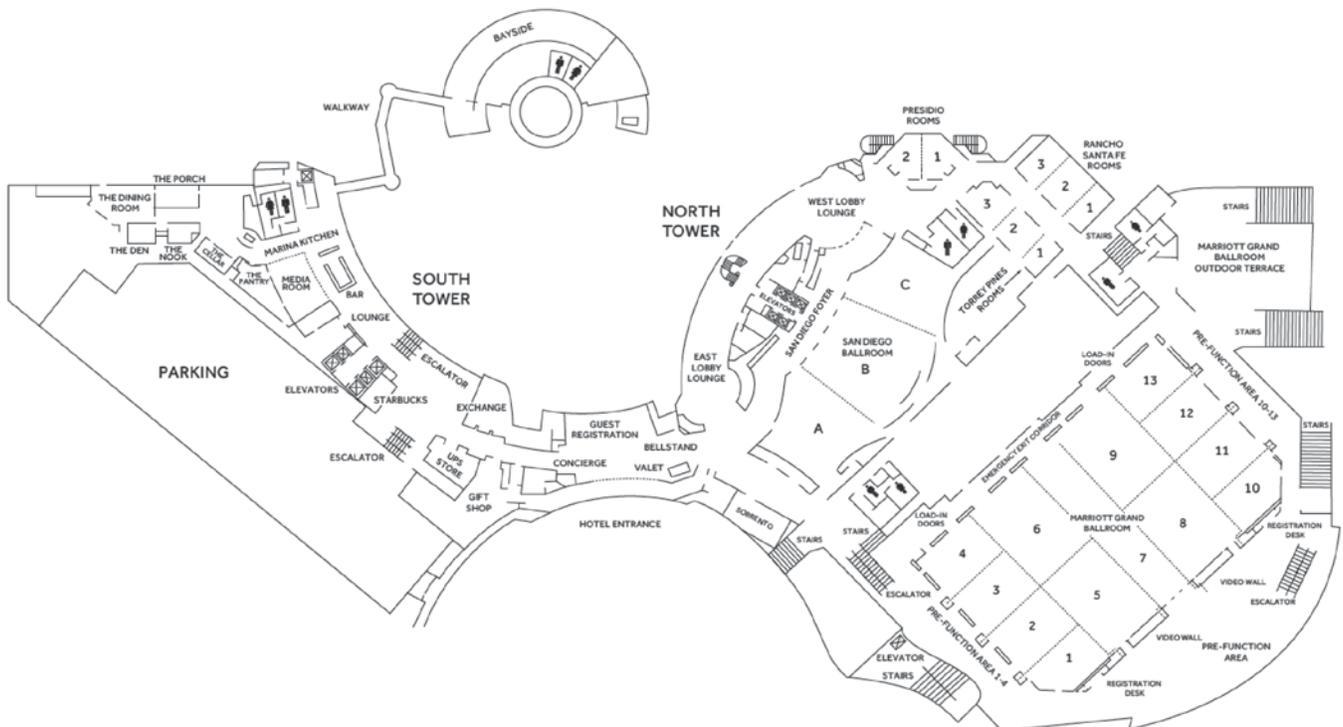


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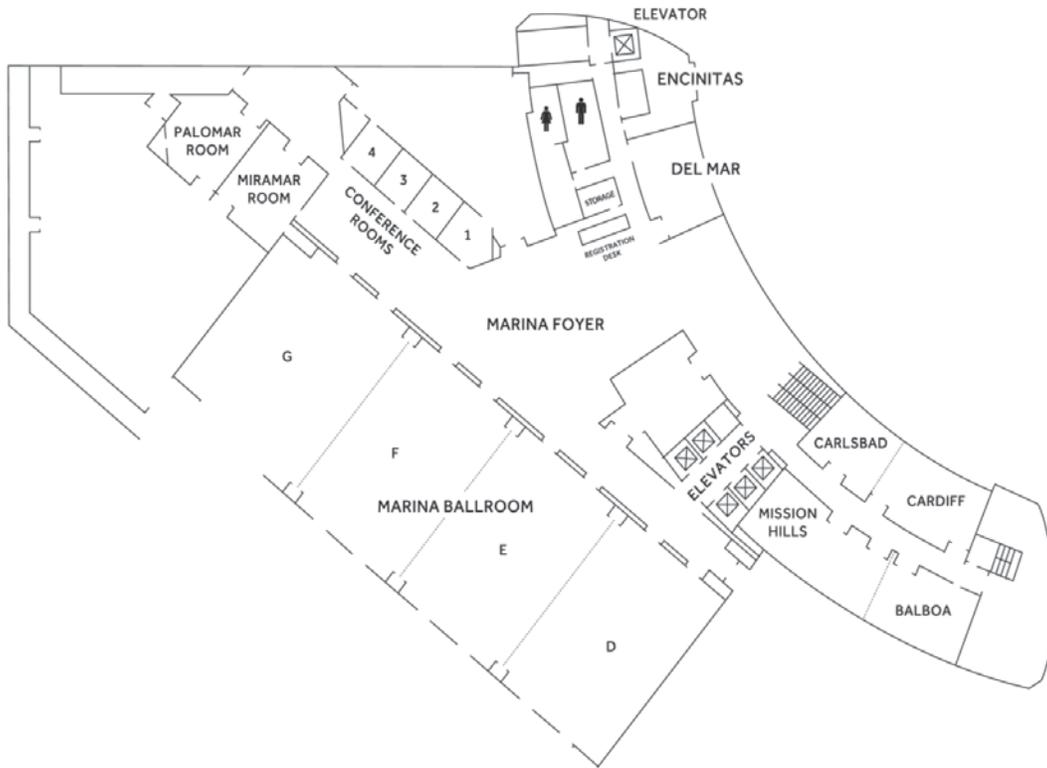
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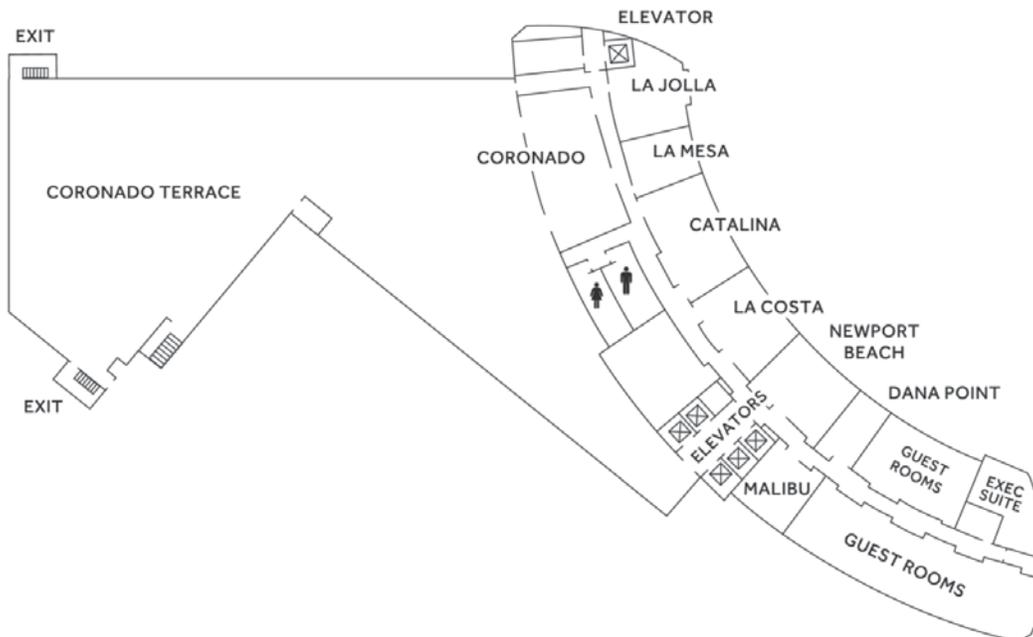
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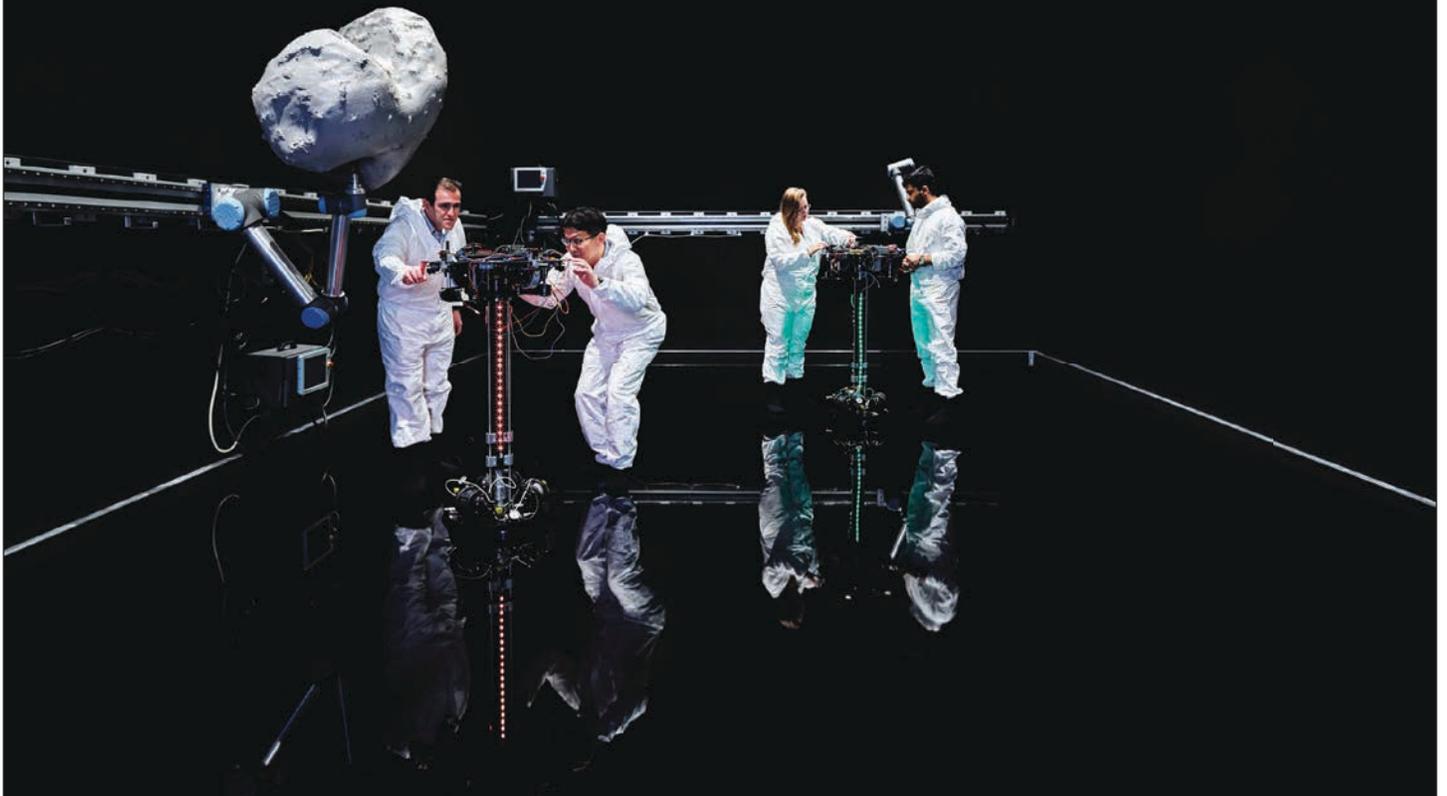


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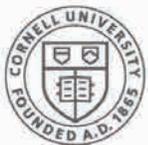
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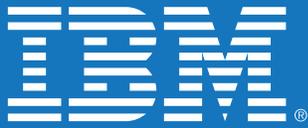


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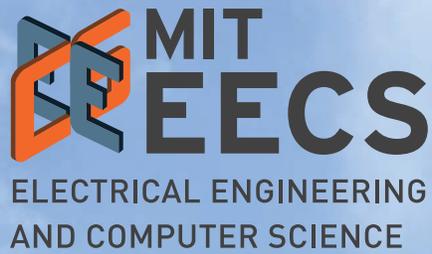
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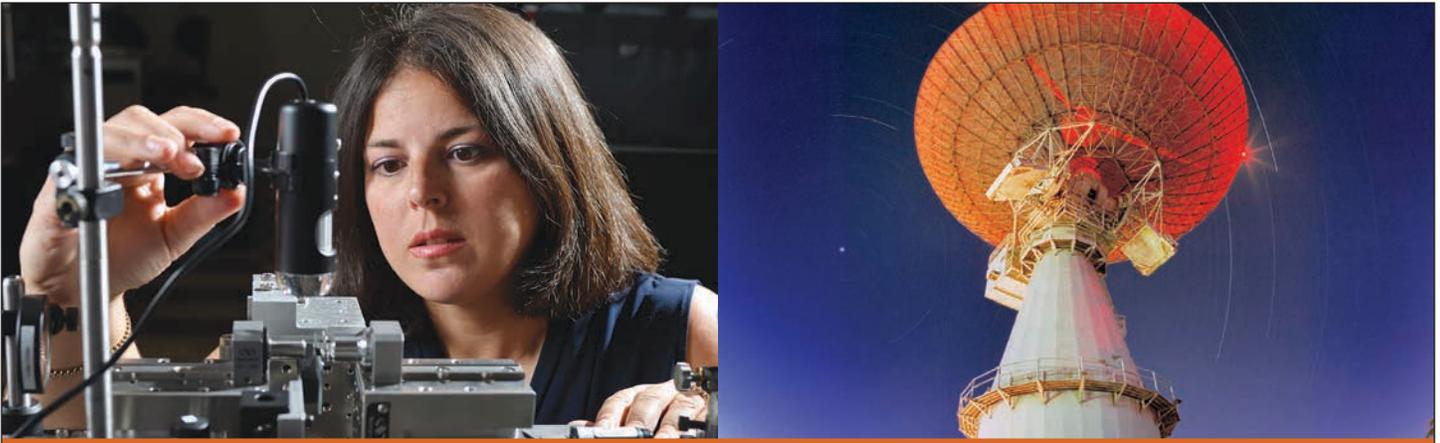
A photograph of the iconic MIT dome building, a large neoclassical structure with a prominent dome and a portico supported by columns. The building is set against a blue sky with light clouds and is flanked by lush green trees. In the foreground, a vast, vibrant green lawn stretches across the bottom half of the image.

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MIT Lincoln Laboratory is an Equal Employment Opportunity (EEO) employer. All qualified applicants will receive consideration for employment and will not be discriminated against on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, age, veteran status, disability status, or genetic information. Due to the unique nature of our work, we require U.S. citizenship.

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Physics

Please visit our recruiting booth during the Tapia Career Fair

- Wednesday, Sept. 18th
7:30 pm – 9:30 pm
- Thursday, Sept. 19th
11:00 am – 6:00 pm
- Friday, Sept. 20th
10:30 am – 5:00 pm
(interviews only)

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Science**

**WORLD CLASS
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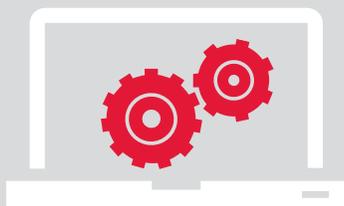
FOR EVERYONE.

The **Department of Computer Science** at NC State University is a global leader in computer science teaching, research and extension and is dedicated to increasing participation in the field to members of underrepresented groups.

According to data from the American Society for Engineering Education in 2018-19, **NC State ranked first** in the nation in the number of **female tenure-track / tenured faculty members** in departments of computer science in colleges of engineering. Undergraduate **female enrollment** in the department is **up 70 percent** in the last decade.



OUR HIGHLIGHTS



- **29 percent** of our Ph.D. students are **women**.
- **Competitive four-year funding** offer to every admitted Ph.D. seeking aid.
- NC State ranks **13th** on a list of **top suppliers of talent to Silicon Valley** companies and seventh among schools that are not located in California.
- The department ranks **6th** on *U.S. News & World Report's* list of online Graduate Programs.
- The **average salary** for our master's graduates is **\$112,000**, the highest at NC State.

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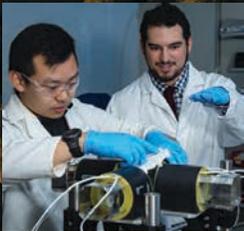
- **30 percent** of our Ph.D. graduates were **working in academic** institutions.
- **65 percent** were **working in industry**.
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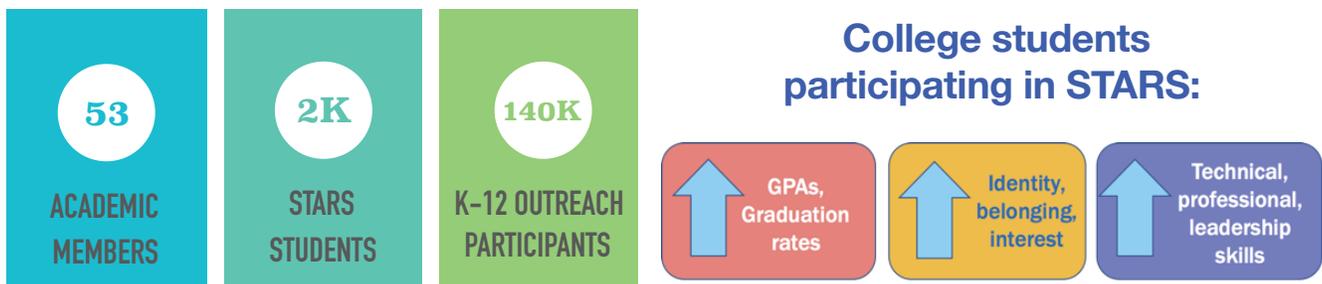
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The STARS Computing Corps is a national alliance of colleges & universities with a mission to broaden participation of women, people of color, and people with disabilities in computing. At STARS member institutions, faculty support college students as they lead computing-focused service-learning activities, including near-peer outreach that introduces K-12 students to computing, peer tutoring & mentoring, and CS research.



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THE FUTURE HAPPENS HERE



The UC San Diego CSE department is a world-class research institution, where students and professors work together to imagine and shape the digital world of tomorrow. Our tight-knit community is building the future of technology in all areas of computing. From robotics to security to human-computer interaction, we are pushing the boundaries of what is possible, and striving to make the world a better place.

Most of all, we stand every day by our core values: success and excellence through mentorship and community. Our students have received numerous prestigious fellowships, and go on to be leaders in industry and professors at top academic institutions. We're always looking to expand our reaches in all avenues and grow, so visit cse.ucsd.edu to find out more and join us!

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The UC San Diego CSE department has many cross department collaborations, making our department unique. This can be seen in the many interdisciplinary centers that CSE is a leader in:

- Center for Networked Systems
- Center for Visual Computing
- Center for Wireless Communications
- Qualcomm Institute
- Robotics Institute
- San Diego Supercomputer Center

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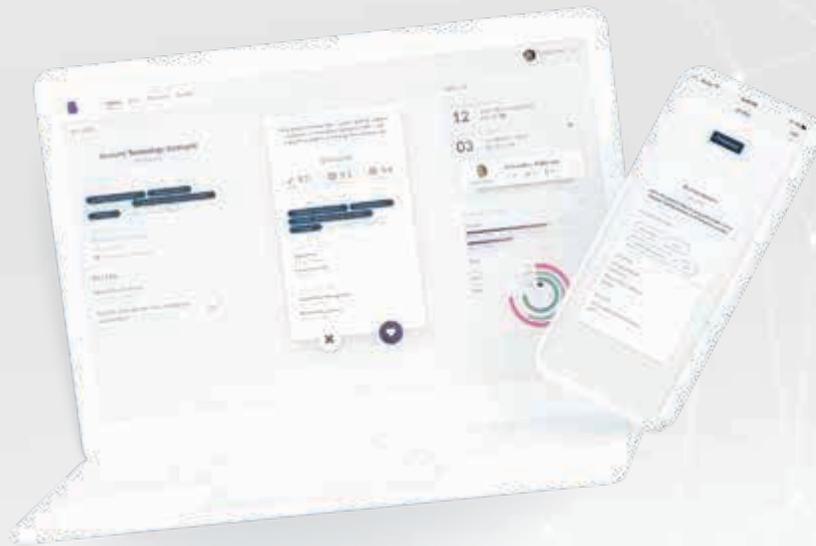


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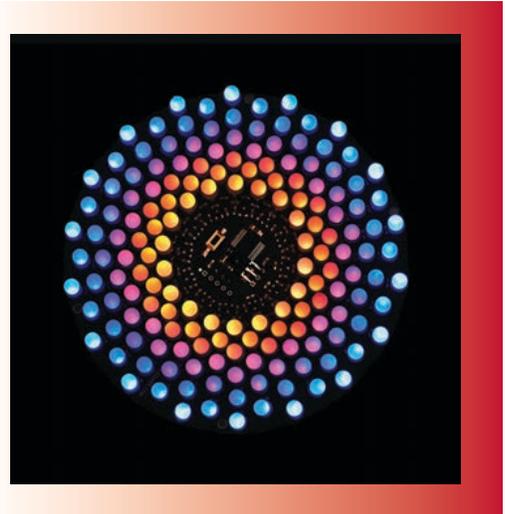
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Most* ECE graduate applications are due by:
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<https://www.ece.cmu.edu/admissions/index.html>

<https://www.ece.cmu.edu/admissions/graduate-application-deadlines.html>



ECE Deadlines

* Please refer to the *Graduate application deadlines* for programs that may have different deadline dates.



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<https://www.cs.cmu.edu/masters-programs>

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SCS Master's

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† Reduced fee for applying by early deadline

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- ▶ Nominate a female early-career computer scientist for a chance to receive the **BECA Award**.
- ▶ Apply for support to attend a conference or workshop through the **Travel Support for Underrepresented Researchers** program





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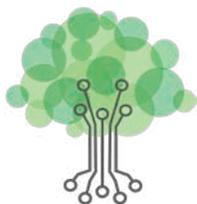
Prof. Colleen Lewis colleen@cs.hmc.edu

Contact – Math Department:

Prof. Francis Su math-search-2020@g.hmc.edu



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Kennesaw State University's College of Computing and Software Engineering (CCSE) recognizes the value of diversity and is taking action to inspire young women and students of diverse backgrounds to enter the field of computing.

KSU fosters a climate that embraces diversity among students, faculty, and staff through freedom of exchange over different perceptions, experiences, beliefs, and ways of knowing in safe, supportive, and nurturing environments.

- » Be a part of a growing, thriving community - CCSE enrollment has more than doubled in the past six years, and enrollment growth for women students outpaces growth of men students 2-to-1
- » Have a positive impact on the world - faculty and students work collaboratively on cutting-edge research and projects and secure research positions, internships and jobs in the thriving Atlanta tech community and beyond
- » Influence the next generation of computing and STEM students - our faculty and students work with local K12 schools to promote awareness of and access to computing in schools and on-campus teacher workshops. We have positively impacted over 2800 students and 190 teachers in 37 local schools thanks to funding from State Farm, 3M, and private donors
- » Connect with your fellow students - CCSE has 13 diverse student clubs including Women in Technology (WIT), ACM, IEEE Computing, and Upsilon Pi Epsilon (Computing Honors). Our student groups are active and engaged, serving and uplifting each other and those beyond campus.
- » Find the funding that will enable your success - numerous graduate and undergraduate funding opportunities are available, including over \$1M in graduate assistantships and \$30k+ in industry-funded support and awards in our annual hackathon event

We invite you to join us as a student or faculty member. We are actively seeking new students in our master's programs in CS, IT, and SWE and are hiring new faculty to support our growth. Find out more about our diversity and programs at:

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University of Maryland



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CONTACT US TODAY

Tom Hurst, Assistant Director
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- **December 15** - Application Deadline
- **Mid-March** - Visit Day

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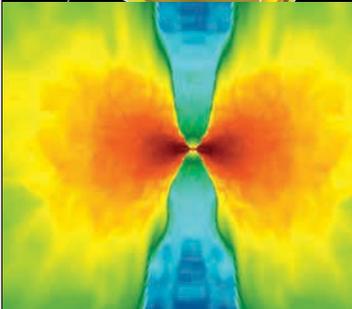
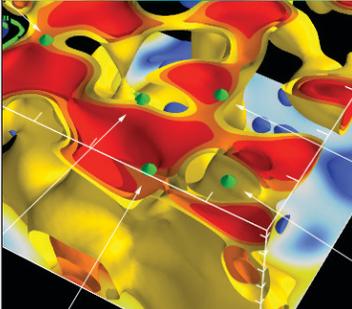
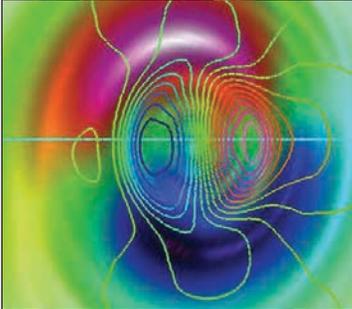
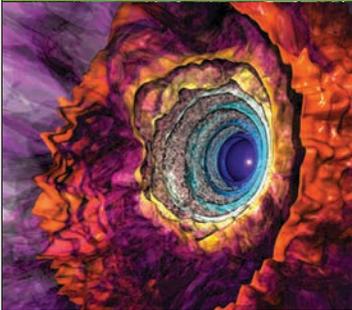
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Lawrence Berkeley National Laboratory

Computing Sciences Area



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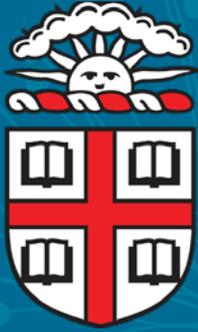


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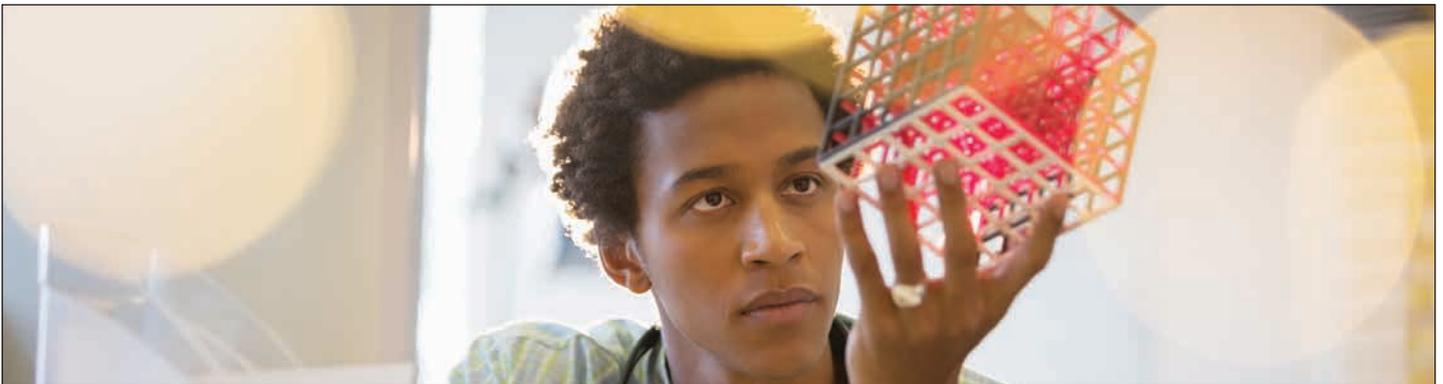
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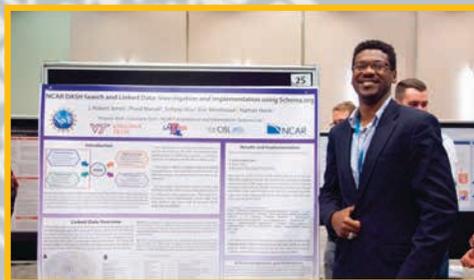


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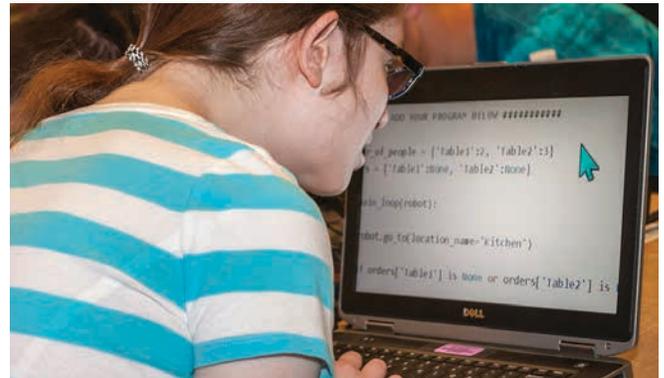
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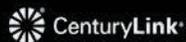
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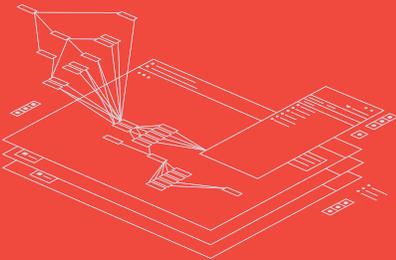
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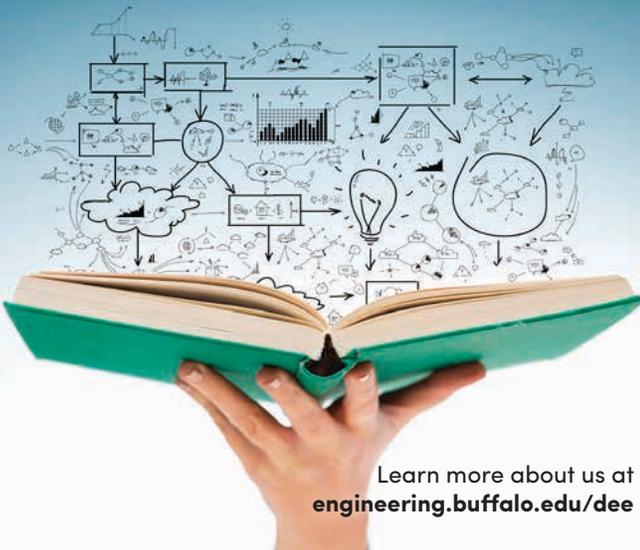
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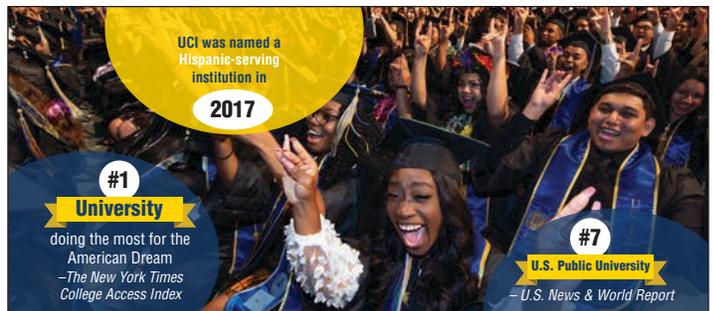
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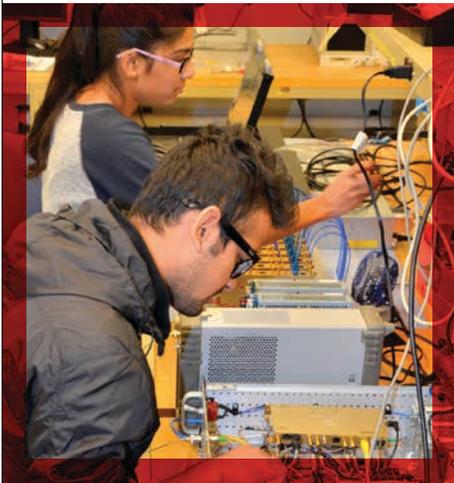
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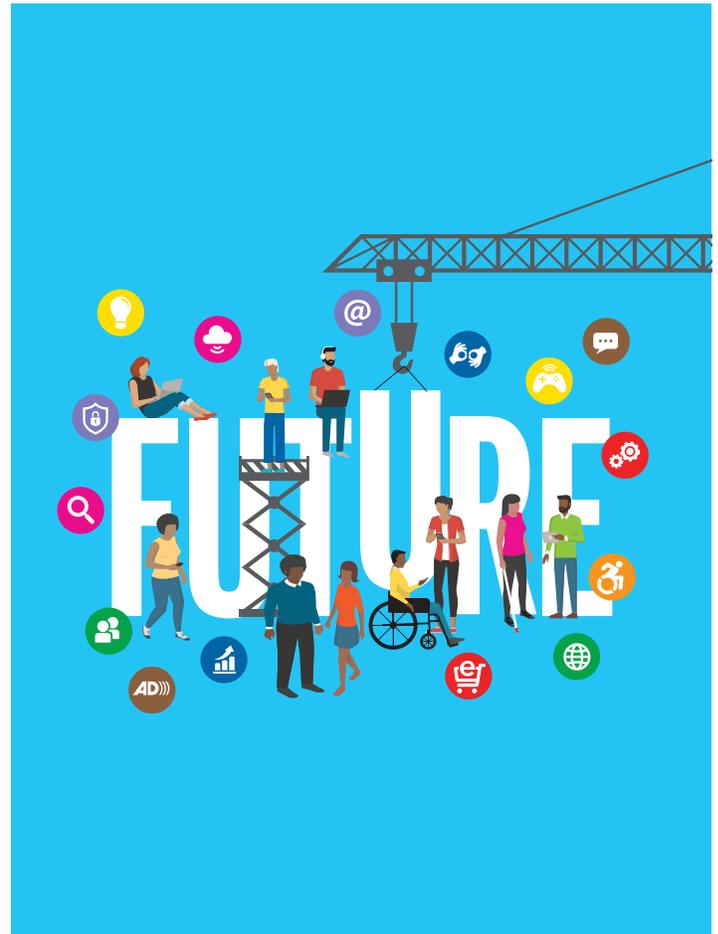
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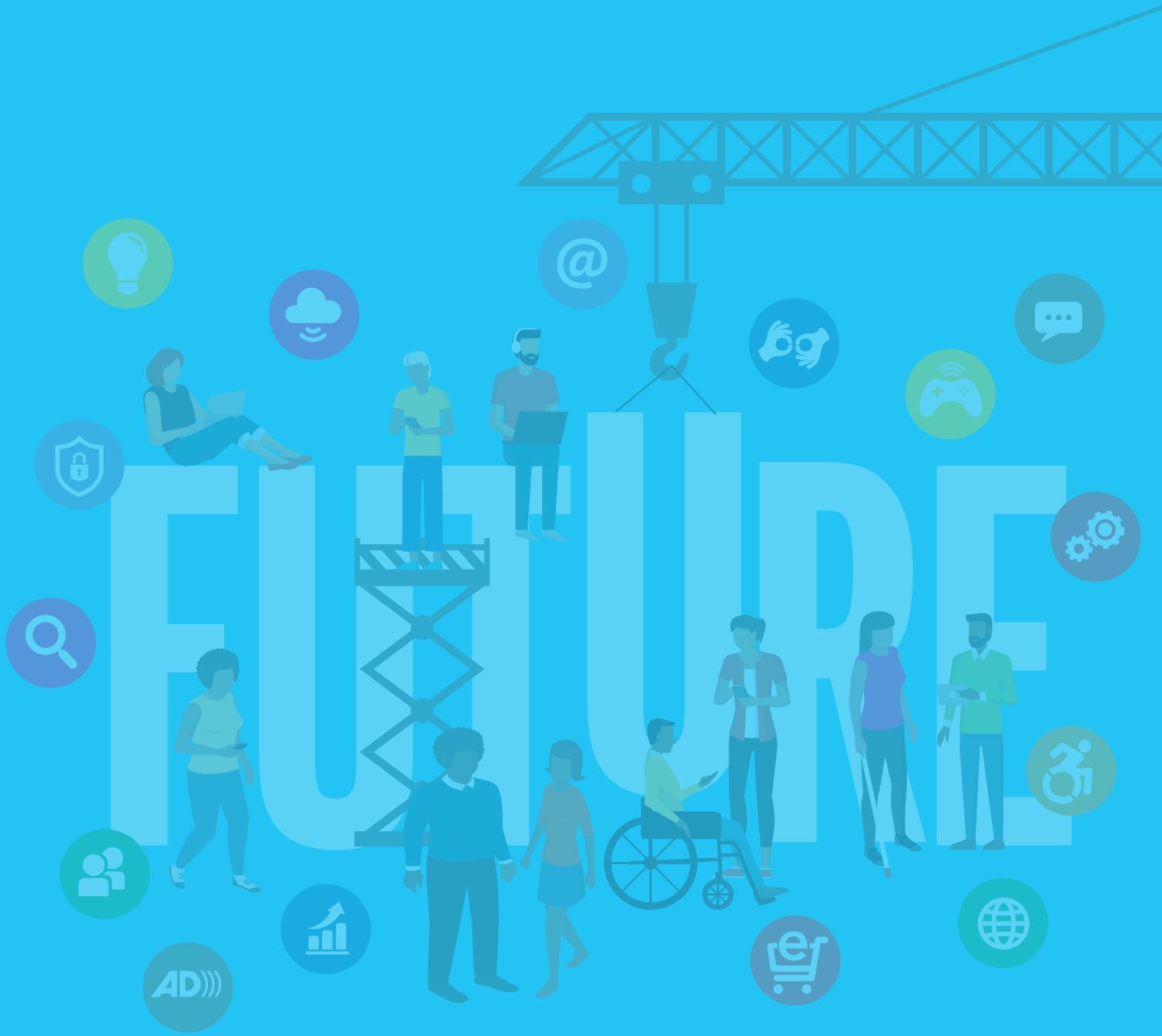
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