

2022 CMD-IT/ACM RICHARD TAPIA CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

SEPTEMBER 7–10, 2022 | WASHINGTON, D.C.

A TIME TO CELEBRATE!

RESILIENCE | ADAPTABILITY | INNOVATION IN COMPUTING



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2022 CMD-IT/ACM RICHARD TAPIA

CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

SEPTEMBER 7–10, 2022 | WASHINGTON, D.C.

The **2022 CMD-IT/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).

The Tapia conference is the premier venue to acknowledge, promote and celebrate diversity in computing. The goal of the Tapia Conference is to bring together undergraduate and graduate students, faculty, researchers, and professionals in computing from all backgrounds and ethnicities to:

- Celebrate the diversity that exists in computing
- Connect with others with common backgrounds, ethnicities, disabilities, and gender so as to create communities that extend beyond the conference
- Obtain advice from and make contacts with computing leaders in academia and industry
- Be inspired by great presentations and conversations with leaders with common backgrounds

This year marks the 16th conference since its inception in 2001. The 2022 theme ***A Time to Celebrate! Resilience, Adaptability, and Innovation in Computing*** is more than fitting as so many in the Tapia community have been affected by the COVID-19 pandemic and have discovered ways to adapt and forge ahead leveraging various advancements and innovations in technology/computing.

TAPIA

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 underrepresented communities. The vision is realized through the mission to ensure that underrepresented communities are fully engaged in computing and information technologies and to promote innovation that enriches, enhances, and enables these communities. CMD-IT targets the following communities: African Americans/Blacks, Native Americans/Indigenous People, Hispanics/Latinxs, and People with Disabilities.



CMD-IT is the presenter of the CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference and the organizer of the following programs:

LEAP Alliance

The goal of the NSF BPC Alliance, LEAP (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 LEAP Alliance includes four cohorts of universities, with each cohort having common strengths and a common agenda of strategies to increase the diversity in the computing professoriate.

Academic Careers Workshops

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

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

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.

Student Professional Development Workshops

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

WELCOME

FROM THE GENERAL CHAIR AND PROGRAM CHAIR

After two years as a virtual conference, we are excited to be back in-person for the 2022 CMD-IT/ACM Tapia Celebration of Diversity in Computing Conference in our nation's capital, Washington, DC! We greatly look forward to reconnecting with friends and welcoming newcomers to our ever growing Tapia community!

Our 2022 theme says it all, A Time to Celebrate! Resilience, Adaptability, and Innovation in Computing. This year's theme recognizes the outstanding efforts and triumphs of those who persevered through the challenges and hardships of COVID-19 by leveraging various innovations in computing which helped make an in-person Tapia conference possible this year.

The Tapia 2022 conference offers a variety of insightful and inspiring talks from leaders in computing as well as numerous workshops, a career fair and networking opportunities. This year we offer over 80 technical, broadening participation, and professional development panels and workshops across various tracks: Academic, Industry & Government, Technical, and Birds of A Feather. We will also host an Industry Leadership & Networking Workshop and the Student Professional Development Workshop, where undergraduate and masters students can gain valuable insights from industry and government professionals about resume writing and effective interview skills. We have over 30 Student Poster/ACM Student Research Competition (SRC) presentations where undergraduate and graduate students will present their latest research results and methodologies, and 10 Doctoral Consortium presentations where PhD students will present their research to a panel of established researchers. Lastly, we are very excited to provide over 160 scholarships to students and academic faculty/postdocs.

We hope you take full advantage of all that the Tapia conference has to offer and please join us in celebrating our accomplishments in computing and the opportunity to come together again for the in-person Tapia 2022 conference!

Patti Ordóñez
General Chair

Khalil Griffin
Program Chair



Patricia Ordonez
*Tapia 2022
General Chair,
Associate
Professor,
Department
of Information
Systems,
University of
Baltimore County*



Khalil Griffin
*Tapia 2022 Program
Chair, Software
Engineer, Google*

FEATURED SPEAKERS

FIRESIDE CHAT PLENARY PANELISTS



Tiffany Polk
JP Morgan Chase



Victor Scott
Google



Jamika Burge
Panel Moderator
Head of Enterprise Design Research &
Insights Strategy, Capital One

PLENARY KEYNOTE SPEAKERS



Dr. Stacy Branham
Assistant Professor
of Informatics,
University of
California, Irvine



Dr. Josiah Hester
Breed Chair of Design,
Segal Faculty Fellow,
Assistant Professor of
Computer Engineering,
Northwestern University

PLENARY KEYNOTE SPEAKERS KEN KENNEDY DISTINGUISHED LECTURER



Dr. Ayanna Howard
Dean of Engineering,
The Ohio State
University and Monte
Ahuja Endowed
Dean's Chair

BANQUET KEYNOTE SPEAKER



Dr. Juan Sequeda
Principal Scientist,
data.world

MEET DR. RICHARD TAPIA

DR. RICHARD A. 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.

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. Tapia has received the National Science Foundation's inaugural Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring; the Lifetime Mentor Award from the American Association for the Advancement of Science; the Distinguished Service to the Profession Award from the Society for Industrial and Applied Mathematics; the Distinguished Public Service Award from the American Mathematical Society; the Distinguished Scientist Award from the Society for the Advancement of Chicanos and Native Americans in Science; and honorary doctorates from Carnegie Mellon University, Colorado School of Mines, Claremont Graduate University, the University of Nevada-Reno, the University of Rhode Island-Kingston, and Harvey Mudd College.

Tapia 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 elected to the Board of Directors for TAMEST, which is composed of the Texas members of the National Academy of Engineering, National Academy of Sciences, and the Institute of Medicine. Tapia was honored with the 2016 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. 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. Professor Tapia is recognized as a national leader in diversity and has delivered numerous invited addresses at national and international mathematics conferences, served on university diversity committees, and provided leadership at a national level. Two professional conferences have been named in his 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.

2022 RICHARD 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 2022 Richard A. Tapia Award winner is **Dr. Juan Meza**. Professor Juan Meza, with the Department of Applied Mathematics, has recently returned to his full-time academic position at UC Merced after serving as director for the Division of Mathematical Sciences with the National Science Foundation since 2018. He also served as dean of the School of Natural Sciences at UC Merced from 2011 to 2017. Dr. Meza earned his Ph.D. in Computational & Applied Mathematics in 1986; his M.S. in Electrical Engineering/Computer Science in 1979; and his B.S. in Electrical Engineering/Computer Science in 1978, all at Rice University. Dr. Meza studies nonlinear optimization with an emphasis on methods for parallel computing. He looks at the foundational math underlying real-world science problems to understand and predict how things behave. His work focuses on applied mathematics and computational research, with an emphasis on methods for parallel computing. He has also worked on a variety of scientific and engineering applications, such as scalable methods for nanoscience, power grid reliability, molecular conformation problems, optimal design of chemical vapor deposition furnaces and semiconductor device modeling. Before joining UC Merced, Dr. Meza was department head and senior scientist of high-performance computing research at Lawrence Berkeley National Laboratory, where he helped grow research funding levels and established collaborations with the lab's Earth sciences, environmental energy technologies, physics and genomics divisions. He was a senior technical advisor at the Department of Energy's National Nuclear Security Agency. In addition, he



was a distinguished member of the technical staff at Sandia National Laboratories, while also serving as a detailee at Department of Energy headquarters in Washington, D.C., as part of the Advanced Strategic Computing Initiative program. In his academic life, he also served as an adjunct professor at San Diego State University and a lecturer and research associate at Rice University. Dr. Meza has served on numerous federal advisory committees, including the NSF Mathematical and Physical Sciences Advisory Committee, the NSF Advanced

Cyberinfrastructure Advisory Committee and the National Academies' Board on Mathematical Sciences and their Applications. He is a Fellow of the American Mathematical Society and was elected to the American Association for the Advancement of Science's Committee on Council Affairs. Dr. Meza was named one of Hispanic Business magazine's 'Top 100 Influentials of 2009' and one of the "Top 200 Most Influential Hispanics in Technology" by Hispanic Engineer and Information Technology magazine in 2011. He won the Rice University Outstanding Engineering Alumni Award in 2013; was named an Association for Computing Machinery Distinguished Speaker in 2011; participated in the IEEE Computer Society Distinguished Visitor Program in 2010; won the Association for Computing Machinery's Gordon Bell Prize — a special award for algorithm innovation — in 2008; was named the Society for the Advancement of Chicanos and Native Americans in Science Distinguished Scientist in 2008; and won the Blackwell-Tapia Prize the same year.

WEDNESDAY

SEPTEMBER 7, 2022

7:00 AM - 9:30 PM

Tapia Conference Check-In

Location: Hotel Mezzanine

11:00 AM - 5:00 PM

Leadership and Network Workshop

By Invitation Only

Location: Hotel M2 - Salons 12-13

12:00 - 5:00 PM

Doctoral Consortium

By Invitation Only

Location: Hotel M1 - Univ of DC

1:00 PM - 4:45 PM

Sponsored by the National Science Foundation

DOE National Labs

Open Invitation

Location: ConvCtr 145 & 147 AB

1:00 PM - 4:00 PM

Student Professional Development Workshop

By Invitation Only

Location: ConvCtr 146 ABC

3:00 PM - 5:00 PM

Why Graduate School/GEM Fellowship Workshop

Open Invitation

Location: ConvCtr 140 AB

5:15 PM - 5:45 PM

Newcomers & Scholarship Recipient Orientation

Location: ConvCtr 146 ABC

6:00 PM - 7:30 PM

Welcome & Executive Fireside Chat

Location: Hotel M2 - Salons 1-10

7:30 PM - 9:30 PM

Career Fair

Location: ConvCtr Exhibit Hall A

WED

THURSDAY

SEPTEMBER 8, 2022

7:00 AM - 7:00 PM**Tapia Conference Check-In**
Location: Hotel Mezzanine**8:00 AM - 9:00 AM****LEAP Alliance Breakfast**
By Invitation Only
Location: ConvCtr 143 ABC**9:00 AM - 9:30 AM****Welcome & Announcements**
Location: Hotel M2 - Salons 1-10**9:30 AM - 11:00 AM****Plenary Keynotes**
Location: Hotel M2 - Salons 1-10**11:00 AM - 6:00 PM****Career Fair**
Location: ConvCtr Exhibit Hall A**11:15 AM - 12:15 PM****Private Student Poster Presenters Luncheon**
By Invitation Only
Location: Hotel M1 - Georgetown Univ**11:15 AM - 12:15 PM****Tech Talk**
Dropbox - From 0 to 1: Building and Shipping New Product Experiences
Location: ConvCtr 147 B**Tech Talk**
JPMorgan Chase: The Intersection of User Experience and Employees with Disabilities
Location: ConvCtr 140 AB**Lightning Talks**
*Location: ConvCtr 145 A***Creating Inclusion and Belonging in Computing through a Multidimensional Lens of Equity****An Analysis of How Race Effects the Next Generation of Computer Scientists****Humanitarian Open Source Software in Education to Broaden Participation in Computing****Integrating conference attendance into a diversity-focused course for CS students****Government Technology Priorities & Innovations: Digital Ecosystems**
Location: ConvCtr 146 B**Hispanics in Computing**
Location: ConvCtr 144 AB**How to Get the Real Scoop on Company Culture Before Working There**
Location: ConvCtr 146 A**Improving Equity Through Novel Assessments and Grading Policies**
Location: ConvCtr 145 B**11:15 AM - 12:30 PM****Challenges and Opportunities for Superconductive Computing**
Location: ConvCtr 146 C**Effective Programs for Increasing Diversity in Computing**
Location: ConvCtr 143 ABC**Next-Generation Secure Computer Systems: Post-Quantum Cryptosystems**
Location: ConvCtr 147 A**12:15 PM - 1:30 PM****BPC Networking**
By Invitation Only
Location: Hotel M2 - Salons 12-13**General Lunch & Networking**
Location: ConvCtr Exhibit Hall A**12:15 PM - 1:45 PM****Tapia Student Poster & ACM Student Research Competition Round 1**
Location: ConvCtr Concourse By 145**1:45 PM - 2:45 PM****Tech Talk**
Harvard-Department of Biomedical Informatics: Artificial Intelligence for Automated and Augmented Cancer Pathology Evaluation
Location: ConvCtr 144 C**Tech Talk**
U.S. Digital Corps: How Recent Graduates are Creating Impact Through Technology in Government
Location: ConvCtr 146 C**An improved vision and model for CS teacher professional development**
Location: ConvCtr 145 A**Development of Asynchronous Cryptographic Systems**
Location: ConvCtr 145 B**Increasing Diversity in PhD Programs in Computing: Lessons Learned from the LEAP Alliance**
Location: ConvCtr 143 ABC**Innovative practices in the teaching/learning in cybersecurity education**
Location: ConvCtr 147 B**Making the Move from Grad Student to Professor**
Location: ConvCtr 144 AB

The Future of Intelligent Systems - How do we get from here to there?

Location: ConvCtr 140 AB

The Souls Behind the Silicon of the IBM Telum Processor Cache

Location: ConvCtr 147 A

Unconscious Bias in ML Models

Location: ConvCtr 146 B

Who's In and Who's Out: The Complexities of the Latinx Community

Location: ConvCtr 146 A

3:00 PM - 4:00 PM**A Friendly Intro to GPU Programming**

Location: ConvCtr 147 A

Beyond Broadening Participation: Strategies To Enhance the Retention, Persistence, And Wellbeing Of Underrepresented Minorities In Computing

Location: ConvCtr 147 B

Black women's voices, leadership, and vision for K16 computer science education

Location: ConvCtr 144 C

Blockchain and Privacy-preserving Data Access for Wearables and Health Data

Location: ConvCtr 145 A

Disability Disclosure in Education and Employment

Location: ConvCtr 146 C

High School to iSchool: FearLess Tech More

Location: ConvCtr 145 B

Keeping Humans in the Loop Towards Responsible ML

Location: ConvCtr 143 ABC

Navigating Your Advisor-Advisee Relationship

Location: ConvCtr 144 AB

The Value of Service in Advancing Careers: Exploring the Benefits and Types of Service

Location: ConvCtr 146 A

4:00 PM - 4:30 PM**Afternoon Break**

Location: ConvCtr Exhibit Hall A

4:30 PM - 5:30 PM**Tech Talk****MIT Lincoln Laboratory: Airborne Collision Avoidance System (ACAS X)**

Location: ConvCtr 140 AB

Becoming a Latina Computing Professional: Barriers and Accomplishments

Location: ConvCtr 149 AB

Building Resilience: Overcoming Failure and Setbacks

Location: ConvCtr 147 B

Conflating Privilege With Potential

Location: ConvCtr 147 B

Diverse Experiences Transitioning from Software Engineering to Program/Product Management

Location: ConvCtr 143 ABC

Keeping Accessibility in Mind

Location: ConvCtr 145 B

Machine Learning for Climate Change: Counting Transportation Emissions

Location: ConvCtr 144 C

Taking on the Technical Interview

Location: ConvCtr 144 AB

High Performance Computing Crash Course

Location: ConvCtr 147 A

How to Engage in AI Research as an Undergraduate

Location: ConvCtr 146 A

Practical Science-driven Edge Computing

Location: ConvCtr 146 C

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

Location: ConvCtr 146 B

5:30 PM - 7:30 PM**Access Computing Community Reception**

Location: Hotel M1 - Univ of DC & Catholic Univ

Capital One Community Reception

Location: Hotel M1 - Georgetown Univ

Lawrence Livermore National Laboratory Community Reception

Location: Hotel Dignitary (Lobby)

6:00 PM - 7:00 PM**CMD-IT Private Supporter Reception***By Invitation Only*

Location: Hotel Mezzanine

6:30 PM - 7:30 PM**LEAP Focus Groups***By Invitation Only*

Location: Hotel M2 - Salon 12 - 14



FRIDAY

SEPTEMBER 9, 2022

7:30 AM - 6:30 PM

Tapia Conference Check-In
Location: Hotel Mezzanine

9:00 AM - 9:30 AM

Welcome & Announcements
Location: Hotel M2 - Salons 1-10

9:30 AM - 10:30 AM

Featured Speaker - Plenary
Ken Kennedy Distinguished Lecture - Ayanna Howard
Location: Hotel M2 - Salons 1-10

10:45 AM - 11:45 AM

Lightning Talks
Location: ConvCtr 144 C

Apache Spark Core Concepts: Introduction to Distributed Data Processing

Security in Vehicular Networks: Challenges and Countermeasures

Artificial Intelligence - What it is, why it matters, and how you can play a role
Location: ConvCtr 146 B

Dispelling Myths About Leadership and Management
Location: ConvCtr 144 AB

Effective Communication to Enable Growth and Agility in the Workplace
Location: ConvCtr 147 A

Innovation & Society
Location: ConvCtr 149 AB

Levering for Latinas diversity in higher cybersecurity education
Location: ConvCtr 146 C

Strategic Change Efforts through DEI Committee Work
Location: ConvCtr 147 B

Women in Tech: It's Our Table
Location: ConvCtr 145 A

10:45 AM - 12:00 PM

Do You Want an Internship? Here's How: A Crash Course on How to Get an Internship in Tech
Location: ConvCtr 146 A

Faculty Workshop Funding Opportunities
Location: Hotel M2 - Salons 1-10

Supercomputing Systems 101
Location: ConvCtr 145 B

10:45 AM - 12:15 PM

ACM Student Research Competition (SRC) Round II (Graduate Students)
Location: ConvCtr 141

ACM Student Research Competition (SRC) Round II (Undergraduate Students)
Location: ConvCtr 142

10:45 AM - 5:00 PM

Graduate School Application Review Clinic
Location: ConvCtr Exhibit Hall A

Supporter Onsite Interviews
Location: ConvCtr Exhibit Hall A

12:00 PM - 1:15 PM

Faculty Networking Lunch
Location: Hotel M2 - Salons 1-10

General Lunch and Networking
Location: ConvCtr Exhibit Hall A

1:30 PM - 2:30 PM

Tech Talk
Atlassian: Working with big data at scale for enterprise use cases
Location: ConvCtr 147 A

Building a LatinX Community in Academia
Location: ConvCtr 146 B

Computing Equity Project: Justice And Equity For Marginalized Students
Location: ConvCtr 147 B

Digital Twin and Machine Learning: Securing the Smart Healthcare Ecosystem
Location: ConvCtr 145 A

Forming Government Collaborations to Enhance Your Career
Location: ConvCtr 146 A

How To Navigate The Early Days At Your First Tech Job
Location: ConvCtr 145 B

Leveraging Neurobiological Insights to Build "Smarter" Artificial Neural Networks
Location: ConvCtr 144 AB

Love Teaching? Consider a Teaching-Track Career!
Location: ConvCtr 149 AB

Supporting Neurodivergent Students in Classrooms and into the Workplace

Location: ConvCtr 140 AB

The State of Tech Diversity: The Black Tech Ecosystem

Location: ConvCtr 146 C

What I Wish Someone Told Me? - Finding Your Footing in an Organization

Location: ConvCtr 143 ABC

2:45 PM - 3:45 PM**Tech Talk****Capital One: Where do I fit? How Confidence is Important in Building Software**

Location: ConvCtr 146 B

Tech Talk**Northeastern University: Making Software that Makes a Difference: How to make equitable products**

Location: ConvCtr 144 AB

"Post"-pandemic Job Negotiation

Location: ConvCtr 147 A

A Digital Advisor for Guiding Autistic Software Engineers in Solving Problems

Location: ConvCtr 147 B

Moving Towards a Causal Agenda: Recruiting, Retaining, Completing, and Employing Black Men in STEM

Location: ConvCtr 145 A

Overcoming the Data Science Literacy Challenge- An Organization's Key to Being Data-Informed

Location: ConvCtr 145 B

Superheroes Without a Suit: Developer Advocates - Peek into a Fulfilling Career Choice

Location: ConvCtr 144 C

The Role that Hispanic Serving Institutions Play in Broadening Participation in Computing

Location: ConvCtr 146 A

The Use of Fuzzy Logic and Decision Tree Algorithms as Classifiers

Location: ConvCtr 146 C

3:45 PM - 4:15 PM**Afternoon Break**

Location: ConvCtr Exhibit Hall A

4:15 PM - 5:15 PM**Tech Talk****AMIA: Leveraging Technology to Advance Health Equity**

Location: ConvCtr 146 C

Connecting the distributed dots: 101 guide to demystify distributed computing & systems

Location: ConvCtr 145 A

Diversity Includes Disability

Location: ConvCtr 146 A

Intersectionality: Measuring and Visualizing Diversity

Location: ConvCtr 146 B

Where Are the Black/African-American Faculty: An Analysis of Black/African-American Faculty in CS Research Departments

Location: ConvCtr 143 ABC

4:15 PM - 5:30 PM**Culturally Responsive Pedagogy in Computer Science (CR in CS)-Overview of a Microcredential**

Location: ConvCtr 147 A

Hiding Data in Sound Files

Location: ConvCtr 144 C

Your Voice..Your Power

Location: ConvCtr 144 AB

6:00 PM - 9:00 PM**Tapia Conference Awards Banquet**

Location: Hotel M2 - Salons 1-10

9:00 PM - 11:00 PM**Dance Party**

Location: Hotel M4 - Independence Ballroom

FRI

SATURDAY

SEPTEMBER 10, 2022

POST CONFERENCE ACTIVITIES

8:00 AM - 4:30 PM

STARS Celebration

By Invitation Only

Location: Hotel M1 - Univ of DC & Georgetown Univ

9:00 AM - 11:00 AM

LEAP Alliance Breakfast & Focus Groups

By Invitation Only

Location: Hotel M2 - Salon 12 - 14

SAT

WEDNESDAY | PROGRAM SCHEDULE

SEPTEMBER 7, 2022

11:00 AM - 5:00 PM

Leadership and Network Workshop

By Invitation Only

Location: Hotel M2 - Salons 12-13

Industry professionals from the CMD-IT community are looking for ways to advance in their roles at their current companies. We want attendees to learn leadership skills and be prepared to apply these skills immediately at work as well as advance in their careers. This may be just one level for those entering in the leadership role or trying to advance.

The Leadership Workshop hopes to provide attendees with the ability to: Build/increase confidence in their current roles; Learn and discover key leadership skills; Understand how to lead wherever you are in the organization; Approach issues and challenges with an inclusive lens; Enhance the culture of your team; Lead with strategic vision while acknowledging risk.

The Leadership and Network Workshop is focused on five key areas

- (1) The power of networks to drive innovation;
- (2) The importance of a growth mindset for your personal and professional development;
- (3) The need to define and follow a plan to guide your career;
- (4) The steps you can take to strengthen your current work relationships and grow those outside of your current network; and
- (5) A call to action — what to do next

12:00 - 5:00 PM

Doctoral Consortium

By Invitation Only

Location: Hotel M1 - Univ of DC

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.

2022 Doctoral Consortium Research Topics

Dynamic Path planning with Uncertainty

Presenter: Aakriti Upadhyay, University at Albany, SUNY

Navigating the Limits of AI Explainability: Designing for Novice Technology Users in Low-Resource Settings

Presenter: Chinasa T. Okolo, Cornell University

Building and Evaluating a Chatbot to Support Learning Python Programming

Presenter: FNU Kaleemunnisa, Pace University

Measuring Human Perception to Improve Open Set Recognition

Presenter: Jin Huang, University of Notre Dame

Forgetful Compositional Isogeny Schemes

Presenter: Krystal Maughan, University of Vermont

Can You Swim: Supportive Technology for Water Safety Activities and Education

Presenter: Larry Powell, Texas A&M University

Data-Driven Scalable AI Techniques for Addressing Problems in the Study of Smart Grids

Presenter: Swapna Thorve, University of Virginia

An Approach Towards Dataplane and Controller Centric Packet Filtering For Resilient Networks

Presenter: Trevon Williams, University of North Carolina at Charlotte

Security Patch Analysis in Open Source Software

Presenter: Xinda Wang, George Mason University

WEDNESDAY | PROGRAM SCHEDULE

1:00 PM - 4:45 PM

DOE National Labs

Open Invitation

Location: ConvCtr 145 & 147 AB

Sponsored by the Department of Energy and DOE National Laboratories

Learn how DOE National Labs use data science to advance applications in power grid cybersecurity, image processing and cancer related research and take part in a High Performance Computing hands-on experience and more.

Challenges and Myths in Recruiting/Obtaining Employment at DOE National Laboratories

What is a National Laboratory? Do National Laboratories offer internships? What is scientific computing? How can I learn more about supercomputing? This Student Opportunity Lab is an interactive discussion and information session for undergraduate and graduate students who are actively exploring and educating themselves about diverse career path options and looking for gems of opportunity in terms of internships (summer or other types), funding programs, and research or postdoc program opportunities. Presenters will discuss the importance of the student internship (and of including a broad set of internship experiences, if possible) in shaping a career path. The presenters will answer the "What is a National Laboratory? (and other) questions and discuss how a National Laboratory experience can provide unique exposure, training, perspective, and skill development to help shape career path and direction with perhaps unexpected and amazing results.

Cyber Sleuths: Making Sense Out of Chaos Fusing Cyber Data and Intelligence Information

This interactive workshop will provide participants the opportunity to experience a snippet of what it is like to be a cyber security analyst tasked with identifying threats and providing actionable situational awareness to enhance protection against and respond to cybersecurity threats. The process elements of the cyber analysis life cycle are critical to maintaining state-of-the-art tools, capabilities, workflows, and processes. These elements include data generation technologies, analytic tools development, data enrichment, research and information fusion, production of actionable, timely, and accurate cyber information, feedback mechanisms for further innovation, and intelligence reporting.

High Performance Computing Part 1 - A General Overview (Hands On)

High Performance Computing (HPC) is a great tool for science, data analytics and applications. HPC aims to push the limits of what we can do with computers, tackling some of the most challenging aspects of computation. Due to the size of these machines, to understand High Performance Computing it is necessary to have a general understanding of computer architectures, programming languages, compiler technology, storage systems, networks and tools. In this session we want to give you a quick dive into the world of HPC through a set of hands-on sessions that will touch on different aspects of this field.

High Performance Computing Part 2 - A General Overview (Hands-On)

High Performance Computing (HPC) is a great tool for science, data analytics and applications. HPC aims to push the limits of what we can do with computers, tackling some of the most challenging aspects of computation. Due to the size of these machines, to understand High Performance Computing it is necessary to have a general understanding of computer architectures, programming languages, compiler technology, storage systems, networks and tools. In this session we want to give you a quick dive into the world of HPC through a set of hands-on sessions that will touch on different aspects of this field.

Current Applications of Data Science from our National Laboratories

Department of Energy National Laboratories cover a variety of important research areas and data science plays a key role in advancing those research areas. In this session, we will give a broad overview of some of the data science applications and capabilities that are ongoing at three different national labs: Lawrence Livermore, Pacific Northwest, and Oak Ridge. Our speakers will also deep dive into their respective areas at each national lab including data science applications on power grid cybersecurity, image processing, and cancer related research.

Using Containers at National Laboratories for Scientific Computing

DevOps is the combination of software development (Dev) and operations (Ops) to increase efficiency and speed of delivery. The DevOps practices, among others, includes continuous integration to find and address code issues

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quicker, continuous delivery to automatically release software, infrastructure as code to automate system configuration. Containers have become a critical component of DevOps as they package up the code, dependencies, tools, and configuration making them portable across environments. This session gathers developers from the Department of Energy Laboratories to discuss their experience and current applications of containers. Discussion topics include an overview of containers, orchestrating scientific workflows, and lessons learned from containers in HPC.

Introduction to Quantum Computing

This will be an introduction to quantum computing discussion with a focus on gate-based quantum algorithms. We will cover topics (at a high level) such as what is a qubit, what are quantum gates, and how to read quantum circuit diagrams. We will end with a discussion of common quantum algorithms, with a deep dive into one popular hybrid quantum-classical algorithm, the variational quantum eigensolver.

The ACCESS Program: Research Computing Resources for All

ACCESS (Advanced Cyberinfrastructure Coordination Ecosystem Services and Support) is a new National Science Foundation (NSF) program which, starting September 1st, is managing a range of services that support a national federation of NSF supercomputers and related resources. This presentation will outline new and innovative changes to the allocations and resource management process putting diversity, equity, and inclusion center stage around a continuous improvement paradigm. The program vision states "the NSF-funded national Cyber Infrastructure must be accessible and equitable for all researchers no matter the size of the institution, the scale of the planned work, the discipline of the research, or the demographics of the requestor." ACCESS Resource Allocations Management and Platform Services (RAMPS) aims to achieve these equity goals by implementing new programs and through community engagement. This includes introducing a new tiered system that opens opportunities for students to lead allocations as principal investigators, new innovative pilots that expand accessibility, intentional collaboration with minority serving institutions (HBCU, TCU, HSIs), tapping the diversity of our community to serve as reviewers, and by actively responding to community feedback through a continuous improvement program. Faculty, staff, and students interested in learning

how the ACCESS program is utilizing diversity, equity, and inclusion along with continuous improvement strategies to democratize the allocation process are encouraged to attend.

MarFS & Compiler Co-design

MarFS Multi-Component: Scalable Long-Term Storage on Commodity Disk As the bandwidth and capacity requirements of HPC long-term storage outpace the capabilities of affordable tape solutions, many now look to disk media as a more economically viable approach. These trends have led to the creation of MarFS, an open source file system which provides a near-POSIX interface and data/metadata separation atop varied underlying storage implementations, whether object-based or otherwise. This presentation will focus on the specifics of the MarFS Multi-Component implementation as well as lessons learned from its initial deployment in a production setting. Performance Optimization Approaches inside a Compiler In the exascale era, the new architectures must be capable of running the massive computational problems efficiently. Scientists and researchers are continuously investing in tuning the performance of extreme-scale computational problems. The architectures are constantly evolving making the current performance optimizing strategies less applicable and new strategies need to be invented. The solution is for the new architectures, new programming models, and applications to go forward together. The goal is to come up with performance portable solutions. Parallelism by itself does not exploit all available architecture resources. The major performance limiting architecture components are bandwidth and memory capacities. Data movement accounts for orders of magnitude more cycles compared to arithmetic operations. This talk will focus on the current efforts in the programming models and compilers research at LANL.

1:00 PM - 5:00 PM

Student Professional Development Workshop

By Invitation Only

Location: ConvCtr 146 ABC

The CMD-IT Student Professional Develop 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.

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3:00 PM - 5:00 PM

Why Graduate School/GEM Fellowship Workshop

Open Invitation

Location: ConvCtr 140 AB

5:15 PM - 5:45 PM

Newcomers & Scholarship Recipient Orientation

Location: ConvCtr 146 ABC

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 & Executive Fireside Chat

Location: Hotel M2 - Salons 1-10

Technology Innovations in Response to the Pandemic

It is recognized that technology innovations are key factors contributing to the resilience of many organizations and individuals alike as they manage challenges presented by the pandemic. Such innovations include collaborative technologies that facilitate productivity via remote/hybrid work environments or simulations and advanced compute and data facilities that address some of the scientific challenges faced by the community (e.g., epidemiology models). The Fireside Chat will be an engaging discussion from the perspectives of industry and government professionals on current and future technology innovations developed in response to the pandemic.

Moderator: Jamika Burge, Capital One

Speakers: Tiffany Polk, JP Morgan Chase & Victor Scotti, Google

BIOGRAPHIES

Tiffany Polk is a Managing Director within the Employee Experience and Corporate Technology (EECT). In her current role as Head of Technology (CTO) for Corporate Responsibility (CR) and Morgan Health, Tiffany oversees the engineering organization (architecture, development and management), including implementation of software and data solutions

to provide CR and Morgan Health with business agility and modernization. Additionally, she leads the Regulatory Compliance team within EECT, responsible for review and approval of global regulatory and security requirements to onboard applications/products to the Public Cloud. Previously, Ms. Polk held roles as Global Head of Employee Compute Product (Workspace, Mobile, Application Delivery and Retail Branch), Head of Retail Branch Technology, and Head of Strategic Execution - facilitating the firm's move to fewer, more strategic data centers. In former, she served as Global Head of Storage Product Portfolio, accountable for the firm's \$470M Storage infrastructure - primary and secondary - across Block, File, Object and Data Protection. Prior to joining JP Morgan, she was Director of Client Management at EMC where she focused on the Technology Services portfolio, solutions and client delivery. Preceding EMC, Ms. Polk was a Senior Manager and Global Head of Services Portfolio, Operations and Communications at Hewlett-Packard. Ms. Polk has more than 20 years of Technology experience including Services, Sales, Solution, Delivery, Design and Program Management. Ms. Polk is the lead for the US Black Community for Global Technology Diversity & Inclusion. She is a member of WITI (Women in Technology International), NSBE (National Society of Black Engineers) and Delta Sigma Theta, a public service sorority. Ms. Polk holds a BA from Dartmouth College and a MS in Technology Management from the University of Maryland. She has two children and enjoys working out in VR, listening to audiobooks, travel and gardening.

Victor Anthony Scotti, Jr. is a social innovator, philanthropist, and talent pipeline engineer. He has over a decade of global expertise in crafting community-specific strategies that integrate employee experience and belonging with business outcomes. Currently, Victor is a Head of DEI Strategy at Google, developing inclusive hiring strategies for two tranches of Google's business: Horizontals and Talent Engagement. He was previously at Netflix, where he led a \$7M investment in technical and career development to historically excluded students from Historically Black Colleges and Universities (HBCUs) and Hispanic-Serving Institutions (HSIs). In 2019, Victor founded Moving Mountains, LLC to deepen economic advancement and opportunity for Black

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men through asset-oriented cultural wealth development. Moving Mountain's philanthropic arm, the Scotti Scholarship Foundation has awarded ~\$40K in merit-based funding to deserving Black students in pursuit of higher education. In 2021, Victor endowed the Scotti Legacy Scholarship Fund at The University of Pennsylvania to support Black men in the College of Arts and Sciences with demonstrated financial need and is administered through Penn's Undergraduate Financial Aid Office. Born and raised on the South Side of Chicago, Illinois, Victor graduated from the University of Pennsylvania with a degree in Sociology, Urban Education, and Africana Studies and holds a certification in Diversity, Equity, and Inclusion from Loyola University Chicago's Baumhart Center for Social Enterprise & Responsibility. Victor is a proud Life Member of Alpha Phi Alpha Fraternity, Inc. and currently serves on the Board of Directors of the Raymond Pace Alexander Scholarship Foundation, Inc. through his chapter of initiation, Psi. Victor is an avid reader, writer, traveler, and Black children's book collector. He regularly moderates and speaks on panels and webinars, and his writing coalesces around workplace inclusion and the Black male experience. His work can be found in The Black in HR Magazine, Huffington Post, Jopwell's The Well, Abernathy, and Mused. He is most passionate about helping Black men and boys bolster their agency and self-efficacy in the workplace.

7:30 PM - 9:30 PM

Career Fair

Location: ConvCtr Exhibit Hall A

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

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SEPTEMBER 8, 2022

8:00 AM - 9:00 AM

LEAP Alliance Breakfast

By Invitation Only

Location: ConvCtr 143 ABC

9:00 AM - 9:30 AM

Welcome & Announcements

Location: Hotel M2 - Salons 1-10

9:30 AM - 11:00 AM

Plenary Keynotes

Location: Hotel M2 - Salons 1-10

Hello, World! I Have a Disability

Stacy Branham, University of California, Irvine

Digital accessibility for people with disabilities is at the heart of everything Dr. Stacy Branham does. As a researcher, she's building voice interfaces that help blind parents read with their children. As an educator, she's developing courses to teach the next generation of computing professionals to build accessible software. Through her service, she's providing free access to technology for hundreds of blind community members in Southern California. But, her path into computing and academia has not always been straightforward, and she nearly quit many times. In this talk, Dr. Branham will share her work and three tips for staying the course in computing and academia: (1) find and embrace your identity, (2) find your people, and (3) live your values through your work. Her story shows us that, especially when you feel "other," you may be right where you belong.

BIOGRAPHY

Stacy Branham is an Assistant Professor of Informatics at the University of California, Irvine. Her research investigates how technologies operate in social settings where one or more people have a disability, yielding actionable design guidance and proof of concept prototypes. In a recent partnership with Toyota, she worked with blind and low vision people to co-design a wearable voice assistant for navigating airports. In another partnership with Google, she co-designed accessible profile images of people with disabilities, which now ship on all Chromebooks, marking the first time that a person who is blind can choose a representative system profile image for

themselves. Branham is a Co-PI of AccessComputing, a national initiative to broaden participation in computing to include people with disabilities. In 2021, she received the NSF CAREER Award and was named one of the "Brilliant 10" rising STEM researchers by Popular Science. In 2022, she was recognized by a campus-wide teaching award as a Digital Accessibility Innovator, and her alma mater, Virginia Tech Computer Science, honored her with the Distinguished Early Career Alumni Award. <http://www.stacybranham.com>

A Batteryless Internet-of-Things: My Story of Handling Failure in Computing

Josiah Hester, Northwestern University

Ever since we first unplugged computers from walls, batteries have been the goto way to provide untethered functions for small computing devices like phones, smartwatches, and environmental sensors. While these devices have revolutionized many industries: healthcare, consumer devices, and manufacturing, only a select few benefit as these devices are not designed for sustainability and longevity, are not accessible, available, or usable outside of wealthy regions and communities, and are not adaptable for inclusive and community-driven applications. In this talk, I'll tell the story of my career journey to make these devices usable and accessible for everyone by removing their batteries instead of harvesting energy from the environment. Of course, this causes some headaches due to power failures and inconsistent energy. I'll talk about Native Hawaiian (Kanaka maoli) heritage, which informs this work, my journey, and my hopes for a sustainable future for computing. Along the way, I'll present some of my lab's latest work: including smart face masks, a system that enables novices to program energy harvesting sensors with Python or Block-based languages, environmental sensor networks, and the world's first battery-free Nintendo Game Boy.

BIOGRAPHY

I direct Ka Moamoa, a research lab exploring energy efficient computing in the context of global scale applications. We explore and develop new hardware designs, systems, interaction techniques, tools, and programming abstractions so that developers can easily design, debug, and deploy tiny energy harvesting computers that work despite frequent power failures, constrained resources, and unpredictable

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conditions. I work towards a sustainable future for computing informed by my Native Hawaiian (Kanaka maoli) heritage. I apply my work in the field of intermittent computing to large-scale sensing for sustainability and conservation, health wearables, and interactive devices. My work is supported by multiple grants from the NSF, NIH, DARPA, and 3M. I was named a Sloan Fellow in Computer Science and won my NSF CAREER in 2022. I was named to Popular Science's Brilliant 10, the AISES Most Promising Scientist, and won a 3M Non-Tenured Faculty Award in 2021. Press highlights: Popular Science, Scientific American, Washington Post, TechCrunch, Gizmodo, Bulletin of the Atomic Scientists, Independent, The Wall Street Journal, CNET, Communications of the ACM, BBC, Guinness Book of World Records, Seeker, ACM Tech News.

11:00 AM - 6:00 PM

Career Fair

Location: ConvCtr Exhibit Hall A

11:15 AM - 12:15 PM

Private Student Poster Presenters Luncheon

Invite Only

Location: Hotel M1 - Georgetown Univ

11:15 AM - 12:15 PM

Tech Talks

Dropbox - From 0 to 1: Building and Shipping New Product Experiences

Location: ConvCtr 147 B

Coming up with an idea for a new product or product experience can be difficult, building and shipping it can be even more so. Launching new product experiences has an array of technical and strategic challenges that require innovative engineering, social, and product solutions. Finding customer fit, choosing the correct technical stack, building high performing teams and setting the right goals are all critical steps along the journey. Join Ajahne Santa Anna, Area Lead and Engineering Manager at Dropbox, as he discusses the company's intentional focus on building and shipping product experiences that customers love. He'll unpack the challenges faced and lessons learned, the mindset shifts needed to successfully go from 0 to 1, and the strategies for shifting from idea to impact, output to outcomes, and development to delivery.

Speakers: Ajahne Santa Anna

JPMorgan Chase: The Intersection of User Experience and Employees with Disabilities

Location: ConvCtr 140 AB

JPMorgan Chase is committed to fostering an inclusive environment for top tech talent. Come hear from a blind Software Engineer and her manager about how JPMC is working towards accessibility of all internal products, the importance of self-advocacy as a minority in tech, and the intersection of WCAG and UX. Come learn about the thriving community programs at JPMorgan Chase, and how their input is vital to the firm.

Speakers: Ida Behreini; Jared Schwendeman

Lightning Talks

Creating Inclusion and Belonging in Computing through a Multidimensional Lens of Equity

Location: ConvCtr 145 A

In this presentation, I aim to highlight the need for equitable action and design in not only recruitment but also retention of diverse talent in tech, in both higher education and in the workplace. Admitting diverse students and professionals in tech is not enough, we also simultaneously need to make sure that once they are admitted/ hired they feel a sense of inclusion and belonging. Creating multidimensional equitable programs, initiatives, and inclusive curriculum that acknowledges and respects the diverse backgrounds and the unique challenges of underrepresented and historically marginalized students and talent are vital in combating low enrollment rates as well as high attrition rates of tech in higher education as well in the workplace.

Speakers: Ana Rusch

An Analysis of How Race Effects the Next Generation of Computer Scientists

Location: ConvCtr 145 A

In the computer science community the Black or African American demographic makes up only 1.0% of the total population. Worse, Census Bureau data shows a downtrend in black inclusion within the computing community over the past decade. If current rates continue the next generation of the computing community will be less diverse rather than more. This talk will examine the statistics behind the differing ethnic presences in computing community, wage gaps, trends, and examine a few ways in which we can expand accessibility for people of all backgrounds.

Speakers: Zachary Royal

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Humanitarian Open Source Software in Education to Broaden Participation in Computing

Location: ConvCtr 145 A

HFOSS, Humanitarian Free and Open Source Software, is open source software that is created to address some societal need such as healthcare, economic development, sustainability, or education. HFOSS education is a well-established form of computing for social good in education that introduces students to the positive potential of computing while also giving them experience with the scale and complexity of a large software project and an authentic computing environment. Research has shown that software projects with a humanitarian focus are attractive to a wide range of students in undergraduate computing programs and are even more highly preferred by students from underrepresented groups. Therefore, incorporating HFOSS into computing classrooms is a natural way to create a more diverse environment in computing classes. This presentation will provide a brief summary of HFOSS education efforts and the community of faculty pursuing this approach to improve software engineering education and broaden participation in computing.

Speakers: Gregory Hislop; Heidi Ellis

Integrating conference attendance into a diversity-focused course for CS students

Location: ConvCtr 145 A

For years, our department has been offering scholarships for students to attend major diversity conferences. Recently, we started offering pre-conference preparation, during-conference activities, and post-conference reflections to provide a deeper and a more comprehensive experience for the attendees. Last year, we started offering a diversity-focused course for students attending Tapia and GHC conferences, with the goal of incorporating their conference experiences into a CS course. This talk presents how we planned and implemented that course, lessons learned, and our plans for next versions of the course.

Speakers: Mohammed Seyam

Panels and Workshops

Government Technology Priorities & Innovations: Digital Ecosystems

Location: ConvCtr 146 B

Technology and innovation are key tenets in the Biden Administration. Come and hear about the priorities in

government and opportunities for innovation that will shape a future driven by ubiquitous computing.

Speakers: Kenneth Wright; Lauren Boas Hayes; Dominique Duval; Belinda Seto; Joel Branch

Hispanics in Computing

Location: ConvCtr 144 AB

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 (Facebook, LinkedIn, and now a website <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. The gathering will allow many of us to meet face to face and discuss issues facing Hispanics. These past few years have really demonstrated the importance of community to getting students through their programs, new professionals through their early career years, and more established professionals continue to make and achieve new goals. The goal for this year's gathering is to explore how to establish and maintain a supportive community.

Speakers: Manuel Perez Quiñones; Brianna Posadas

How to Get the Real Scoop on Company Culture Before Working There

Location: ConvCtr 146 A

Entering and moving around the tech industry is often all about connections. This is more difficult for anyone transitioning into tech from a non-traditional background, underrepresented groups, or early career folks who may not be as well connected. This can discourage people from applying to or accepting offers from companies that they don't know much about, or where they don't know anyone. Company culture is often a key component of making career decisions, but it's really hard to know what a company's culture is actually like without working there, and even more daunting not knowing anyone who works there. This presentation will share several resources to research a company's culture from multiple angles, from networking strategies and questions to ask during the interview process, to tools and resources that provide data about company trajectory, compensation, and employee sentiment.

Speakers: Judith Syau

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Improving Equity Through Novel Assessments and Grading Policies

Location: ConvCtr 145 B

In early 2022, the Computer Science Education community was abuzz with several connected movements: “growth mindset”, “proficiency (aka mastery) learning”, “grading for equity”, and “specifications grading”. They are all steps toward the Holy Grail: “A’s for All (as time and interest allow)”; the “A” line doesn’t move, but every student is given an opportunity to achieve proficiency and earn it, as long as they are willing to put in the time and effort it might take. The mantra shifts from “fixed time, variable learning” to “fixed learning, variable time”. The foundational tenet is that all students can succeed in our institutions, but policies and structures have to be put in place for that to happen. Studies have shown that early success in introductory courses can have significant effects on belonging, and ramifications for career choices. We’ll discuss many things that instructors can do to support students who have the intellectual capacity to learn the material, but just might need more time, possibly because their high school classes did not provide adequate preparation. One easy starting point is a switch from zero-sum curved grading to absolute grading. Scores on later cumulative exams can replace poor scores on an earlier exam. Projects can be configured to be autograded (with no hidden test cases), allowing their deadlines to soften, with no limit to the opportunities to achieve a perfect score. Exams can be authored in a system that allows for random question generation, allowing multiple chances to achieve proficiency.

Speakers: Dan Garcia; Fatima Alleyne; Armando Fox; Neal Terrell; Solomon Russell; Edwin Ambrosio

11:15 AM - 12:30 PM

Challenges and Opportunities for Superconductive Computing

Location: ConvCtr 146 C

The success of CMOS technology has overshadowed nearly all other solid-state device innovations over many decades. With fundamental CMOS scaling limits close in sight due to Moore’s Law, the time is ripe to explore disruptive and newly emerging computing technologies. A compelling post-CMOS computing technology, superconductor electronics can deliver ultra-high performance and energy efficiency at scale, thereby paving the way for seminal innovations in sustainable exascale computing and acceleration of machine learning. This workshop will cover the challenges and opportunities associated with the first-time design of a superconductive system of cryogenic computing cores (SuperSoCC) which is

part of the DISCoVER project, funded by an NSF Expeditions in Computing award. To succeed in delivering SuperSoCC, a spate of challenges related to physical scaling, chip-level integration, compact modeling and tool design, on-chip memory design, architecture design, system software, and cross-layer system integration must be addressed. These challenges create many excellent opportunities to do impactful and original work on emerging superconductive electronic circuit and system design. In addition, this workshop will present initiatives and opportunities for broadening participation in the DISCoVER Expedition.

Speakers: Timothy Pinkston, Massoud Pedram

Effective Programs for Increasing Diversity in Computing

Location: ConvCtr 143 ABC

This workshop provides an opportunity for representatives from the NSF-funded Broadening Participation in Computing Alliances and other organizations to share their effective programs about increasing diversity in computing. The workshop will begin with representatives sharing one effective program from each of the following NSF BPC Alliances and other organizations: AccessComputing, CAHSI, CMD-IT, CRA-W, ECEP, iAAMCS, NCWIT, and STARS. The attendees will have an opportunity to break up into eight groups, with each group having an opportunity to learn the details about the effective program such that information can be taken back to the institution for implementation or partnerships can be found. During the workshop, the participants will have an opportunity to learn about two effective programs.

Speakers: Dilma Da Silva; Wendy Dubow; Carol Fletcher; Ann Gates; Kinnis Gosha; Richard Ladner; Jamie Payton; Valerie Taylor

Next-Generation Secure Computer Systems: Post-Quantum Cryptosystems

Location: ConvCtr 147 A

The recent trend in the field of quantum computers has confirmed that it is only 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 machines. While this development presents many compute opportunities, it also deepens our current cybersecurity crisis

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by making many 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 re-examined and strengthened since these computational problems form the core of their security. First, we will present a brief history and evolution of quantum computing and computers. Next, 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 consists 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 several 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.

Speakers: Michel Kinsy

12:15 PM - 1:30 PM

BPC Networking

By Invitation Only

Location: Hotel M2 - Salons 12-13

12:15 PM - 1:30 PM

General Lunch & Networking

Location: ConvCtr Exhibit Hall A

12:15 PM - 1:45 PM

Tapia Student Poster & ACM Student Research Competition Round 1

Location: ConvCtr Concourse By 145

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 2022 is again hosting an ACM Student Research Competition (SRC).

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 2022.

POSTERS

GRADUATE STUDENT POSTERS

1. Classification Using Deep Transfer Learning on Structured Healthcare Data.

Presenter: Ayda Farhadi (University of Georgia)

2. Pedestrian Motion Pattern Prediction from Traversability Maps.

Presenter: Felipe Arias (University of Illinois at Urbana - Champaign)

3. A Reconfigurable Smart Chair Recognition System for Ambient Assisted Living.

Presenter: Mustafa Hannoun (University of Texas at Tyler)

4. Detecting Coily Textured Hair.

Presenter: Mya Bolds (Xavier University of Louisiana)

5. Optimization Guarantee for DeepONets.

Presenter: Nathanael Assefa (University of Illinois at Urbana - Champaign)

6. Cryptocurrencies Price Prediction.

Presenter: Raphaël Quilleré (San Diego State University, Audencia Business School)

7. ABC-based Optimal Hyper-parameter Tuning for Electric Load Forecasting.

Presenter: Yasaman Saadati (Florida International University)

8. Natural Language Processing of Specifications for a Prototypical Avionic System to Generate System Design: A Case Study.

Presenter: Candice Chambers (Florida Institute of Technology)

UNDERGRADUATE STUDENT POSTERS

1. Modeling And Preventing Virus Spread Using Agent-Based Modeling And Computer Simulations.

Presenter: Aashni Manroa (William & Mary)

2. Spatiotemporal Analysis and Modeling of Environmental Intervention Strategies for the Control of Periodic Lassa Fever Outbreaks.

Presenter: Ali Hussain (Department of Computer Science California State University, Fullerton)

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3. Using Virtual Reality to Teach the Fundamentals of Primitive Data Types, Variables, and Logic Statements in Python.

Presenter: Connor Murdock (Georgia Gwinnett College)

4. TapIn: An Outreach Activity To Create A Digital Business Card.

Presenter: Cameron Ventimiglia (Georgia Gwinnett College)

5. Comparison Study Between Two Commercial Solutions for IAV Genome Sequencing.

Presenter: Tessa Byrum (University of Maryland, Baltimore County)

6. Towards Improving Chatbots For Multilingual Conversations.

Presenter: Kenthia Roberts (Howard University)

7. An IoT-based negative emotion monitoring framework.

Presenter: Parker Wilmoth (University of Texas at Tyler)

8. Quasi-Critical Points of Toroidal Belyi Maps.

Presenter: Tesfa Asmara (Pomona College)

9. Learn Programming With Music: An Outreach Approach.

Presenter: YongJin Lee (Georgia Gwinnett College)

GRADUATE ACM SRC COMPETITION POSTERS

1. Detection, Identification, and Resolution of Knowledge Gaps in Autonomous Agents.

Presenter: Goonmeet Bajaj (The Ohio State University)

2. Multi-modality Medical Image Translation Using Att-Unet.

Presenter: Hajar Emami Gohari (Wayne State University)

3. Malware Detection In Encrypted Network Traffic Without Decryption.

Presenter: Kehinde Ayano (Purdue University)

4. An Evolutionary Optimization Algorithm for Automated Machine Learning.

Presenter: Leila Zahedi (Florida International University)

5. A Game-Theoretically Optimal Defense Paradigm against Traffic Analysis Attacks using Multi-path Routing and Deception.

Presenter: Masoumeh Abolfathi (University of Colorado at Denver)

6. A Comparison of Physical and Digital Design for Computer Science Education.

Presenter: Michael Johnson (Georgia Institute of Technology)

7. Evading Video Closed Captioning: Untargeted Adversarial Attacks.

Presenter: Ritika Dhiman (Carnegie Mellon University)

8. A Pilot Study to Analyze the Effectiveness of Game-based Learning for Graph Theory Education.

Presenter: Shayla Sharmin (University of Delaware)

9. De Novo Peptide Sequencing Using Deep Learning with Positional Encoder for Data-Independent-Acquisition Mass Spectrometry.

Presenter: Shiva Ebrahimi (University of North Texas)

10. CATTbot: A Conversational Agent for Detecting Online Grooming Patterns.

Presenter: Sweta Kesur (Purdue University)

UNDERGRADUATE ACM SRC COMPETITION POSTERS

1. Using Supervised Machine Learning Methods to Create a Gene-Based ALS Predictor from Postmortem Transcriptomics Data.

Presenter: Christopher Bain (University of Maryland, Baltimore County)

2. Exploring How Young Women Define "Success" in STEM Compared to Young Men.

Presenter: Genevieve Sampson (University of Maryland, College Park)

3. Co-Designing Health Informatics Technology with Childhood Cancer Survivors and Community.

Presenter: Letsy Cahue-Flores (University of California, Irvine)

1:45 PM - 2:45 PM

Tech Talks

U.S. Digital Corps: How Recent Graduates are Creating Impact Through Technology in Government

Location: ConvCtr 146 C

A series of five lightning tech talks from U.S. Digital Corps Fellows applying modern practices in engineering, design, product management, data science, and cybersecurity to better serve the public. The U.S. Digital Corps is a new program launched in 2021 by the Biden administration to bring early-career technologists to create a more effective, equitable government. Fellows work for two years on high-impact projects affecting health, equity, immigration,

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cybersecurity, public experience, and other key areas. Learn more at digitalcorps.gsa.gov.

Speakers: Isabel Laurenceau; Jamila Crawford; Jillian Gilburne; Meenu Bhooshanan; Selyne Singh

Harvard-Department of Biomedical Informatics: Artificial Intelligence for Automated and Augmented Cancer Pathology Evaluation

Location: ConvCtr 144 C

Machine learning, computer vision, artificial intelligence, digital pathology, cancer. Participants: Students and postdoctoral fellows interested in artificial intelligence and its biomedical applications

Speakers: Jeff Forbes

Panels and Workshops

An improved vision and model for CS teacher professional development

Location: ConvCtr 145 A

Given pervasive and persistent racial disparities in K-12 computer science, education, and the promise of culturally responsive-sustaining pedagogies in reducing disparities among students of color, rigorous, robust, and inclusive interventions are needed in the recruitment and preparation of the future and current computer science teacher workforce. The expert panelists will share their work and initiatives to create a more culturally responsive-sustaining teaching workforce at the in-service and pre-service levels as well as their goals for this work moving forward toward a more equitably K12 computer science education for all.

Speakers: Shana White; Christy Crawford; Nicol Howard; Aman Yadav; Rebecca Luebker

Development of Asynchronous Cryptographic Systems

Location: ConvCtr 145 B

Asynchronous (self-timed) systems have existed for decades; however, few academic computing programs provide formal instruction in the development of such systems. In this workshop we present a unified approach to asynchronous systems development based upon the Roncken-Sutherland Model of asynchronous computing. The basic Joint-Link model was pioneered by Turing awardee Ivan Sutherland and software architect Marly Roncken of the

Asynchronous Research Center at Portland State University. Beginning in 2016 design tools for working with this model were developed in collaboration with Roncken and Sutherland by Bryant York, now Professor Emeritus, Portland State University. Although many of the principles and techniques of asynchronous computing are embedded within courses on distributed computing, event-based programming, real-time systems, parallel algorithms, and dataflow architectures, the student who takes these courses is required to synthesize related concepts from multiple sources. A major goal of this workshop is to present to students a unified view of asynchronous systems development from algorithms to circuits that may fundamentally enhance how they think about computing in the post-quantum era. Examples will illustrate the development of asynchronous cryptographic primitives for modern post quantum cryptographic systems, such as NIST PQC Finalists, Crystals-Kyber, NTRU and SABER. Attendees will learn a unified approach to the fundamentals of asynchronous computing, gain familiarity with design tools (layout editor, functional simulator, backend generators, and timing/energy analysis), and observe the design of some basic asynchronous circuits and algorithms. Prerequisites are: undergraduate courses in logic circuit design and algorithms. Some familiarity with basic cryptography may also be helpful.

Speakers: Bryant York; Michel Kinsky

Increasing Diversity in PhD Programs in Computing: Lessons Learned from the LEAP Alliance

Location: ConvCtr 143 ABC

This panel will provide an opportunity for representatives from the NSF BPC LEAP Alliance to discuss lessons learned with respect to increasing diversity of their doctoral programs in computing. The goal of the LEAP 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. According to the CRA Taulbee Survey, only about 4% of the tenure-track faculty at PhD-granting universities are from underrepresented communities. The LEAP Alliance focuses on African Americans, Hispanics, Native Americans/Indigenous People, and People with Disabilities. The panel will discuss lessons learned with respect to modifications to their recruiting methods and effective strategies for admissions and retention of diverse doctoral students. The panel will identify what has worked well and areas for continued improvement. The LEAP Alliance has some major achievements that include

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creating a community among the LEAP Advocates for honest discussions, establishing a community of LEAP Fellows, and increase the first year students from the target communities by 46% from Fall 2020 to Fall 2021.

Speakers: Valerie Taylor; David Bindel; Les Sessoms; Breana Spencer

Innovative practices in the teaching/learning in cybersecurity education

Location: ConvCtr 147 B

This panel will discuss the frame practices adopted in the development of Cybersecurity knowledge via coursework. Faculty members will explain details about open-source tools that can be capitalized on to be able to optimize interest in Cybersecurity through course development. Among other, you will find the discussion about Virtual Machines, Linux distribution such as Kali, tools as Docker (a subset of the Moby project, is a software framework for building, running, and managing containers on servers and the cloud.), and tools like TryHackme (a free online platform for learning cyber security, using hands-on exercises and labs, all through your browser!) and other websites that have recently been created and have resulted in very pleasant learning experiences for the students. Also, students will talk about their experiences and how they learn better through hands on using Capture the Flag competition events.

Speakers: Luis M. Vicente; Zayira Jordán; Julio Hernandez; Edna Char; Jeffrey Duffany; Alfredo Cruz

Making the Move from Grad Student to Professor

Location: ConvCtr 144 AB

To be successful in the academic job market, it is extremely important for underrepresented minority scholars to best position themselves and fully understand the process. In this workshop, we'll cover the job market information that advisors haven't told you about. Learn how to make a compelling faculty application by understanding the type of institution you are applying to, branding yourself, and crafting your application documents that specifically address what you bring to the position. We'll cover the interview process and provide tips on what to look for in your offer letter. As you make the move from grad student to the assistant professor you'll need to balance your time. You're on the tenure track; be selfish and learn when to say no! We'll discuss how you can create space to be successful as you navigate the tenure and promotion process.

Speakers: Lorraine Stinebiser; Donathan Brown, PhD

The Future of Intelligent Systems - How do we get from here to there?

Location: ConvCtr 140 AB

We are beginning to see glimpses of the exciting future promised to us by intelligent systems - smart assistants answering our phones, robotic dogs delivering our mail, and autonomous cars driving us around. At the same time, there is a disconnect between the exciting research we see in the laboratory and the actual capabilities available in the real world. This talk shares a framework we have developed at Johns Hopkins Applied Physics Laboratory to help us bridge this gap and accelerate the adoption of intelligent systems. We will look at some of the technical challenges underlying intelligent systems and examine the state-of-the-art research trends in those areas. With technical examples from cutting edge research institutes, this talk is designed for anyone interested in learning more about the current state of intelligent systems, what is on the horizon, and how we get from here to there.

Speakers: Barton Paulhamus

The Souls Behind the Silicon of the IBM Telum Processor Cache

Location: ConvCtr 147 A

IBM Systems Senior Technical Staff Member and lead microprocessor memory subsystem architect Deanna Berger will host a panel discussion showcasing the early and mid-career hardware developers who designed, verified and built the innovative, virtualized shared cache for the IBM z16's IBM Telum Processor. IBM panelists from various microprocessor development roles will provide insights into the innovations behind this all new, unique cache and illustrate the impact that specific contributions made within their areas of expertise had on the final design. Panelists will discourse on overcoming development challenges and fostering collaborative teamwork in a virtual environment during a global pandemic and share how their own personal career journeys were shaped by the experience. The IBM Telum Processor cache has been described by Dr. Ian Cutress from AnandTech as "Magic." Peek behind the curtain and discover how microprocessor magic is made via discussion with the people who build it: the souls behind the silicon.

Speakers: Deanna Berger; Hailey Nicholson; Nadia Salahuddin; Katie Seggerman; Ashraf ElSharif

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Unconscious Bias in ML Models

Location: ConvCtr 146 B

You've heard that diverse teams create better products, but have you seen it explained mathematically? By showing how a facial recognition, machine-learning model benefits from more diverse faces, we will discuss the importance and benefits of diversity in every space of the technology field. We all know technology is a male-dominated field, but did you know that these biases show up at every stage from hiring to compensation to daily professional life? Having women in the room offers more perspectives and ultimately builds a more inclusive experience for both the builder and the user. Join us as we show that with data!

Speakers: Medha Aiyah; Caitlin Tibbetts

Who's In and Who's Out: The Complexities of the Latinx Community

Location: ConvCtr 146 A

The Latinx community tends to be included in interventions and research under the label "people of color." Even when they are extracted from the "people of color" category, they are treated as a monolithic category of "Hispanic" or "Latinx." In the concept of "spectrum-based racial logics," Latinx are considered not quite Black and not quite White, but "Brown," suggesting a middle-of-the-spectrum position. Whatever the ever-evolving, and often confusing, terms are, they fail to capture the complexity of language, ethnicity and race that exists in the Latinx community. There are advantages to being rolled up into a single category: Too few from a single group can mean that certain groups won't get counted in research unless they are included as part of a larger category. This rolling up can lead to collaborations and partnerships between different communities when their priorities align. However, for Latinx communities, like other communities historically marginalized in computing, there are many important differences that get overlooked. Latinx peoples differ by language, nation of origin, culture, religion, race, and skin color, to name just a few major differences. Broadening participation in computing (BPC) efforts will be strengthened ultimately by understanding the differences within the Latinx community and how these differences can impact what structures need to be changed and what interventions should be provided. Even interpersonal relations between Latinx and other faculty or students can be enhanced by heightened appreciation of the very real differences between individuals who are designated as Latinx or Hispanic.

Speakers: Wendy DuBow; Manuel Perez Quiñones; Dorian Arnold; Anne-Marie Nunez

3:00 PM - 4:00 PM

Panels and Workshops

A Friendly Intro to GPU Programming

Location: ConvCtr 147 A

Modern and real-world scientific simulations need increasingly more compute power to effectively process the significantly large amount of data involved. Due to time and power constraints, processing the data from these simulations on the CPU alone is no longer feasible. Therefore, large scientific simulations, as well as many other high performance computing (HPC) applications, use the compute capability of the Graphics Processing Unit (GPU). GPU availability has become ubiquitous: existing in the cloud, data centers, supercomputers, and even in our personal computers. Because GPUs have become a pivotal part of computing, understanding how to develop software that can maximize utilization of the GPU architecture is an extremely important skill for computer scientists. This presentation introduces GPUs, giving an in-depth analysis of how they are different from CPUs, what their strengths and weaknesses are, and why certain programming paradigms should be considered to gain better performance on the GPU. The presentation concludes with a demonstration of a CUDA implementation of saxpy, a single precision linear algebra algorithm.

Speakers: Kristi Belcher

Beyond Broadening Participation: Strategies To Enhance the Retention, Persistence, And Wellbeing Of Underrepresented Minorities In Computing

Location: ConvCtr 147 B

Despite the nation's progress towards gender and racial equality, marginalized groups continue to be underrepresented in the tech field. As a result, when compared to their peers, women and minorities often feel unwelcome and lack a sense of belonging in their work and learning environment. According to researchers, students who experience uncertainty and distress about their belonging are left with less time to spend on their academics and other experiential learning opportunities. The time and energy they could put into learning and building connections is instead spent on concerns of not belonging in their field or major. These feelings influenced the decision of many marginalized students to pursue a non-technical degree and/or career. Therefore, in an effort to address this, the Cornell Bowers College of Computing and Information Science Office of Diversity, Equity, and Inclusion piloted CSMORE (Rising

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Sophomore Summer Program in Computer Science) and CSMore Works to improve their retention, persistence, and overall sense of belonging for underrepresented populations in computing. Within this session, the facilitators will provide (1) a brief overview of the CSMore and CSMore Works programs, (2) best practices for administrators to successfully model these programs at their respective institutions, (3) opportunities for faculty to fulfill their passion for service, or outreach requirements for grant funded research projects, through similar initiatives, and (4) strategies for students on how to integrate key components of the aforementioned programs into their member services and understand their power and privilege to become change agents.

Speakers: LeeAnn Roberts; Cass D'Amato

Black women's voices, leadership, and vision for K16 computer science education

Location: ConvCtr 144 C

Navigating the intersection of both race and gender can be difficult for Black women in academia, especially when they lack representation, and proper support, which forces many to "learn on the fly." This panel convenes Black women in diverse faculty positions to discuss pursuing and persisting in academic careers, including career path considerations, identifying and mitigating challenges, mentorship and networking, balancing expectations with authenticity, and making institution and/or career changes. The unjust ousting of Dr. Timnit Gebru from Google two years ago, Aericia Shimizu Banks and Ifeoma Ozoma publicly outing discriminatory practices at Pinterest as well as other examples of racism and sexism in K16 computer science education and tech must be faced and addressed head-on. This session will provide a first-hand account of Black women navigating computing spaces and provide suggestions on what we can collectively do as a CS community to make more room that bravely embraces the full humanity of Black girls and women.

Speakers: Shana White; Siobahn Grady; A. Nicki Washington; Khalia Braswell; Carla Strickland

Blockchain and Privacy-preserving Data Access for Wearables and Health Data

Location: ConvCtr 145 A

Nowadays, wearable devices are emerging as effective modalities for collecting individuals' data. While this data can be leveraged for use in several areas ranging from health care to crime investigation, storing and securely accessing such information while preserving privacy and detecting any tampering attempts are significant challenges. This paper

describes a decentralized system that ensures an individual's privacy, maintains an immutable log of any data access, and provides decentralized access control management. Our proposed framework uses a permissioned blockchain protocol to securely log data transactions from wearable devices in the blockchain ledger. We have implemented a proof-of-concept for our framework, and our preliminary evaluation is summarized to demonstrate our proposed framework's capabilities. We have also discussed various application scenarios of our privacy-preserving model using blockchain and proof-of-authority. Our research aims to detect data tampering attempts in data sharing scenarios using a thorough transaction log model.

Speakers: Hoda Maleki; Gokila Dorai

Disability Disclosure in Education and Employment

Location: ConvCtr 146 C

People 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 your approach based on your personal preferences and changing your 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.

Speakers: Brianna Blaser; Naba Rizvi; Heriberto Acosta Maestre; Raja Kushalnagar; Litany Lineberry

High School to iSchool: FearLess Tech More

Location: ConvCtr 145 B

The purpose of this panel is multifold: to present a BIPOC outreach program model; to demonstrate how such a model can engage and foster leadership in current students; and to illustrate how to leverage institutional partners and resources. Given that the University of Washington Information School (iSchool) undergraduate major, Informatics, is a "capacity constrained" major and one of the most popular undergraduate programs on campus, concerns have been raised about the potential of disadvantaging students from underrepresented or marginalized communities. Often these students come from under-resourced schools that serve low socioeconomic communities and may not have reliable access to technology or any way to become

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informed about Informatics. The High School to iSchool program series was developed to combat this issue. iSchool Informatics student panelists will discuss the format and their experiences co-directing and serving as mentors for the peer-powered High School to iSchool program, FearLess Tech More Innovation Challenge. FearLess is a week-long online hackathon, created in response to COVID and remote learning and engagement for middle and high school (M&H) students across Washington state and beyond. Mentored by undergraduate students, M&H student teams work to provide a solution to a real-world problem of their finding, focusing on issues of equity, social justice and/or community/culture. Deliberately and unashamedly beginner-friendly, while also challenging to techies, FearLess exposes M&H students of varying technical abilities to new technology, UX and career paths to engage them with overall concepts that promote a more inclusive, accessible and equitable tech industry.

Speakers: Cynthia del Rosario; Bandhna Bedi; Lucy Lin; Bhavya Garlapati

Keeping Humans in the Loop Towards Responsible ML

Location: ConvCtr 143 ABC

The rapid expansion of Machine Learning (ML) across industries has led to a comparable rise in algorithmic bias efforts, which focus on counteracting the impact of human bias in machine learning systems. Responsible ML is the realm of research that focuses on detecting, mitigating, and circumventing algorithmic bias. While a variety of methods and tools have been created to assist ML practitioners in creating ethical and responsible technologies, these contributions go widely unused. The most prevalent reason being the lack of exposure. Through this session, we are excited to introduce our audience to the Responsible ML space. Together, we will explore the major tenets of Responsible ML, including fairness, explainability, interpretability, and transparency. We will explore the major research contributions and user-friendly toolkits that exist to help practitioners easily apply Responsible ML to their own ML models. With the surplus of resources we provide, our audience members will be able to apply the method(s) that suit them best to their own domain. Furthermore, we will highlight some major gaps that give rise to great research opportunities in the Responsible ML space.

Speakers: Brianna Richardson; Kiana Alikhademi; Emma Drobina

Navigating Your Advisor-Advisee Relationship

Location: ConvCtr 144 AB

For many new researchers, an advisor-advisee relationship is their major introduction to a professional mentor relationship. Many people do not know if an advisor-advisee relationship is working for them and have varying expectations of the relationship dynamics. The advisor-advisee relationship is a crucial aspect of the well-being of the advisee. Lack of support and compatibility in this relationship can lead to dissatisfaction for both parties. In this Birds of a Feather session, we emphasize how to identify your potential for advisor-advisee fit. This proposal seeks to create and foster a conversation between professors and students to navigate mentoring and advising in computing. For this workshop, we are cultivating space for individuals to (1) learn tips and tricks about navigating advisor-advisee relationships, (2) share advising experiences, and (3) help others identify their preferred mentorship or advising style.

Speakers: Jasmine DeHart; Lisa Egede

The Value of Service in Advancing Careers: Exploring the Benefits and Types of Service

Location: ConvCtr 146 A

Faculty service commitments count as a small percentage of faculty's evaluation for promotion. Nevertheless, service is often considered important and if done strategically, can complement the other areas of faculty responsibilities. Unfortunately, faculty from marginalized groups end up doing more service than other faculty. Often the service goes beyond the "traditional notions of service" and is not properly acknowledged. With the increased attention to diversity, equity, and inclusion, most of the work in this area is falling on the shoulders of marginalized faculty. During this panel, four faculty panelists, at different points in their academic careers, will share their experiences doing service in academia. Each of us has engaged in different forms of service, reflecting our interests and needs. Based on our experience, we provide answers to the following questions: Why do service? What are the different types of service commitments? How is service evaluated? Is there one type of service more important than another? Which should I avoid before tenure? How do I say no to my chair when asked to do service? Give examples of how you have managed to leverage service commitments in a way that contributes to your other responsibilities? The panelists will share strategies that have worked for them on how to manage your service commitments, how to say no,

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and how to select service commitments that complement your teaching or research. The session will allow time for audience participation by entertaining questions about this often ignored section of faculty work.

Speakers: Adrienne Decker; Manuel Perez Quiñones; Christina Gardner-McCune; Sheena Erete

4:00 PM - 4:30 PM

Afternoon Break

Location: ConvCtr Exhibit Hall A

4:30 PM - 5:30 PM

Tech Talk

MIT Lincoln Laboratory: Airborne Collision Avoidance System (ACAS X)

Location: ConvCtr 140 AB

Aircraft collision avoidance systems have long been a key factor in keeping our airspace safe. Over the past decade, the FAA has supported the development of a new family of collision avoidance systems called the Airborne Collision Avoidance System X (ACAS X), which model the collision avoidance problem as a Markov decision process (MDP) that is solved through dynamic programming. Variants of ACAS X have been created for both manned (ACAS Xa) and unmanned aircraft (ACAS Xu and ACAS sXu). The variants primarily differ in the types of collision avoidance maneuvers they issue. For example, ACAS Xa issues vertical collision avoidance advisories, while ACAS Xu and ACAS sXu allow for horizontal advisories due to reduced aircraft performance capabilities. The application of machine learning has allowed ACAS X to be flexible while proving to be robust and safer than current legacy systems. In this presentation we show how the problem was formulated to use an objective based optimization strategy and how current research is exploring the advantages and drawbacks of using more advanced machine learning approaches such as neural networks."

Speakers: Raul Garcia; Luis Alvarez

Panel and Workshops

Becoming a Latina Computing Professional: Barriers and Accomplishments

Location: ConvCtr 149 AB

By virtue of being underrepresented in computing, Latinas completing a PhD face additional challenges starting their new careers. Completing the dissertation, applying for jobs, interviewing and negotiating job offers are made more difficult by the lack of a community of mentors that fully understands their identities. This panel will present the challenges faced and the accomplishments of recent Latina Ph.D. recipients as they navigated the last stages of the dissertation and moved to new jobs in computing. The four panelists have had diverse paths to their first post-PhD jobs; two work in industry and two are in academia; some participated in Postdocs; some are immigrants. The panelist will share their experiences around these topics: Who do I ask about...? Is there a Latinx community around my new job? Can I recruit Latinx students to come work with me? As the only Latina in my unit, who will be my mentors? What does it mean for my family if I take this position? For those that are immigrant or with immigrant families (spouses or parents), coordinating the transition in immigration status can be daunting. In all of their stories, there is a centrality of the importance of family that is balanced with the professional aspirations of their careers. Hearing their recent experiences should help future Latinas in computing understand the difficult road ahead with the reassurance that it is possible to balance family priorities and career demands to succeed in computing.

Speakers: Manuel Perez Quiñones; Brianna Posadas; Karla Badillo-Urquiola; Adriana Alvarado Garcia; Wendy Roldan

Building Resilience: Overcoming Failure and Setbacks

Location: ConvCtr 147 B

This session presents a panel discussion and Q&A on failures and setbacks that we all face in our professional journeys. Our panelists from under-represented groups will share their personal experiences with setbacks and create a safe space for attendees to discuss their own fears and experiences. Additionally, panelists will share actionable strategies that they

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have employed to recover from setbacks, such as a “recovery toolkit” – something like a first-aid kit for dealing with failure. Attendees may use these strategies to reduce the negative impacts of failure and, hopefully, reduce their fear of failure over time.

Speakers: Kevin Brown; Sreeranjani (Jini) Ramprakash

Conflating Privilege With Potential

Location: ConvCtr 147 B

The multitude of efforts to increase diversity in tech are working and more women and underrepresented students than ever are entering computing education pathways, however structural barriers remain that prevent low-income students and graduates from accessing the skill-building and networking opportunities required to compete with affluent peers and launch into tech careers. Leveraging data and insights from the Last Mile Education Fund’s investments in over 1,000 low-income students from 2020 to the present-day,, this presentation will explore the ways that college and university practices and overall policies inhibit success for low-income computing students and graduates and offer collaborative solutions to level the playing field for low-income computing students and graduates.

Speakers: Ruthe Farmer; April Curley

Diverse Experiences Transitioning from Software Engineering to Program/Product Management

Location: ConvCtr 143 ABC

Our panelists started out their careers in Software Engineering only to discover that their strengths and passions were more aligned with the Program/Product Management discipline. When considering transitioning to PM roles, our panelists, each on their own unique journey, found themselves in deep introspection weighing different factors including, but not limited to, career aspirations, job stability, self-imposed pressures caused by intersecting identities, and visa implications. They are all now at companies such as Meta, Snap, and Microsoft. In this panel Q&A session, we will be (1) breaking down the variety of PM roles, (2) celebrating the core skills and strengths that contribute towards success in the PM roles, (3) addressing biases towards different roles in tech, (4) identifying how our intersectional identities affect the way we pursue opportunities, and (5) empowering individuals to pursue career satisfaction.

Speakers: Laura Barreto; Vidhi Jindal; Kay Toma; Mansi Tripathi

Keeping Accessibility in Mind

Location: ConvCtr 145 B

Are you a Front-End Software Engineer or a UX Designer? Have you ever thought about what it would be like for a user with a disability to navigate through a website? Although the Americans with Disabilities Act was officially signed in 1990, digital accessibility standards (WCAG) are continuously being pushed out industry wide. Join me for an interactive session to learn about WCAG standards that designers and developers should be following. You will have the opportunity to hear first-hand what a screen reader sounds like as you navigate through a website. You will also learn about best practices for using color throughout your website/application. Ensuring digital channels are accessible is of the utmost importance. It is up to our generation to not only develop and design with accessibility in mind, but also continue to teach best practices and guidelines for future generations to follow.

Presenters: Katelyn Rumenik

Machine Learning for Climate Change: Counting Transportation Emissions

Location: ConvCtr 144 C

Road transportation is one of the largest sectors of greenhouse gas emissions. To better understand road transportation emissions and make progress towards reducing them, we must develop scalable inventory capabilities. As part of the Climate TRACE collaboration, our team has been working with convolutional neural networks (CNNs) and graph neural networks (GNNs) to estimate road transportation emissions from satellite imagery, road network information, and other geospatial datasets. Our initial work focused on the conterminous United States, where high-resolution gridded inventory estimates are available for training our models. Models were trained using road networks and high-resolution satellite imagery as input data with labels from the Database of Road Transportation Emissions (DARTE). Current work is focused on estimating the emissions from the largest global urban areas, and aims to incorporate road activity and emissions factors data to improve our machine learning-based emissions estimates. In this talk we will discuss the Climate TRACE collaboration, provide a brief overview of CNN and GNN models, and highlight results of estimating emissions, focusing on Washington DC. Throughout, we will demonstrate that machine learning is a useful tool to tackle problems

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related to climate change. We will additionally discuss how we've tried to ensure the traceability and reproducibility of our models, and how machine learning model and software development best practices can help teams work together.

Speakers: Tomek Kott; Derek Rollend

Taking on the Technical Interview

Location: ConvCtr 144 AB

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.

Speakers: Eric Yurko; Cynthia Lee

High Performance Computing Crash Course

Location: ConvCtr 147 A

There are many situations in nature that can only be thoroughly or efficiently studied through large massively parallel computer simulations enabled by High Performance Computers (HPC). For example, HPC simulations are the only way to fully explore the mechanisms that cause supernovae, the catastrophic explosions that end massive stars' lives and make the elements that form us. This symposium is designed to introduce science and computer science students to core concepts in High Performance Computing. It will consist of a mixture of lectures and hands-on exercises. The participants will use the Summit Supercomputer to explore a series of guided C and Python coding challenges that introduce methods, such as the Message Passing Interface (MPI), and OpenMP, for parallel and accelerated computing. Students will be provided with a git repository that contains the guided HPC challenge exercises. If students are not familiar with Vim, Linux, C and Python they may review those skills in our foundational HPC computing skills git repository, https://github.com/olcf/foundational_hpc_skills before the class. Students with Windows machines should have Putty (<https://www.putty.org>) installed before the workshop if possible.

Speakers: Suzanne Parete-Koon; Subil Abraham

How to Engage in AI Research as an Undergraduate

Location: ConvCtr 146 A

We propose a technical workshop targeted to undergraduate students to expose them to research and get them engaged in research at their own University or in a Summer research program. 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 their already low numbers in undergraduate programs in computing.

Speakers: Anita Raja; Shana Watters; Erion Plaku

Practical Science-driven Edge Computing

Location: ConvCtr 146 C

Often applications involving voluminous data require that the computing be performed as close to the data source as possible due to communication constraints, privacy and sensitivity of data, latency and liveness requirements, or costs of moving data. Given the growth in such application scenarios and the recent advances in algorithms and techniques, machine learning and inference at the edge are unfolding and growing at a rapid pace. Lately, a wide range of computing platforms (hardware and software) are venturing farther away from the offices and datacenters, and enabling computation closer to the physical world, often at the interface of the physical and digital worlds. Edge computing has demonstrated the potential to analyze high-resolution instrument data at unprecedented speeds, providing new insights and answering scientific questions not previously possible. In many scientific disciplines, sensors and instruments are deployed in remote locations to provide valuable, real-time data streams. Edge computing can integrate these field-ready instruments, sensors, actuators, and associated low-latency AI/ML inferences, with centralized cloud and HPC resources for advanced and global observations, inferences, and model development. This workshop is designed to introduce students, faculty, researchers, and practitioners across a wide variety of science and engineering, humanities and social sciences to core concepts and application areas of edge computing, with particular emphasis on implementing and executing AI/ML algorithms. The workshop will consist of live demonstrations and hands-on exercises, using the Waggle

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AI@Edge platform as the learning tool (<https://github.com/waggle-sensor>). The participants will use their personal laptops to explore a series of guided Python coding exercises following online documentation (<https://docs.waggle-edge.ai/docs/about/overview>). Participants are encouraged to bring their personal laptops (Mac OS X or Linux preferred), with Python interpreter (Python 3.8) to get a more immersive and full learning experience.

Speakers: Raj Sankaran; Seongha Park

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

Location: ConvCtr 146 B

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, offers a high degree of customization and represents an attractive option for many applications, ranging from machine learning accelerators to secure computer systems design. We will present the Trireme toolbox - the Boston University RISC-V based architecture design exploration suite for education and research. Trireme comprises 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 Trireme tool, (2) show its functionalities, and (3) run hands-on design exploration examples with the attendees. Included with the Trireme 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) Trireme explorer GUI for automatic synthesizable Verilog core and multicore system generation, and (iv) the Trireme simulator for software RISC-V instruction emulation. Trireme is an in-browser tool; therefore, it requires no installation and avoids all OS dependencies for an easy, fast, and intuitive use of the tool. It allows students and researchers to experiment with the RISC-V ISA features and to quickly bring up complete and fully working architectures.

Speakers: Michel Kinsy; Alan Ehret

5:30 PM - 7:30 PM

Access Computing Community Reception

Location: Hotel M1 - Univ of DC & Catholic Univ

Capital One Community Reception

Location: Hotel M1 - Georgetown Univ

Lawrence Livermore National Laboratory Community Reception

Location: Hotel Dignitary (Lobby)

6:00 PM - 7:00 PM

CMD-IT Private Supporter Reception

By Invitation Only

Location: Hotel Mezzanine

6:30 PM - 7:30 PM

LEAP Focus Groups

By Invitation Only

Location: Hotel M2 - Salon 12 - 14

FRIDAY | PROGRAM SCHEDULE

SEPTEMBER 9, 2022

9:00 AM - 9:30 AM

Welcome & Announcements

Location: Hotel M2 - Salons 1-10

9:30 AM - 10:30 AM

Plenary Speaker

Ken Kennedy Distinguished Lecture

Location: Hotel M2 - Salons 1-10

Robots, Ethics, and Society

Ayanna Howard, Dean of Engineering at The Ohio State University and Monte Ahuja Endowed Dean's Chair

Mitigating the Bias in Emerging Technologies People tend to overtrust sophisticated robotic devices, especially those powered by AI. As these systems become more fully interactive with humans during the performance of day-to-day activities, ethical considerations in deploying these systems must be more carefully investigated. Bias, for example, has often been encoded in and can manifest itself through AI algorithms, which humans then take guidance from, resulting in the phenomenon of excessive trust. Bias further impacts this potential risk for trust, or overtrust, in that these systems are learning by mimicking our own thinking processes, inheriting our own implicit gender and racial biases, for example. These types of human-AI feedback loops may consequently have a direct impact on the overall quality of the interaction between humans and machines, whether the interaction is in the domains of healthcare, job-placement, or other high-impact life scenarios. In this talk, we will discuss these types of ethical conundrums in robotics and possible ways to mitigate its impact on our quality of life.

BIOGRAPHY

Dr. Ayanna Howard is the Dean of Engineering at The Ohio State University and Monte Ahuja Endowed Dean's Chair. Previously she was the Linda J. and Mark C. Smith Endowed Chair in Bioengineering and Chair of the School of Interactive Computing at the Georgia Institute of Technology. In addition, she serves on the Board of Directors for Autodesk and Motorola Solutions.

Dr. Howard's research encompasses advancements in artificial intelligence (AI), assistive technologies, and robotics, and has resulted in over 275 peer-reviewed publications. She is

a Fellow of IEEE, AAAI, AAAS, and the National Academy of Inventors (NAI). She is also the recipient of the Anita Borg Institute Richard Newton Educator ABIE Award, CRA A. Nico Habermann Award, Richard A. Tapia Achievement Award, NSBE Janice Lumpkin Educator of the Year Award, and ACM Athena Lecturer Award.

To date, Dr. Howard's unique accomplishments have been highlighted through a number of other public recognitions, including being recognized as one of the 23 most powerful women engineers in the world by Business Insider and one of the Top 50 U.S. Women in Tech by Forbes. In 2013, she also founded Zyrobotics, which develops STEM educational products to engage children of all abilities. Prior to Georgia Tech, Dr. Howard was at NASA's Jet Propulsion Laboratory where she held the title of Senior Robotics Researcher and Deputy Manager in the Office of the Chief Scientist.

10:45 AM - 11:45 AM

Lightning Talks

Apache Spark Core Concepts: Introduction to Distributed Data Processing

Location: ConvCtr 144 C

Big data is only getting bigger, and being able to make quick, data-driven decisions at scale is more important than ever. That's why thousands of organizations in both industry and academia use Apache Spark for scalable computing. This talk introduces Spark concepts in an approachable, visual manner that will leave you with a strong foundation for using this powerful data processing and analytics engine.

Speakers: Kate Sanders

Security in Vehicular Networks: Challenges and Countermeasures

Location: ConvCtr 144 C

Vehicular networks have emerged as an effective technology for providing a wide range of safety applications for motorists and passengers. Today, vehicular networks have gained a lot of attention as they enable accessing a large variety of ubiquitous services. With popularity, the number of security vulnerabilities in their inter-vehicular services and communications have also increased. Consequently, the number of security attacks and threats

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have increased. It is of great importance to ensure the security of vehicular networks because their deployment must not compromise the safety and privacy of the stakeholders. To successfully defend against a wide range of attacks requires developing efficient and reliable security solutions and services. In this talk, I will provide a structured and comprehensive overview of the recent research advances in the world of vehicular network security services. I will go over the state of the art in vehicular security threats, vulnerabilities, privacy issues, and security services.

Speakers: Susan Zehra

Panels and Workshops

Artificial Intelligence - What it is, why it matters, and how you can play a role

Location: ConvCtr 146 B

Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. AI is literally everywhere and is powering the most important products at the world's most innovative companies. In this talk we will break down exactly what artificial intelligence is, how it is developed, learn about concrete ways that it impacts our lives on a daily basis and finish with a view on how you can not only get involved but also ways to level up your AI knowledge.

Speakers: Joe Spisak; Denise Hernandez

Dispelling Myths About Leadership and Management

Location: ConvCtr 144 AB

Have you ever wondered about the difference between management and leadership? Or whether you have to be an extrovert to manage teams? Perhaps you don't see management as "real work", or think leadership is an innate ability. You're not alone! Join this "Birds of a Feather" discussion, where we will discuss the differences between leadership and management. Management processes exist to ensure that work gets done, while leadership qualities can provide the team cohesion that allows the team to function as greater than its parts. If you've ever been on a sports team, worked on a group project, worked as an intern, or for a professor with a bigger group, or even taken a class — you've already encountered managers and leaders. In this discussion, I'd like to help dispel myths surrounding leadership

and management by using some questions for students, post-docs, and early career professionals to foster discussion.

Speakers: Tomek Kott

Effective Communication to Enable Growth and Agility in the Workplace

Location: ConvCtr 147 A

Communication skills are important for all careers; especially for technical professionals. The ability to effectively communicate can determine career success. Technical professionals have to understand the needs and requirements of a project, communicate clearly about the planned actions, collaborate with others to achieve their goals, and clearly present their ideas in presentations, reports, and meetings. Therefore, strong communication skills are as important as strong technical skills in the workplace. Effective communication is more of a skill than a talent. And like any skill, it can be learned through instruction, sharpened through training, and mastered through practice and coaching. This Birds of a Feather discussion will share practical and actionable guidance for how to communicate as a technical professional.

Speakers: Trena Lilly; Danielle Hilliard; Patrick Cox

Innovation & Society

Location: ConvCtr 149 AB

A discussion on how technology is used to address large-scale societal issues and the responsible use of technology.

Speakers: Anjuli Jain Figueroa; Rashida Richardson; Hsiang-He Lee; Kyla McMullen

Levering for Latinas diversity in higher cybersecurity education

Location: ConvCtr 146 C

In 2020, Forbes reported that women comprise 28.8% of the United States tech workforce. The cybersecurity professional organization, ISC2, pointed that Hispanic cybersecurity workforce comprises 4%. Latinas hold mere a 2% of jobs in science, technology, engineering, and mathematics. Academia, public sector, and private sector need to have better representation of minority students, employees, and executives in cybersecurity (Herrera, 2021). Marymount University is designated as a Hispanic Serving Institution where 25% of our undergraduate students identify as Hispanic and overall 20 percent of undergraduate and graduate students

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identify as Hispanics. Marymount University's programs focuses on retaining Latinx students (especially women) and ensuring their preparedness for the job market. In our graduate programs, Marymount University continues to pay attention to the students' professional development promoting on growing diversity, equity, inclusion, and access of opportunities across American higher education. We at Marymount say "Avanzamos!" – Let us all move forward together.

Speakers: Dr. Ana Valentin; Dr. Donna Schaeffer

Strategic Change Efforts through DEI Committee Work

Location: ConvCtr 147 B

Creating impactful and lasting change around diversity, equity and inclusion initiatives in higher education is not an individual's job, but the collaborative work of many voices within a universities' structure. Creating institutional change depends on addressing the complexity of an organization and finding impactful practices and opportunities to deploy DEI initiatives. The siloed nature of institutions of higher education make this work particularly challenging. One powerful tool for generating innovative ideas, honoring varied perspectives, and deploying organizational capital to accomplish goals is the use of DEI Committees. The challenge of committee work can originate from creating a shared vision, articulating the committee's charge, demarcating committee goals and parameters, and outlining the role the committee members will play in change efforts. This session will examine best practices for creating and managing Diversity, Equity and Inclusion Committees on campus through: 1) exploring how change models that can help guide DEI committee work, 2) identifying approaches to successful committee formation and management, and 3) anticipating the challenges of committee work. The session will then explore areas MIT's Department of Electrical Engineering and Computer Science Committee on Diversity, Equity and Inclusion is tackling through our own committee and ask session members to think through how committee work can infuse DEI efforts within departments, programs, or centers. This session will incorporate the work of Damon A. Williams from Strategic Diversity Leadership, Charles Henderson, et. al from, Facilitating Change in Undergraduate STEM Instructional Practices, and from Ngai, et al in Facilitating Change in Higher Education

Speakers: Alana Anderson; Amanda Beyer-Purvis; Nandi Bynoe

Women in Tech: It's Our Table

Location: ConvCtr 145 A

We've all sat through presentations and panel discussions about the challenges of being a woman in tech. And, yes, we know that challenges exist. And we hear frequently that the tech industry is a fraternity where women need a "seat at the table" or to "break the glass ceiling" to make a name for themselves. This all-female panel of technologists has flipped the script. Women do – and have for a long time – bring a unique brilliance to the tech field and are driving innovation at companies big and small. With a diverse group of women at different points in their careers, this panel will discuss the history of women in tech including key milestones, the perspective and brainpower women bring to the industry, and the opportunities that exist for women today to make their mark on the tech industry. The panel will be led by Hope Lynch, Senior Director, Platform at CloudBees, and will include a dynamic cross-section of women technologists at every stage of their career from both private and public companies. This includes her colleague and CloudBees Software Engineer, Felicia Rosemond, an expert with almost 30 years of experience introducing new technologies to organizations (from eCommerce to informatics) and deep expertise in every stage of the software development lifecycle. Felicia is also an established mentor for new developers at several coding boot camps.

Speakers: Hope Lynch; Felicia Rosemond; Christine Barnes

10:45 AM - 12:00 PM

Do You Want an Internship? Here's How: A Crash Course on How to Get an Internship in Tech

Location: ConvCtr 146 A

As a student, you are always told to "get an internship", but no one really shows you how. In this session, you'll learn how to set yourself up for success throughout the application process, including: * How to find an internship during any college year * How to make a plan to apply to and interview with companies * The secrets to successful interviewing * And more! You'll receive a handout with these and more tips

Speakers: Alejandro Davila

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Faculty Workshop Funding Opportunities

Location: Hotel M2 - Salons 1-10

The faculty workshop consists of a panel followed by a lunch. The panel is focused on funding opportunities.

Speakers: Hal Finkel; Amy Walton; Ayodeji Coker

Supercomputing Systems 101

Location: ConvCtr 145 B

The science conducted at national laboratories demands a tremendous amount of computational power and resources to perform high-fidelity simulations ranging from climate modeling to cancer research to materials design. This work relies on supercomputers leveraging specialized environments and tools to which students may not gain exposure in their university education. The goal of this workshop is to give students and educators in STEM more exposure to supercomputing systems and the work done at the national laboratories. To this end, we will introduce attendees to computer architecture in High Performance Computing (HPC) and teach them how to exploit locality to leverage the hardware topology. Attendees will learn how to launch parallel programs in various configurations and will learn to map the program to the underlying machine architecture efficiently. This is an interactive, hands-on workshop. We will intersperse exercises with lecture and demonstrations, and students will be able to test their understanding in an environment configured by the workshop presenters. To follow the tutorial, attendees should have a working knowledge of Unix-like systems. For example, they should know how to navigate a filesystem and launch programs from the command line. Attendees will also need some familiarity with high-level parallel programming concepts. For example, attendees should be comfortable with terms like task (or process) and GPU, but do not need prior experience writing parallel programs.

Speakers: Edgar A. Leon; Jane E. Herriman

10:45 AM - 12:15 PM

ACM Student Research Competition (SRC) Round II

(Graduate Students)

Location: ConvCtr 141

ACM Student Research Competition (SRC) Round II

(Undergraduate Students)

Location: ConvCtr 142

10:45 AM - 5:00 PM

Graduate School Application Review Clinic

Location: ConvCtr Exhibit Hall A

Supporter Onsite Interviews

Location: ConvCtr Exhibit Hall A

12:00 PM - 1:15 PM

Faculty Networking Lunch

Location: Hotel M2 - Salons 1-10

General Lunch and Networking

Location: ConvCtr Exhibit Hall A

1:30 PM - 2:30 PM

Tech Talk

Atlassian: Working with big data at scale for enterprise use cases

Location: ConvCtr 147 A

Data is everywhere in modern technology. It is a commodity that has been described as more valuable than oil. It has influenced elections, financed the meteoric rise of big tech and is used to power many technological advances that we rely on every day. But what exactly goes on behind the scenes? In this talk, we are going to take a deep dive into how oceans of data are managed at an enterprise level, looking at everything from ingestion to storage and even machine learning.

Speakers: Gautam Jethwani

Panels and Workshops

Building a LatinX Community in Academia

Location: ConvCtr 146 B

Picture this: you take a new position (or start at a new school), in a new city, where there are few other people who look like you or speak your idioma. It can be beneficial to step out of your comfort zone, but you could also feel homesick, and you may just want to meet people who have similar experiences to you, speak similar languages, and have like-minded cultural beliefs; other times you just need to ask someone where to find good tomatillos. The last two years of Covid-19 have placed an extra layer of complexity into

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deciphering a university's culture when applying and even obtaining a sense of what the day-to-day environment looks like. Even when the university excels at describing their culture, it might not be the same culture they are experiencing more than two years into a pandemic. It can take substantial work to create a community of people who are essentially outsiders among the homogeneity of Academia. Even after starting, it can take even more work to keep this community going. Nonetheless, the importance of this community is paramount to staying sane, feeling connected, broadening participation, and retention. Come hear from Latinx academic panelists as they share their experiences and answer questions. This panel will discuss the many aspects of a Latinx community, best practices for effective events, networking strategies, and a sense of belongingness in an academic setting where LatinX communities are nonexistent or hardly developed.

Speakers: Gabriela Gongora-Svartzman; Gabriela Gongora-Svartzman; Luis M. Vicente; Brianna Posadas; Karla Badillo-Urquiola

Computing Equity Project: Justice And Equity For Marginalized Students

Location: ConvCtr 147 B

The objective of the Computing Equity Project is to build a structural solution to the deployment of computer science (CS) education. Beginning in Atlanta Public Schools (APS) the project started with 1) solidifying relationships between the Constellations Center and APS high schools to focus on CS education, 2) establishing the structure of critical partnerships between Constellations and other organizations such as the Georgia State Department of Education for sustainability, and 3) developing classroom-based professional development for teachers with limited CS experience in teaching Advanced Placement (AP) CS courses. The conceptual framework of leveraging instructional coaching methods to increase teaching efficacy was integrated with the enactment of online curricula for the AP CS Principles and AP CS A courses. Vital to this implementation is a team of Constellations Fellows, former CS teachers serving as coaches and applying research-based methods in the classroom. The Fellows provide teachers classroom-based professional development conducting planning sessions and deploying coaching strategies to co-create lessons. The lessons along with student work samples are examined to discuss the level of student engagement and meaningful CS learning experiences. This analysis is key in providing opportunities for teachers to

increase their content knowledge and refine instructional approaches to ensure greater achievement. It also affords opportunities to address bias and misconceptions about student abilities based on gender, race and ethnicity. In a school system populated with majority Black/African American students, this effort aims to inform the structural reformation required for justice and equity in computing education for these students.

Speakers: Lien Diaz; Lien Diaz; Terry Foster; Sababu Chaka Barashango

Digital Twin and Machine Learning: Securing the Smart Healthcare Ecosystem

Location: ConvCtr 145 A

The Internet of Medical Things (IoMT), also known as healthcare IoT, is becoming ubiquitous with a proliferation of smart medical devices and applications used in smart hospitals, smart home-based care, and nursing homes. IoMT utilizes smart medical devices and cloud computing services along with core IoT technologies to sense patients' vital body parameters, monitor their health conditions, and generate multivariate data to support just-in-time health services. In this domain, the security of various entities, users, and the privacy of data are major concerns. There is a large amount of data generated, shared, and transmitted between various entities in this ecosystem. Mostly, this large amount of data is analyzed in centralized architectures for data analysis. However, there are various security threats associated with centralized architectures for the smart healthcare ecosystem. Therefore, there is a need for decentralized architecture based on privacy-preserving machine learning for securing the smart healthcare ecosystem. In this presentation, I focus on specific use cases of the smart healthcare ecosystem, such as Remote Patient Monitoring (RPM), and utilizing privacy-preserving machine learning for identifying security issues in these application domains. I also present how the innovative technology Digital Twin enhances the security of smart medical devices and their generated data using Edge Computing. The use of Digital Twins on edge to reduce the gap between physical objects and their digital representations which are generally hosted in the cloud servers. Last, I present an RPM use case Implementation using Machine Learning, Digital Twin, and edge cloudlets.

Speakers: Deepti Gupta

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Forming Government Collaborations to Enhance Your Career

Location: ConvCtr 146 A

This panel will discuss best practices on how to establish or join inter-agency collaborations to enhance your career, develop new skills, and expand your network. Topics covered will include learning how to communicate your goals effectively to broader audiences, how to identify funding opportunities, and how to learn key leadership skills needed as you advance in your career.

Speakers: Laura Biven; Pamela Isom; Jeff Forbes; Jeff Hittinger

How To Navigate The Early Days At Your First Tech Job

Location: ConvCtr 145 B

You're starting your first tech job tomorrow and you're a bundle of nerves. You've been taught the technical basics in school, but how do you navigate the early days at a new workplace? After all, working in the industry isn't as straightforward as it was in the classroom; it's no longer about attending classes and writing exams. This territory feels unfamiliar to most of us, because we're not really taught how to best approach the early days at a new job. This presentation addresses those early days as a recent graduate where one can feel very lost and insignificant, with tips to start making meaningful contributions, creating a great first impression and setting yourself up for long term success!

Speakers: Fatima Taj

Leveraging Neurobiological Insights to Build "Smarter" Artificial Neural Networks

Location: ConvCtr 144 AB

Machines with human-level intelligence is no longer restricted solely to science fiction novels and movies. Human-level artificial intelligence or artificial general intelligence (AGI) has seen increased attention over the last few decades. Visual identification is one of several areas where humans out perform machines. Additionally, humans excel at discovering relevant information in an ocean of data, solving non-structured problems and unsupervised learning. Current machine learning techniques are dominated by feed-forward networks artificial neural networks (ANNs). However, these feed-forward ANNs used in practice are radically different than the topology, mechanisms, and characteristics of the human brain's biological neural networks (BNNs). In this talk we give

an overview of two recent efforts at learning from the brain to build "smarter" networks. We begin with a discussion of our work in using echo state networks to study the impact of biologically inspired topologies on model performance. We introduce a novel reservoir computing network, with a hierarchical network structure inspired by the organization of biological networks, utilizing hierarchical stochastic block models. We demonstrate the use of this network for predicting dynamic system evolution, and we compare this network to existing echo state network topologies. We continue our talk with a discussion of work we performed with spiking networks and knowledge graphs. In this work, we demonstrate a novel visual reasoning network capable of representing semantic relationships and learning new associations through replay-based association with spiking models using natural images. We conclude our talk with a discussion of the future of ANNs in AGI.

Speakers: Sean McDaniel

Love Teaching? Consider a Teaching-Track Career!

Location: ConvCtr 149 AB

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. 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. There are often misconceptions about the field 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. 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!

Speakers: Dan Garcia; Shaundra Daily; Rob Parke

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Supporting Neurodivergent Students in Classrooms and into the Workplace

Location: ConvCtr 140 AB

This panel will present a number of different perspectives and programs that support neurodivergent students in their coursework and in the workplace. Like many students transitioning to college, neurodivergent students lose many of their prior scaffolds and supports. Unlike neurotypical students, they often have difficulty self-advocating to acquire the help that they need to succeed. They have lower completion rates for courses and degrees and are more likely to take time off in the middle of their degree program. Supporting these students in our classrooms and degree programs requires training faculty on the challenges they experience and developing curriculum and supports that afford better access. In addition to in-classroom support, support is needed to prepare students to enter the workforce and help them stay employed. While supporting students and faculty is important, one of the other goals of programs like these is to help destigmatize neurodiverse people, help neurotypical people better understand their neurodivergent colleagues, and encourage everyone to better integrate the neurodiverse into their organizations and activities.

Speakers: Adrienne Decker; Andrew Begel; Kurt Eiselt; Omar Shah

The State of Tech Diversity: The Black Tech Ecosystem

Location: ConvCtr 146 C

Technological change, innovation, and disruption is occurring across all industries and significantly impacting our economy, our society, and our democracy, but Black communities have yet to benefit from technology's promise and potential. Despite a decade of attention and recent statements of commitment to racial equity, current data suggests that very little progress has been made in increasing Black representation across all levels of the tech sector. As a result, Black communities are negatively impacted by automation, income inequality, lack of access to wealth creation through investment and entrepreneurship, while the tech products created and deployed create harm through algorithmic bias in education, employment, facial recognition and surveillance, mis/disinformation, and driving polarization, white supremacy and the fracturing of democracy. These disparities are not just harmful to Black communities, rather,

this is an issue of significant national importance for meeting economic demands for a diverse and robust tech workforce, innovation in product and company development, and ultimately, global competitiveness. The State of Tech Diversity: The Black Tech Ecosystem report and panel will examine the current state of Black representation and inclusion across the four stages of the Leaky Tech Pipeline and concludes with a set of specific recommendations to increase racial equity in the technology ecosystem.

Speakers: Shana White; Allison Scott; Timnit Gebru; Aericia Shimizu Banks; Ivory Toldson; A. Nicki Washington

What I Wish Someone Told Me? - Finding Your Footing in an Organization

Location: ConvCtr 143 ABC

This panel will provide an overview of the common mistakes that many early career staff experience when transitioning from university to the office. The aim is to focus on the "personal stories and experiences of our panelists and provide food for thought that will enhance career success if handled appropriately.

Speakers: Adrienne Norwood; Karmethia Thompson; Jaime Arribas Starkey-El; Joe Downs; Malquan Gaillard

2:45 PM - 3:45 PM

Tech Talks

Capital One: Where do I fit? How Confidence is Important in Building Software

Location: ConvCtr 146 B

Mastering "the latest skills in Software Engineering, Cloud Computing & Data, could leave you questioning 'Where do I fit?'. Join Mikela Wright, as she walks through skills and strategies to incorporate being your authentic self, while juggling Technology efforts. In this presentation, you will gain insight on the importance of your confidence in Software Development and how to combat Imposter Syndrome using the ASPIRE© method.

Speakers: Mikela Wright

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Northeastern University: Making Software that Makes a Difference: How to make equitable products

Location: ConvCtr 144 AB

Many companies and organizations are using technology to improve people's lives, but these improvements often come from a place of privilege where assumptions about users and their experiences can actually further existing inequalities. One such example is an app that assumes a data plan in order to view job openings. How can elevating and listening to the voices of underserved populations to create more equitable products. During this session we will discuss the importance of making software that makes a difference, the challenges of creating equitable products, and the value of having input from every community in the process. Audience members from every field with all levels of computer science knowledge will come away with actionable items that they can take to improve technology for everyone.

Speakers: Michelle Borkin; Aarti Sathyanarayna; Silvio Amir; Holly Brugge; Harry Keeling

Panels and Workshops

"Post"-pandemic Job Negotiation

Location: ConvCtr 147 A

After two tumultuous years of hires and pay freezes, academic job postings are returning with a vengeance, while many STEM openings and searches are going unfilled. This is the time to really leverage your in-demand need to make sure you earn what you are worth. If you already have a position, then you also have greater power to get that raise or desired conditions. Consider that during "The Great Resignation", colleges and universities are just as worried about retaining the faculty they already have, as they are about new hires. Once you do get that offer, there is more to consider than salary minus cost of living plus insurance. Do you know what goes into a startup package? What about travel and discretionary spending? What about teaching support? Reduced loads? The "two-body" problem? What about "hidden" perks and costs? What are the expectations per track? How much am I able to negotiate? Even then, the numbers and conditions they give you are not set in stone. Come hear from panelists Dr. Gabriela Gongora-Svartzman, Dr. Oscar Veliz, and Dr. Bryant, who have first-hand

knowledge of negotiating offers from both sides of the table, as they share their experiences and answer questions. This panel will discuss the many aspects of an offer, strategies for raising them, and tips to ensure you get the most out of your academic search.

Speakers: Gabriela Gongora-Svartzman; Oscar Veliz; Barrett Bryant

A Digital Advisor for Guiding Autistic Software Engineers in Solving Problems

Location: ConvCtr 147 B

Software development team leaders with autistic software engineers on their team know that these software engineers have difficulty with generating solutions to solve problems. Consequently, good software team leaders take the time and care to work with these autistic software engineers to guide them through the problem-solving process of developing a software solution. In this collaborative problem-solving process, software development leaders ask the questions that need to be answered in the creation of a good solution. These questions typically start with "What is the concept or idea behind the solution," followed by "What evidence tells why this solution is needed," and "What assumptions make this solution work?" which leads to the question "What is your prediction for how well the solution will work?" and ends with the questions "What are the implications and consequences of this solution?" Fans of Socrates will recognize that this is called "Socratic Questioning" and is used to facilitate critical thinking as a problem-solving process. This presentation describes how a computer-based advisor called Socrates Digital™ can keep autistic software engineers on track, document the outcome of a problem-solving session, and share those results with problem-solvers and larger audiences. In addition, Socrates Digital™ assists problem-solvers in combining evidence about their quality of reasoning for individual problem-solving steps and their overall confidence in the solution. As a result, Socrates Digital™ empowers software engineers on the autism spectrum to solve problems on their own and frees up time spent by their software team leaders in guiding them.

Speakers: Mark Salisbury

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Moving Towards a Causal Agenda: Recruiting, Retaining, Completing, and Employing Black Men in STEM

Location: ConvCtr 145 A

After decades of research and practice to broaden participation in STEM, it is necessary to assess how the most underserved populations in STEM have benefited. In this session, we share information about one of the the most underserved populations in STEM - Black men. We explore what is needed to develop a causal research agenda, in order to strengthen pathways for Black men in STEM and expand our practices. The audience will learn about “what works” based on empirical research to date, discuss gaps in knowledge not yet generated, and explore prevalent theories that can help us to frame future empirical studies. Opportunities will be provided for faculty, program administrators, and students to share their successes and discuss how we can make important contributions to recruit and employ more Black men in STEM.

Speakers: Faye Jones; Ebe Randeree

Overcoming the Data Science Literacy Challenge- An Organization’s Key to Being Data-Informed

Location: ConvCtr 145 B

It’s no secret that organizations of all kinds are striving to stay relevant and competitive by taking advantage of available technology and data. Today, this usually translates to the recruitment and hiring of data scientists to implement Artificial Intelligence and Machine Learning (AI/ML) techniques to automate workflows that process and analyze data, then use the results to gain insights and predict outcomes. Despite these efforts, organizations still struggle with the necessary culture shift required to fully embrace the power of data science to drive strategic thinking and decision making. But why? Factors such as the absence of relevant onboarding processes for data scientists, low data literacy levels within the general workforce, and insufficient guidelines for assessing technology investments contribute to this posture. Moreover, these same factors are likely to strengthen the barriers already facing minorities striving for successful careers in this field. In this talk, we examine a typical corporate scenario where implementation of data science technologies and techniques is the goal, discuss the need for basic data literacy at all organizational levels in all disciplines, and present some best practices to transition into a culture where being data-informed is the norm.

Speakers: Valerie Nelson

Superheroes Without a Suit: Developer Advocates - Peek into a Fulfilling Career Choice

Location: ConvCtr 144 C

Developer Advocacy is increasingly gaining popularity as an alternate career choice for software professionals. As a Developer Advocate at Postman, an API Platform used by over 20 million users I’ll highlight the multiple facets of the role, the importance of developer experience and the joy of contributing to a developer tool. Specifically, you’ll learn how to build your personal brand, contribute to developer communities, cultivate relationships and empower women in their tech journeys by learning and educating in public.

Speakers: Meenakshi Dhanani

The Role that Hispanic Serving Institutions Play in Broadening Participation in Computing

Location: ConvCtr 146 A

This panel will consider the role institutions play increasing Latino participation in computing and the potential growth of Latino talent for the discipline and the field. Excelencia in Education (Excelencia) seeks to accelerate Latino student success in higher education to address the U.S. economy’s need for a highly educated workforce and civic leadership. In parallel, academia, government and industry have been working to broaden participation in computing. Hispanic Serving Institutions (HSIs) are institutions with Hispanic enrollment of full-time equivalent undergraduate students of at least 25 percent. Yet, enrolling Hispanic students is not enough. Colleges and universities must be intentional in serving Latino students. Excelencia has been a change agent working with institutions to intentionally serve Latinos. Using University of Texas at El Paso as example, we discuss how universities have addressed structural inequities and earned the Seal of Excelencia. HSIs play a special role in increasing participation in computing. CAHSI has been promoting the growth of the Hispanic community in computing for years. The STARS Alliance is joining the effort seeking to create pathways from 2-year HSI community colleges to 4-year institutions located on the east coast. We discuss the role of industry with examples of Google’s outreach programs to HSIs. This session will outline action to: 1) plan for the opportunity of increased Latino enrollment, 2) be intentional

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through practices and leadership in supporting Latinos, and 3) partner with industry to broaden pathways to increase participation of Latinos in computing.

Speakers: Manuel Perez Quiñones; Sarita Brown; Joshua Gutierrez; Ann Gates

The Use of Fuzzy Logic and Decision Tree Algorithms as Classifiers

Location: ConvCtr 146 C

Classification algorithms abound in machine learning and have a great deal of utility in real world applications. This paper looks at two kinds of classification algorithms: fuzzy logic and decision tree. Fuzzy logic was first developed by Lofti Zadeh in a proposal paper on “fuzzy set theory” in 1965. On the other hand, the decision tree algorithm was first invented by Morgan and Sonquist in 1963. This paper will give a quick history of how these two algorithms were developed separately and applied in their own respective niche in real world applications. Then this paper will present the utility of possibly combining the two approaches. The paper will cite attempts that have been made to combine these two classification algorithms and cite real world applications where they could potentially be useful.

Speakers: Maria Vicente Bonto-Kane

3:45 PM - 4:15 PM

Afternoon Break

Location: ConvCtr Exhibit Hall A

4:15 PM - 5:15 PM

Tech Talk

AMIA: Leveraging Technology to Advance Health Equity

Location: ConvCtr 146 C

AMIA Diversity, Equity, and Inclusion Committee leadership (American Medical Informatics Association) <https://amia.org/about-amia/diversity-equity-and-inclusion>. Presentation #1: Co-establishing an infrastructure for routine data collection to address disparities in infant mortality: planning and implementation Fareed, N., Swoboda, C.M., Lawrence, J. et al. BMC Health Serv Res 22, 4 (2022). <https://doi.org/10.1186/s12913-021-07393-1> Efforts to address infant mortality disparities in Ohio have historically been adversely affected by the lack of consistent data collection and infrastructure across the community-based organizations performing front-line

work with expectant mothers, and there is no established template for implementing such systems in the context of diverse technological capacities and varying data collection magnitude among participating organizations. We created a data collection infrastructure to serve as both a solution to their existing needs and a template for future efforts. By standardizing the collected data elements across participating organizations, integration on a scale large enough to detect changes in a rare established infrastructure were robust enough to be matched with other records, such as Medicaid and birth records, to allow more extensive analysis. Presenter: Naleef Fareed, PhD (he/him) @NaleefFareed Presentation #2: Development of a Mobile App to Support Self-management of Anxiety and Depression in African American Women: Usability Study McCall T, Ali MO, Yu F, Fontelo P, Khairat S. JMIR Form Res 2021;5(8):e24393 doi: 10.2196/24393 <https://formative.jmir.org/2021/8/e24393> This talk will explore the potential for digital technology to reduce health inequities in the US, opening with a brief review of user-centered design to underscore the importance of the patient experience and perspective in digital design. Principles will then be illustrated by a case example: mobile app to support self-management of anxiety and depression in Black American women. Presenter: Terika McCall, PhD, MPH, MBA (she/her) @TelementalHlth

Speakers: Naleef Fareed; Terika McCall

Panels and Workshops

Connecting the distributed dots: 101 guide to demystify distributed computing & systems

Location: ConvCtr 145 A

More than 50% of the pioneering tech giants are built up on distributed computing such as Netflix, Amazon, and Uber to name a few. How AI and ML are boosting the tech stack is a known fact, but do you know “distributed computing and systems” is the spine which is holding it strong? If you are someone who aspires to build scalable, reliable, and fast systems, then knowing about distributed computing is necessary. Join us for the session where we talk about distributed computing in the simplest ways and learn more about the do’s and don’ts of designing distributed systems.

Speakers: Shrija Mishra; Vidhi Jindal

FRIDAY | PROGRAM SCHEDULE

Diversity Includes Disability

Location: ConvCtr 146 A

There is great diversity among individuals with disabilities, but there are also many common experiences. This Birds of a Feather session will bring together people who have a disability or who are interested in supporting individuals with disabilities. The goal of the session is to learn from each other about strategies for achieving success and ensuring that computing fields are welcoming and accessible to individuals with disabilities. Topics discussed will include: accessibility in computing education, disclosing disability status in interviews, recruiting and retaining employees and interns with disabilities, and including people with disabilities in broadening participation activities. The session will 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.

Speakers: Richard Ladner; Brianna Blaser

Intersectionality: Measuring and Visualizing Diversity

Location: ConvCtr 146 B

Concerns about representation in computing have driven numerous activities over many decades. These include K-12 efforts, college-level curricular interventions, conferences, and community-building efforts. Many of these efforts have been motivated by the goal to increase representation of a particular group, such as women or historically marginalized race or ethnic groups. Assessment of their and, indeed, a clear assessment of the actual “problem” being addressed has been limited by the nature of data analysis carried out on the populations in computing in several ways: * Reported CS degree data typically does not account for changes of the overall numbers in the undergraduate population, and relative proportion of the federally designated gender, race, and ethnicity groupings. * The majority of the BPC literature reports data on gender or on race/ethnicity, omitting data on students’ intersectional identities, often misrepresenting the data and the challenges we face as a field. * Emphasis has been placed on one metric, percentage of representation, but the challenges have multiple facets and one measure cannot capture the full complexity of the problem. * The data has focused on the demographics of the students and not on the

institution (e.g., whether enrollments are capped, the ratio of advisees to advisors, whether the intro sequence lumps together those with/without prior experience in computing). We argue that to assess the effectiveness of curricular, pedagogic, and institutional interventions, we should use multiple data analyses methods, each of which represents a different perspective on the situation faced and the accomplishments achieved.

Speakers: Valerie Barr; Manuel Perez Quiñones; Carla Brodley

Where Are the Black/African-American Faculty: An Analysis of Black/African-American Faculty in CS Research Departments

Location: ConvCtr 143 ABC

Black/African-American tenure-track faculty represent 1.7% of the computing faculty at PhD granting institutions according to the most recent CRA Taulbee Survey. However, the CRA Taulbee Survey does not include all relevant PhD granting institutions. Considering the computing pipeline and the need to increase representation we set to understand more about Black/African-American Computer Science (CS) faculty at PhD granting institutions. Specifically of interest is not just where the Black/African-American faculty currently work but also what schools produced these faculty members. Using relevant websites and personal networks, this study sought to identify the Black/African-American CS faculty. We will share the findings on the producers of Black/African-American faculty, their gender and where they are currently employed.

Speakers: Juan Gilbert; Jeremy Magruder-Waisome; Simone Smarr

4:15 PM - 5:30 PM

Culturally Responsive Pedagogy in Computer Science (CR in CS)-Overview of a Microcredential

Location: ConvCtr 147 A

Computer Science (CS) is the fastest growing academic subject in the United States, based on College Board Advanced Placement (AP) data, with thousands of new teachers starting to teach CS annually. These teachers are creating the access students need to be knowledgeable in this fundamental discipline and are the pipeline into higher ed CS programs. While the number of K-12 CS teachers in the US has exploded, most schools still do not offer CS; and

FRIDAY | PROGRAM SCHEDULE

when they do, teacher preparation is significantly less than other subject areas. Schools in marginalized communities are disproportionately impacted; they are less likely to have access to CS classes; and they are more likely to have new CS teachers without support for professional learning. Additionally, the CS teachers in NM are predominantly from culturally different backgrounds from their students. A potential remedy for this mismatch is for teachers to embrace culturally responsive pedagogy in computer science classes. Developing, supporting, and sustaining K-12 CS teachers is the key to more students learning CS. This workshop will provide an overview of the 'CR in CS' microcredential for NM secondary CS teachers. The material presented in this workshop may also inform undergrad faculty at Minority-Serving Institutions, with a focus on HSIs, as well as broadening participation in outreach programs that university CS departments have developed with area schools.

Speakers: Raena Cota; Paige Prescott; Yolanda Lozano; Santoya Martinez

Hiding Data in Sound Files

Location: ConvCtr 144 C

Cyber forensic analysts know that data can be embedded in many different types of files. Graphic image files remain a favorite vector of attack for hidden data. But, in this presentation, the audience will be shown how easy it is to hide data in sound files. Audio files like .mp3 and .wav files can become easy vectors of cyber attack. Using free, open source tools that anyone can download, members of the audience will be shown how to embed secret data in a sound file. This secret data can be carefully "stitched" into a .mp3 file or a .wav file. Once modified, the audio file will still sound like the original tune and with the embedded data present and barely distinguishable. Then, using simple tools, the audience will see how embedded data can be extracted and used for whatever purposes the author had originally intended it. This is a very simple demonstration and can be done by anyone. Knowing what attackers can do helps people become better aware and better cognizant where to look.

Speakers: Maria Vicente Bonto-Kane

Your Voice..Your Power

Location: ConvCtr 144 AB

There is power in women's voices. Your voice is your power. Knowing how to position your voice to navigate through your career and to make your next career move is critical. According to Dr. Katrina Hutchins in her book, *The Voice Positioning System: 7 Ways to Harness Your Power and Master Your Influence*, many times individuals have feelings of being isolated, uninvited, and silenced in organizations where they work (p.80). This workshop will provide an understanding of the power of your voice: why you need it, what to do with it, and how to stand boldly in it. Owning the power of your voice is the key to being seen, heard, and valued. The participants in this workshop will explore proven strategies to harness the power of their voices.

Speakers: Cheryl Swanier; Katrina Hutchins

6:00 PM - 9:00 PM

Tapia Conference Awards Banquet

Location: Hotel M2 - Salons 1-10

Knowledge First World The past decade has seen the rise of data science, organizations striving to democratize data, take data driven decisions following the notion that data is the new oil. The computing field has revolutionized data management in the past decade by developing efficient and scalable data systems among many more contributions. However, many of the data management problems that are encountered today are the same types of problems from 30 years ago. Per Einstein, we are driving ourselves insane: keep doing the same thing over and over and again and expecting different results. In this talk, I will argue that we have focused so much on data and have forgotten an essential ingredient: knowledge! We need to go through a socio-technical paradigm shift and into a Knowledge First world, where people, context and relationships come first in order to build a resilient world.

Speaker: Juan Sequeda

9:00 PM - 11:00 PM

Dance Party

Location: Hotel M4 - Independence Ballroom

SATURDAY | PROGRAM SCHEDULE

SEPTEMBER 10, 2022

POST CONFERENCE ACTIVITIES

8:00 AM - 4:30 PM

STARS Celebration

By Invitation Only

Location: Hotel M1 - Univ of DC & Georgetown Univ

The STARS Leadership Corps is the flagship program of STARS, where faculty mentor student-led teams in activities to broaden participation in computing. A panel of STARS faculty will reflect on successes and challenges in leading the SLC at their institutions, and then attendees will be asked to share their own BPC-related leadership experiences. Finally, small groups will collaborate to make plans to ignite STARS Leadership Corps at their own institutions.

9:00 AM - 11:00 AM

LEAP Alliance Breakfast & Focus Groups

By Invitation Only

Location: Hotel M2 - Salon 12 - 14

Breakfast will be served followed by focus group discussions.

CONFERENCE ORGANIZATION

THE 2022 CMD-IT/ACM RICHARD TAPIA CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE

The 2022 CMD-IT/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.

PRESENTER

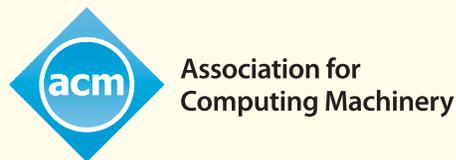


The Center for Minorities and People with Disabilities in Information Technology (CMD-IT)

cmd-it.org

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 underrepresented communities. The vision is realized through the mission to ensure that underrepresented communities are fully engaged in computing and information technologies and to promote innovation that enriches, enhances, and enables these communities. CMD-IT targets the following communities: African Americans/Blacks, Native Americans/Indigenous People, Hispanics/Latinxs, and People with Disabilities.

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The Association for Computing Machinery (ACM)

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ACM brings together computing educators, researchers, and professionals to inspire dialogue, share resources, and address the field's challenges. As the world's largest computing society, ACM strengthens the profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

Founded at the dawn of the computer age, ACM's reach extends to every part of the globe, with more than half of its more than 100,000 members residing outside the U.S. Its growing membership has led to Councils in Europe, India, and China, fostering networking opportunities that strengthen ties within and across countries and technical communities. Their actions enhance ACM's ability to raise awareness of computing's important technical, educational, and social issues around the world.

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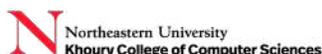
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SILVER SUPPORTERS



SILVER GOVERNMENT PARTICIPANTS



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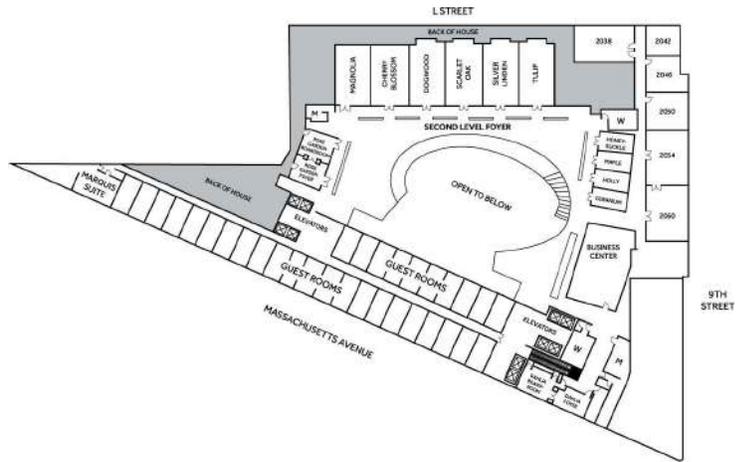
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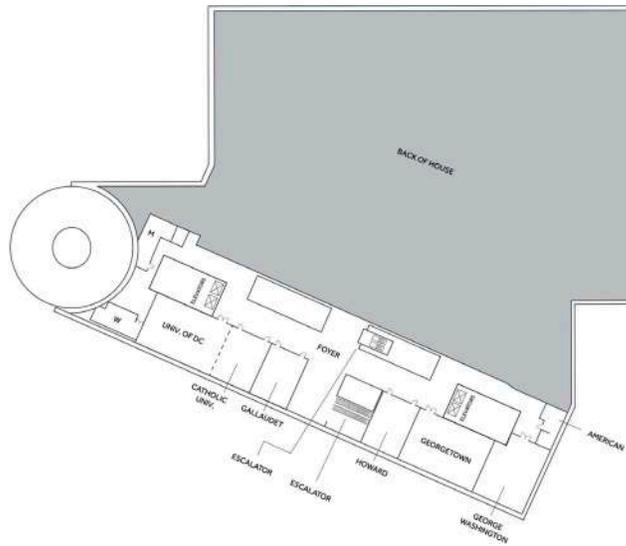
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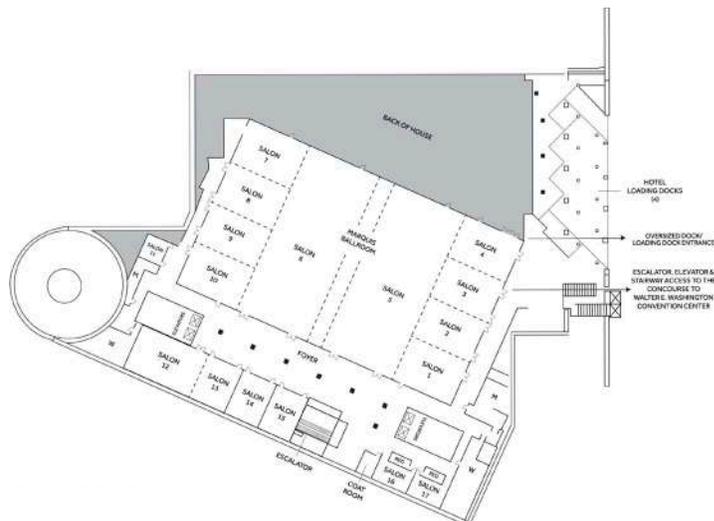
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(M2)
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