COMPUTING RESEARCH NEWS

Computing Research Association
Uniting Industry, Academia, and Government to
Advance Computing Research and Change the World.

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CRN At-A-Glance

CRA Update: 2024 CRA Conference at Snowbird Recap, Conference Slides, and a Few of Our Favorite Photos

The 2024 CRA Conference at Snowbird gathered leaders to discuss key computing research issues. Held from July 23-25, the event featured workshops, sessions on AI, diversity, and research integrity, as well as networking opportunities. Check out our conference summary, browse a few of our favorite photos, and access session slides.

Read more on page 2

Highlights of the July 2024 CRA Board of Directors Meeting

The CRA held its semiannual Board of Directors Meeting at Cliff Lodge, Snowbird, Utah, on July 22-23, just before the 2024 CRA Conference. The meeting included updates on CRA activities, discussions on government affairs, and various committee reports, including Career Mentoring and Socially Responsible Computing. Read our meeting summary, including what awards were presented for exceptional service and contributions.

Read more on page 4

Secure Your Spots Now: Sponsor Students for CRA-WP's Grad Cohorts Workshops!

Sponsor your students for the CRA-WP Grad Cohort for Women and Grad Cohort for IDEALS Workshops, April 3-5, 2024. These workshops provide underrepresented computing graduate students with essential networking, community building, and skill development. Limited to 90 students, secure your spots now to invest in your students' future success. Sign up today!

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In This Issue

CRA Update: 2024 CRA Conference at Snowbird Recap, Conference Slides, and a Few of Our Favorite Photos

By Matt Hazenbush, Director of Communications

The **2024 CRA Conference at Snowbird** brought together leading minds from academia, industry, and government to discuss the most pressing issues in computing research. This invitation-only biennial event, held from July 23-25, was a vibrant forum for collaboration, innovation, and professional growth. The picturesque Snowbird, Utah, served as an idyllic backdrop for a series of insightful sessions, networking opportunities, and engaging discussions.

Highlights of the Event

Pre-Conference Workshops and Welcome Events

The conference began on Tuesday, July 23, with a series of pre-conference workshops. One of the key events was the New Chairs Workshop, which was extended to a full-day event this year. This workshop provided new computing academic leaders with essential skills to effectively lead their organizations.

In the afternoon, the National Science Foundation (NSF) hosted a session titled "Expanding Geographic and Institutional Diversity in CISE." This event focused on NSF/CISE initiatives aimed at increasing geographic and institutional diversity in EPSCoR states. Participants from various institutions discussed their needs and challenges in creating and expanding CISE-related research infrastructures and ecosystems within their jurisdictions.

The afternoon saw industry professionals gather for the CRA-Industry "Meet-and-Greet" meeting, where participants discussed the expanding influence of industry within CRA. Later, attendees were introduced to CRA's extensive programs and opportunities during the CRA 101 session, led by Executive Director and CEO Tracy Camp.

The evening welcome reception on the Atrium Patio set a positive tone for the event, followed by a dinner talk on academic freedom and broadening participation in computing. The panel, which included Kamau Bobb (Georgia Tech), Carla Brodley (via video; Northeastern University, supported in person by Catherine Gill), and Jeff Forbes (NSF), discussed the challenges and opportunities in today's academic landscape and engaged with questions from the community.

Day One: Inspirational Talks and Interactive Sessions

Wednesday began with a hearty breakfast, followed by CRA updates and awards presented by Tracy Camp and CRA Board Chair Nancy Amato (University of Illinois Urbana Champaign). A highlight of the morning was a powerful session on Disability and Innovation by Haben Girma, a renowned human rights lawyer and advocate for disability justice.

The day continued with a series of parallel tracks addressing key issues in academia, industry, research, and society. Sessions covered topics ranging from hiring best practices and industry affiliate programs to mission-focused research and current DEI challenges. These discussions provided valuable observations and practical strategies for attendees to implement in their academic units and careers.

The afternoon's Lightning Talks from Future CRA Leaders showcased cutting-edge research and innovative ideas, while networking hikes provided a refreshing break and an opportunity for informal discussions.

The evening's dinner talk by Peter Harsha, "Making a Federal Case for Computing," was followed by a fun and interactive session of card games and socializing.

Day Two: Focus on AI and Future Visions

Thursday's agenda was packed with sessions focusing on artificial intelligence and its implications. Deirdre Mulligan, Principal Deputy U.S. Chief Technology Officer, kicked off the day with a plenary on the Biden-Harris Administration's actions on AI and efforts to build institutional support in the tech ecosystem.

Fernando Pereira from Google followed with an engaging talk on the development of generative AI and its future prospects. His session highlighted the importance of understanding AI within the context of human cultural output.

Parallel tracks continued throughout the day, with sessions exploring the future of graduate education, industry-academia partnerships, research integrity, and the security risks of generative AI. These discussions were instrumental in shaping the future directions of computing research.

The conference concluded with a dinner talk by Bill Dally from NVIDIA, who delved into the advancements in deep learning hardware and the future of AI technologies. His presentation provided a fitting end to an event focused on innovation and progress.

Looking Ahead

The 2024 CRA Conference at Snowbird brought together the leaders of the computing research community, fostering meaningful connections and inspiring new ideas. As we look forward to the next CRA Summit at Mystic Lake, MN, in 2026, we carry with us the lessons learned and the collaborations formed at Snowbird.

For a deeper dive into the materials from the conference, **check out the available slide presentation PDFs here.**

Thank you to all the attendees and speakers who made this event truly memorable. We extend our special gratitude to our sponsors, particularly our platinum and gold level sponsors, Microsoft, Google, and IBM, for their generous support. A special thank you as well to our event Co-Chairs, Maria Gini (University of Minnesota), Rachel Pottinger (University of British Columbia), and Divesh Srivastava (AT&T Labs).

We look forward to seeing you at Mystic Lake in 2026!

Highlights of the 2024 CRA Board of Directors Meeting

By Matt Hazenbush, Director of Communications

On July 22-23, the Computing Research Association (CRA) held its semiannual Board of Directors Meeting at Cliff Lodge, Snowbird, Utah, just before the 2024 CRA Conference at Snowbird. The meeting featured thoughtful and productive discussions among CRA Board members, CRA staff, society leaders, and distinguished guests.

Welcome and Introductions

The meeting began with a welcome from CRA Board Chair Nancy Amato and introduction of new board members. The Chair's remarks and an update from CRA Executive Director and CEO Tracy Camp set the stage for the meeting.

Executive Director and CEO Update

Camp provided several updates on CRA activities and accomplishments. She highlighted progress with the new CCC cooperative agreement and announced that CERP received a new NSF award for its evaluation work and will take over the CRA Taulbee Survey. Camp also shared that CRA-I received its first sub-award and is working on new proposals. She celebrated the early success of CRA-E's UR2PhD program, in collaboration with CRA-WP, which has already engaged more than 300 participants. Additionally, she discussed the modernization of the CRA job board, which aims to enhance the experience for both job posters and seekers. She also addressed planned improvements to our communications infrastructure through the implementation of an Association Management Software (AMS) platform.

Government Affairs Report

Following dinner, Brian Mosley, Associate Director of Government Affairs, delivered his Government Affairs report, covering key legislative and policy updates impacting computing research. The evening concluded with Board Members introducing the topics for the next morning's breakout sessions, setting the stage for the engaging discussions to follow.

Board of Directors Meeting *(continued)*

Key Discussions and Breakouts

The second day began with a review of CRA Board documents and updates on various collaborations and initiatives. The Board specifically discussed two recently published CRA Best Practice Reports: "**Report on Minority Serving Institution Engagement in Computing Research**" and "**Conference Submission and Review Policies to Foster Responsible Computing Research**." Additionally, a new best practices document, developed in collaboration between CRA and CCC, titled "**Catalyzing Interdisciplinary Computing Research: Best Practices for Researchers**," was also highlighted.

The Board also reviewed plans for the development of the 2024 **CRA Quadrennial Papers**. These white papers, produced every four years for the U.S. government's new administration, explore key areas and issues in computing research with the potential to address national priorities.

Board members then participated in breakout sessions covering three important topics:

- Who CRA serves well and potential areas for improvement.
- Encouraging responsible AI use in interdisciplinary research.
- Enhancing CRA's DEI efforts.

Committee Updates and Society Reports

Committee updates included the **Career Mentoring Workshop** (CMW), which expanded its scope with more federal agencies, added a teaching track, and increased attendee participation. The Governance Working Group is set to update bylaws and review board composition. The Socially Responsible Computing Working Group discussed new initiatives, while the New Chairs Workshop adopted a new all-day format. Additionally, discussions were held on expanding recruiter access to the CV Database, which saw a 50 percent increase in active CVs this year.

CRA Business and Awards

The CRA Board meeting also addressed CRA business, including thanking Snowbird organizers, approving February meeting minutes, and presenting the Treasurer's Report.

The Service to CRA Award was presented to Peter Harsha, COO and Senior Director of Government Affairs, in recognition of more than 20 years of devoted service to CRA. Harsha's service has included several tough assignments, such as Interim Executive Director and audit leader.

Notable "Above and Beyond" awards were given to CRA staff members Eniola Idowu for the UR2PhD evaluation launch, Janine Myszka for her leadership at Snowbird, and Jacob Wokenhauer for leading CRA's adoption of Monday.com.

Looking Forward

The meeting concluded with discussions on unfinished business and new business topics, followed by a lunch with the New Chairs Workshop attendees.

We Want Your Input!

Do you have suggestions for agenda topics for our next Board Meeting? We want to hear them! Please share your thoughts via **this Google Form**.

Join the Data Buddies Project – Sign Up by August 31!

CERP
Computing Research Association
Evaluation

By The Data Buddies Team

We invite your department to join the Data Buddies Project, an NSF-supported survey that collects data on the experiences of students and professionals in computing. By partnering with CERP, you'll join over 160 academic departments gaining valuable insights and exclusive data access.

Benefits include:

- **Customized Department Report:** Compare your students' responses with those from similar institutions.
- **Key Findings Report:** Digestible summaries of the most interesting survey insights.
- **Special Report Requests:** Customize reports based on different subsets or comparison groups, such as Doctoral students or specific majors.
- **DBS Dataset Access:** Request data from 2020 onwards, including subsets of undergrads, grad students, non-degree seekers, and alumni/professionals.

Participation is completely free! Sign up by August 31 to take part in this fall's survey.

SIGN UP TODAY!

Secure Your Spots Now: Sponsor Students for CRA-WP's Grad Cohorts Workshops!

CRA-WP
Computing Research Association
Widening Participation

By Lauren Lashlee, Senior Program Associate, CRA-WP

CRA-WP is thrilled to announce an exclusive opportunity for university departments to sponsor students for the upcoming CRA-WP Grad Cohort for Women and Grad Cohort for IDEALS Workshops! Scheduled for **April 3-5, 2024**, these workshops promise to be an invaluable experience for computing graduate students who are in an underrepresented group in computing, offering them the tools and connections needed to excel in their academic and professional journeys.

What's in Store

These workshops offer a wealth of benefits for attendees:

- **Networking Opportunities:** Students will engage with a dynamic community of peers and professionals.
- **Community Building:** Attendees will establish lasting relationships and find mentors to support their graduate journey.

CRA-WP's Grad Cohorts Workshops *(continued)*

- **Confidence and Skill Development:** Workshops are designed to help students tackle the challenges of graduate school and enhance their academic and professional skills.

Why Sponsor?

Sponsoring students for these workshops is a meaningful investment in their future. Your department can support **up to four students**, providing them with:

- Access to an extensive professional network.
- Essential resources and support systems.
- Skills and confidence to thrive in their academic and professional careers.

Act Fast: Limited Spots Available!

Please note, we can only accept departmental sponsorship for a total of 90 students. By committing early, you ensure that your students have the opportunity to participate in these transformative workshops and benefit from the experiences they offer.

We are currently finalizing the event location and will provide details before our public application process begins in September. Don't miss out on this chance to make a significant impact on the future of your students!

For more information on how to sponsor students or to express your interest, please complete our request form here.

DEPARTMENT SUPPORT REQUEST FORM

Let's work together to empower the next generation of computing leaders!

Find out more about our programs on our website: Grad Cohort for Women and Grad Cohort for IDEALS.

Celebrate Diversity with CRA at Tapia 2024

CRA-WP
Computing Research Association
Widening Participation

By Lauren Lashlee, Senior Program Associate, CRA-WP

The Computing Research Association (CRA) will have an exhibit booth at the ACM Richard Tapia Celebration of Diversity in Computing Conference in San Diego, CA Sept. 18-20, 2024. We will have friendly CRA staff manning the booth to share details about our various committees, as well as share opportunities for our next year of program applications! We'll have stickers, shirts, and tech tacos to share as you listen to our membership and program offerings.

There will be many great opportunities to connect with faculty, researchers, and students during the amazing session offerings and exhibit hall hours. You won't want to miss the Keynote of Phillip Gregory McKibbins, Chief Technology Officer for the Dallas Mavericks, on his model of servant leadership to inspire the next generation.

CRA at Tapia *(continued)*

Did you know? Chad Jenkins, Professor of Robotics at the University of Michigan and CRA-WP Board Member and Steering Committee Member, is this year's Richard Tapia Award Winner! Go find Chad and give him all the praise and congratulations after the ceremony at the reception on Friday, September 20, 4:00 - 7:00 pm PT. The agenda event is called " **Tapia Awards Ceremony & Celebration.**"

CRA-WP Mentoring Track at Tapia

Professional and Career Mentoring for Researchers in Industry and Government Labs

Thursday, September 19, 4:30pm - 5:45pm PDT

The CRA-WP Mentoring Track at Tapia is tailored for professionals from industry and government labs to enhance their career and professional skills, and is also valuable for those in academia contemplating a transition to industry or government roles. Attendees will benefit from discussions with three seasoned panelists and a moderator, gaining insights into thriving in research careers and advancing within industry and government labs. The session will begin with panelists sharing their career experiences to provide context, followed by conversations that address participants' specific goals and needs.

Find out more about CRA-WP's Mentoring Track at Tapia.

Speakers: ***Jaime Moreno***, *Distinguished Researcher Emeritus IBM (CRA-WP Board Member and Steering Committee Member),* ***Taghrid Samak***, *Meta,* ***Basak Alper Ramaswamy***, *NASA's Jet Propulsion Laboratory (JPL),* ***Gonzalo Ramos***, *Microsoft Research (CRA-WP Board Member)*

Don't Miss These Other Sessions Featuring CRA Leaders

Effective Programs for Increasing Diversity in Computing: Learning and Engaging

Thursday, September 19, 11:00 am - 12:15 pm PDT

Don't miss your chance to hear from representatives of NSF-funded Broadening Participation in Computing Alliances and other groups to showcase their successful diversity-boosting programs in computing. The session will feature presentations from various organizations, including AccessComputing, blackcomputeHER.org, CAHSI, CMD-IT/LEAP, CRA-WP, ECEP, iAAMCS, NCWIT, and STARS, each highlighting a key program. Attendees will then break into nine groups, each delving into the specifics of one of these programs. Participants will have the opportunity to gather valuable insights that can be brought back to their own institutions or used to forge new partnerships. By the end of the session, participants will have explored details of three effective programs.

Speakers: ***Valerie Taylor***, *CMD-IT (Former CRA-WP Board Member),* ***Jamika Burge***, *blackcomputeHER.org,* ***Jamie Payton***, *Temple University (BPC Alliance Partner),* ***Susan Rodger***, *Duke University (CRA-WP Board Member and Co-chair),* ***Brianna Blaser***, *AccessComputing/University of Washington (BPC Alliance Partner),* ***Ann Gates***, *CASHI/University of Texas at El Paso (CRA-WP Associate Board Member, BPC Alliance Partner),* ***Carol Fletcher***, *TACC,* ***Kinnis Gosha***, *Morehouse College/iAAMCS (CRA-WP Associate Board Member, CRA Board Member, BPC Alliance Partner),* ***Wendy DuBow***, *NCWIT (BPC Alliance Partner)*

CRA at Tapia *(continued)*

Integrating Diversity, Social Justice, and Intersectionality in Program Evaluation to Broaden Participation in Computing (BPC): Insights from BPC Alliance Representatives

Friday, September 20, 10:45 am - 11:45 am PDT

This panel features representatives from four NSF-funded Broadening Participation in Computing (BPC) alliances: CRA-WP, AccessComputing, the Institute for African American Mentoring in Computing Sciences (IAAMCS), and the Alliance Supporting Pacific Impact through Computational Excellence (ALL-SPICE). The discussion will focus on how program evaluation can advance these core principles in broadening participation efforts. Each panelist brings extensive experience in their alliance's program evaluation, recruitment strategies, and community engagement, offering valuable insights into promoting representation and accessibility in computing. Through dynamic discussions, the panel will highlight the critical role of program evaluation in fostering diversity, equity, and inclusion, aiming to drive meaningful progress and create a more inclusive computing community.

Speakers: ***Eniola Idowu,*** *Computing Research Association (CRA-WP Programs Evaluator),* ***Kinnis Gosha,*** *Morehouse College/iAAMCS (CRA-WP Associate Board Member, CRA Board Member, BPC Alliance Partner) ,* ***Brianna Blaser,*** *AccessComputing/University of Washington (BPC Alliance Partner),* ***Rylan Chong,*** *Chaminade University of Honolulu*

Diversity Includes Disability

Thursday, September 19, 3:00 pm - 4:00 pm PDT

According to the latest Computing Research Association Taulbee Survey, only about 4.1% of undergraduate computing students and less than 2% of computing master's and PhD students receive disability accommodations, often leading to feelings of isolation among these students who may struggle to connect with peers in similar situations. This Birds of a Feather session seeks to address this issue by bringing together individuals with disabilities and those interested in supporting them in computing education and careers. The session will focus on building community, sharing strategies for success, and promoting inclusivity in computing fields. It will feature brief introductions, discussions on internships, mentoring, career development, and resources for educators and employers, followed by group discussions on topics such as accessibility in computing education and recruiting employees with disabilities. Facilitated by organizers from AccessComputing and AccessCSforAll, this session aims to drive meaningful conversations and foster connections to enhance support for individuals with disabilities in computing.

Speakers: ***Brianna Blaser****, AccessComputing/University of Washington (BPC Alliance Partner),* ***Richard Ladner,*** *Professor Emeritus University of Washington (Former CRA-WP Board Member),* ***Raja Kushalnagar,*** *Gallaudet University (CRA-WP Board Member)*

Learning to Serve More Populations at PWIs

Friday, September 20, 2:45 pm - 3:45 pm PDT

The significant contributions of Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs) to broadening participation in computing are undeniable. Though the role of Primarily White Institutions (PWIs) in these efforts should not be overlooked. This panel will feature both early-career and seasoned scholars who have thrived in computing at PWIs, sharing their experiences and offering strategies for improving recruitment, retention, and outcomes for Black, Latino, and Indigenous students. The discussion will also highlight effective practices in undergraduate and graduate education to enhance diversity and research experiences at PWIs, impacting STEM fields at local, state, and national levels.

Speakers: ***Faye Jones,*** *Florida State University,* ***Christy Chatmon,*** *Florida State University,* ***Manuel A. Pérez Quiñones,*** *University of North Carolina at Charlotte (CRA Board Member),* ***Jamie Payton,*** *Temple University (BPC Alliance Partner),* ***Wanda Eugene,*** *Co-Founder & Managing Director My Deep Designs, Inc.,* ***Brianna Posadas,*** *Virginia Tech*

New ADA Title II Rule on Accessibility Impacts Computing Departments

CRA-WP
Computing Research Association
Widening Participation

By Richard E. Ladner, Professor Emeritus, Paul G. Allen School of Computer Science and Engineering, University of Washington; and Terrill Thompson, Accessibility Consultant, AccessComputing, UW-IT Accessible Technology Services, University of Washington

On April 24, 2024, the United States Department of Justice issued a new rule called "Nondiscrimination on the Basis of Disability; Accessibility of Web Information and Services of State and Local Government Entities" [1]. This rule, which covers web content and mobile apps, was published under Title II of the Americans with Disabilities Act (ADA) of 1990. In 1990, the web and mobile devices barely existed. This rule brings up to date the requirement of Title II that state and local government entities should be accessible. State entities include public universities and colleges, as well as public school districts. Depending on the size of the state or local government entities, compliance is required by April 24, 2026 (for entities with population size 50,000 or more) or April 26, 2027 (for entities with population less than 50,000).

In the following sections we provide the salient details of the rule and describe the impact on public universities and colleges, and more specifically on computing departments.

Salient Details of the Rule

The rule adopts the Web Content Accessibility Guidelines (WCAG) 2.1 Level AA as the technical standard for web content and mobile app accessibility [2]. The principles, guidelines, and many of the success criteria of WCAG 2.1 apply to a variety of technologies, including websites, web applications, mobile applications, videos, and digital documents. They are designed to ensure digital user interfaces are accessible to a full spectrum of users, including blind people, who may access digital content through audio (screen readers) or tactile (refreshable Braille) interfaces; deaf or hard of hearing people, who may require captions for video and transcripts for audio; people with limited movement, who may use the keyboard, speech input, or other input technologies rather than a mouse or touchpad; or people with speech disabilities, photosensitivity, learning and cognitive disabilities, among others. All of these individuals can access and use websites, digital documents, and mobile applications, if these resources are created properly for accessibility.

As mentioned above, the rule applies to websites, conventional electronic documents, and mobile applications. These are defined as follows in the rule:

- "*Web content* means the information and sensory experience to be communicated to the user by means of a user agent, including code or markup that defines the content's structure, presentation, and interactions. Examples of web content include text, images, sounds, videos, controls, animations, and conventional electronic documents."
- "*Conventional electronic documents* means web content or content in mobile apps that is in the following electronic file formats: portable document formats ('PDF'), word processor file formats, presentation file formats, and spreadsheet file formats."
- "*Mobile applications* ('apps') means software applications that are downloaded and designed to run on mobile devices, such as smartphones and tablets."

In defining the specific requirements for public entities, the rule frequently refers to web content or mobile apps "that a public entity provides or makes available, directly or through contractual, licensing, or other arrangements." This extends the requirements beyond content created by public entities (e.g., websites, digital documents) to include third-party applications. Public universities use thousands of third-party websites and mobile applications, all of which should be accessible. At the other extreme, an individual faculty member might develop their own website for a course they are teaching. Even though there may be no disabled students in the class, the website must be accessible according to the rule.

New ADA Title II Rule *(continued)*

There are some very specific exceptions to the rule:

1. Archived web content. Must meet all four conditions:
   a. Created before the compliance date.
   b. The sole purpose is for reference, research, or recordkeeping.
   c. The content is kept in a special area for archived content.
   d. The content has not been changed since it was archived.
2. Pre-existing electronic documents (e.g., PDFs)
3. Pre-existing social media posts
4. Content posted by unaffiliated third parties
5. Individualized, password-protected documents

These exceptions are fairly narrow, but do allow a university to preserve inaccessible material for research or other purposes. Comments posted on university social media websites by outsiders would not have to be accessible. There is some ambiguity in the exceptions for which we do not have an answer. For example, if the library at a public university provides access to private digital libraries, such as IEEE Xplore or the ACM Digital Library, then surely, the digital library interfaces should be accessible, but what about their articles that are typically PDFs? Are these digital libraries actually archives? The articles that are put in the digital library before the compliance date of the rule seem to be archived material, but what about articles that enter the digital library after the compliance date?

The Department of Justice shares enforcement authority with the Department of Education under Title II of the ADA. Neither agency actively polices ADA violations, but rely on individuals to file complaints. Most disability discrimination complaints against higher education institutions are filed with the Department of Education Office for Civil Rights, although individuals can also file private lawsuits. Once a complaint is filed, it can take a long time before it is reviewed, investigated, and settled or adjudicated.

Impact on Public Universities and Colleges

In a sense this rule is the outgrowth from past individual ADA complaints about access to university digital resources. One of the most prominent was the 2014 complaint by the National Association of the Deaf about the lack of access to video course materials and other official activities at the University of California, Berkeley [3]. This case was settled in 2021 with a consent decree that put a tremendous burden on the university to make its web content and electronic documents accessible. This new rule codifies some of the outcomes of the UC Berkeley case and adds mobile apps. Now, every public university has to meet similar accessibility requirements to those required of UC Berkeley in their consent decree. From prior research, universities have been improving the accessibility of their main websites [4], but the accessibility status of all the universities' web and mobile apps is unknown.

Our university, the University of Washington (UW), has taken several steps toward compliance in two years. It has created a new position of Deputy ADA Coordinator for Digital Accessibility to lead the effort toward compliance. It has created a task force to coordinate a university-wide response. The task force will first assess the current state of accessibility in key areas, then develop action plans for the response. It is also responsible for implementing the action plans. The university has purchased an enterprise web accessibility checker, PDF remediation software, and a robust new curriculum on digital accessibility that will be available to everyone in the UW community. This response is predicated on the fact that this rule will impact every faculty member, in every class, and most units in the university that support teaching and research. The University of Washington has done a great job of making its own centrally supported websites, YouTube channels, and other information outlets accessible. However, having all departments and their faculty do the same will be a major challenge.

Impact on Computing Departments

Computing departments have a special role to play in making sure that the accessibility requirements of this rule can be efficiently satisfied. First, just like all faculty at the institution, computer science faculty have to make sure their own courses are accessible.

New ADA Title II Rule *(continued)*

This could be done with the help of university or departmental resources that should be developed in response to the rule. A first step would be to do an audit of all the web and mobile apps that are used by faculty in courses to assess their accessibility. If any of the inaccessible ones are home-grown, then a plan to remediate them to make them accessible can be created. If they are third-party, then contact the third-party to notify them of the problem and request a roadmap to address their accessibility shortcomings, or switch to a more accessible app that has comparable functionality.

Second, faculty who teach courses about web and app design should include in their courses how to design and build accessible websites and mobile apps. More generally, computing faculty can teach about accessibility using the resources from Teach Access [5] and the new online book, Teaching Accessible Computing [6]. Even operating systems courses could have a unit on how to efficiently integrate access technologies such as screen readers into a working system.

Finally, this rule raises opportunities for more computing research. For example, many of the tools currently used for creating PDFs, including Overleaf and Google Docs, do not create accessible output; and the tools and processes needed for remediation of PDF are difficult to use. There are probably millions of inaccessible PDFs that need to be remediated for accessibility. How can that be done efficiently? Modern machine learning algorithms could be developed to support this conversion by automatically creating alternative text for images, automatically recognizing headings and other structural elements and tagging them appropriately, and so on. Already, speech recognition can be used to create captions in videos, but improvements are still needed in this area. Machine learning could also be applied to other challenges, such as automatically adding audio descriptions to videos or to complex data visualizations to make these media more accessible to blind users. Also, automatic accessibility checkers exist for websites and mobile apps, but these could be improved to check for functional user experience and usability, not just technical accessibility; and a new generation of assistive technologies could be developed that are able to adapt to the needs of individual users and provide efficient and effective access to any user interface they encounter, without depending on content authors and the developers of those interfaces to code everything properly for accessibility.

Summary

The new Department of Justice ADA Title II rule on digital accessibility presents a real challenge to public universities and colleges. At the same time, it presents opportunities to improve the computer science curriculum by having more emphasis on accessibility. Additionally, it creates new research problems in automating or semi-automating the development of accessible websites and mobile apps, and the automatic remediation of inaccessible electronic documents.

Acknowledgement

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UR2PhD Will Re-Launch the Computing Research Engagement and Awareness Workshop Series on August 19

CRA-E
Computing Research Association
Education

By Julia Sepulveda, Senior Program Associate, CRA-E

The Computing Research Engagement and Awareness series is part of the UR2PhD program, an initiative that aims to increase representation in computing research through increased training and community building. During the spring semester, the series gave students a glimpse into various computing research experiences, highlighting what computing researchers in academia, government, and industry do in their day-to-day roles.

On August 19, 2024 at 6 pm ET, the series will kick off for the fall term with the "Computing Pathways: What Degree is Right For Me?" workshop. The goal of the workshop is to illustrate what educational opportunities exist at varying educational levels. The workshop organizers will be answering questions like: what is a PhD and how does it differ from a masters degree? What are opportunities I can take advantage of as an undergraduate? And what might I want to consider when thinking about my own educational goals?

While we strongly encourage participation from students who participated in the undergraduate research methods course, the workshop sessions are open to all undergraduate students in North America, irrespective of skill level and experience. No research experience will be assumed during the workshop sessions.

To participate, students must register for the workshops.

REGISTER

Recordings from the spring 2024 sessions can be found on the Computing Research Association's YouTube channel; view the full playlist.

UR2PhD Is Accepting Institutional Partner Applications on A Rolling Basis

CRA-E
Computing Research Association
Education

By Julia Sepulveda, Senior Program Associate, CRA-E

The UR2PhD program was launched with the intent of dramatically increasing representation in computing research, as such it intends to help institutions build capacity for undergraduate research. Since launching, the UR2PhD program has partnered with nine institutions to help them scale and expand their existing research infrastructure, among them: Barnard College, Boston University, New Mexico State University, University of Alberta, University of California Riverside, University of North Texas, University of Waterloo, and Wellesley College.

Institutional partners are schools, or departments, that are committed to increasing the number of new researchers. Partners (via a local coordinator who is paid a stipend) commit to recruiting, selecting, and supporting more undergraduate researchers.

While the goal of the UR2PhD program is to catalyze change at scale, the UR2PhD team encourages participation from all types of institutions. The team is especially interested in partnering with institutions that serve large populations of underrepresented students.

To learn more about UR2PhD institutional partnerships, please visit the UR2PhD website (cra.org/ur2phd) and toggle to the "Institutional Partners" tab.

Applications for institutional partners are accepted on a rolling basis.

APPLY TODAY

New Undergraduate Researchers Encouraged to Apply for the UR2PhD Undergraduate Research Methods Course by August 23

By Julia Sepulveda, Senior Program Associate, CRA-E

The UR2PhD program intends to help expand capacity for research by offering training opportunities for new researchers. This fall, the UR2PhD program is offering the undergraduate research methods course to provide first-time researchers with an opportunity to learn, practice, and apply fundamental research skills.

The undergraduate research course teaches students how to read and interpret research papers, how to conduct a literature review, how to visualize data, and how to create a research proposal. Students leverage those skills in a practical way by applying them to their research projects.

Past participants in the program have described it as an essential and pivotal part of their research career. Van Ha Tran Nguyen, a graduate of Virginia Tech, shared that "Thanks to the UR2PhD program, I was able to work on Augmented Reality research. The program was instrumental in improving my soft skills development." Ines Santacruz Del Valle, a student from Boston University, noted that the course helped build her confidence. Ines noted "I would definitely recommend this program to other students. It is a new way to experience computer science, its putting the theory we learn from class into practice. And I feel more prepared and confident in my CS skills."

Applications **for the fall term of the research methods course are accepted on a rolling basis, with priority applications due on Friday, August 23, 2024**. To apply, students must identify a research project, mentor, and group. Given the collaborative nature of the course, students must also be willing and able to attend all course sessions at the same time as their team.

Students at institutional partner schools should speak to their local coordinator to inquire about how to get involved in the program. Institutional partner schools include: Barnard College, Boston University, New Mexico State University, University of Alberta, University of California Riverside, University of North Texas, University of Waterloo, and Wellesley College.

To learn more about the UR2PhD program, please visit: cra.org/ur2phd To apply, students should visit: https://forms.gle/fkJtemebexP5225CA

Fall Graduate Student Mentor Training Course Accepting Applications

By Julia Sepulveda, Senior Program Associate, CRA-E

During the fall term, the UR2PhD team will offer the graduate student mentor training course, a course that provides professional development opportunities for mentors of undergraduate researchers.

The graduate student mentor training course prepares participants for understanding how to cultivate strong and effective mentoring relationships in research environments, how to apply best practices in a practical manner, and how to sustain welcoming environments with mentees. The course provides participants with an opportunity to reflect on their past experiences and to interrogate who they want to be as mentors.

Graduate students who successfully complete the course are eligible to receive a $1,000 stipend.

Graduate Student Mentor Training *(continued)*

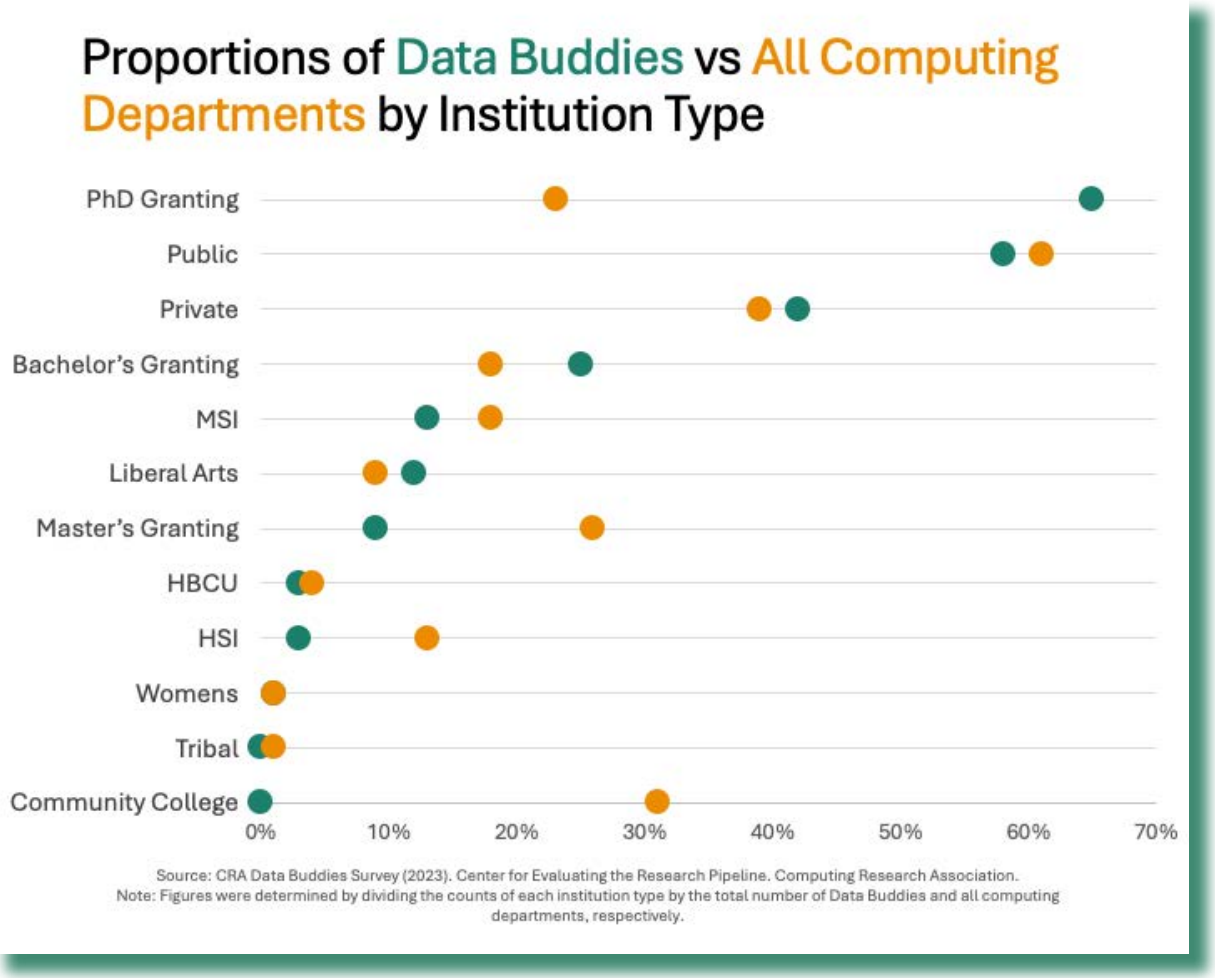
To participate in the course, students must be actively mentoring undergraduate students on a computing research project. Priority will be given to students who are mentoring participants in the UR2PhD undergraduate research methods course. To indicate interest in the course, students should complete this form before August 23, 2024.

Students at institutional partner schools should speak to their local coordinator to inquire about how to get involved in the program. Institutional partner schools include: Barnard College, Boston University, New Mexico State University, University of Alberta, University of California Riverside, University of North Texas, University of Waterloo, and Wellesley College.

To learn more about the UR2PhD program, please visit: cra.org/ur2phd

How representative are Data Buddies departments compared to computing departments overall?

By Brendan Kane, Research Associate, CERP



Data Buddies departments *(continued)*

The Data Buddies Project is a long-standing initiative of CRA's Center for Evaluating the Research Pipeline (CERP). The project began in 2010 with just 10 institutions participating (Wright, 2021). Since then, the number of institutions participating has increased to 147 in the 2023 Data Buddies Survey (DBS) cycle. The survey captures various measures from individuals in the computing field. Some of the measures in DBS include previous education and past experiences, general attitudes and beliefs regarding computing, and future plans and career aspirations.

CERP recently conducted an analysis comparing the departments that are currently participating in the Data Buddies project (n = 147) to computing departments at large. To conduct the analysis, CERP compared DBS institutions to the general population of institutions that awarded degrees in computing in the US in terms of their institutional characteristics (e.g., MSI status, highest degree awarded). The overall population of institutions was obtained based on the IPEDS degrees awarded data by selecting any institution that awarded a degree in a computing field (CIP codes 11.01, 11.04, 11.07, and 14.09) in 2022. Once the total proportions were determined within both Data Buddies schools and the overall population of institutions that awarded degrees in computing, CERP compared the difference in proportions to determine the representation status.

The analysis revealed that some of the institution types are similarly represented among DBS institutions as they are in the overall population of institutions. For example, MSIs, HBCUs, and bachelor's degree granting institutions are all within 10% of their proportion in the overall population. However, there are other types of institutions for which there is a larger difference between their representation in DBS sample and the overall population of institutions. Specifically, community colleges, master's degree granting institutions and HSIs are underrepresented among Data Buddies institutions. Additionally, the analysis found that doctoral degree granting institutions are overrepresented in the current Data Buddies institutions.

Help us make a change!

Using this information, the CERP team is working hard to balance the representation of institutions in the DBS. We highly encourage any departments interested in joining the project to sign up, especially if your academic department is among those underrepresented in our total proportions. Data collected via the project can help your department learn useful insights into student attrition and retention, as well as factors that support the successful matriculation into graduate school and research careers. Participating in the Data Buddies Survey is free for all departments. If your department is interested in becoming a part of the Data Buddies project, sign up here. If you would like to learn more about the project, click here.

References:

Wright, H. (2021). Expanding the Pipeline: Celebrating 10 years of the CRA Data Buddies Project. Computing Research News, 33(8): Washington, DC. URL: https://cra.org/crn/2021/09/expanding-the-pipeline-celebrating-10-years-of-the-cra-data-buddies-project/

The data analyzed for this infographic were collected by the Center for Evaluating the Research Pipeline via The Data Buddies Project. CERP provides social science research and comparative evaluation for the computing community. Subscribe to the CERP newsletter here. Volunteer for Data Buddies by signing-up here.

The Data Buddies Project is currently supported through U.S. National Science Foundation (NSF) awards (1821136, 2036717, and 2335072), sub-awards and contracts, and direct CRA contributions. Previous NSF awards that supported DBS include 1246649, 1431112, and 1840724. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Widening Participation Spotlight: Amanda Holloman, University of Florida

CRA-WP
Computing Research Association
Widening Participation

By Matt Hazenbush, Director of Communications, and Elora Daniels, Communications Associate

As part of CRA's mission to raise awareness and engagement in efforts to widen participation in computing, Computing Research News presents a Q&A series titled "Widening Participation Spotlight: Conversations with Underrepresented Computing Researchers." This series highlights the work of community members who are actively involved in widening participation for underrepresented groups in computing or who have participated in CRA-WP activities. Through direct interviews with mentors and students, this series aims to showcase important initiatives and raise awareness of the various opportunities available for those interested in mentoring and community-building.

In our inaugural Q&A, we spoke with Dr. Amanda Holloman, a Visiting Assistant Professor at the University of Florida, about her experiences as both a mentor to young computing researchers and a former participant in the CRA-WP mentoring program at Grace Hopper. Dr. Holloman earned her PhD from the University of Alabama, with a focus on human-computer interaction (HCI), brain-computer interfaces (BCI), and olfactory-based interactions (OBI).

What inspired you to pursue a career in computing research?

Growing up on the west side of Atlanta, not many people finish high school, let alone go on to earn a bachelor's degree. During my sophomore year of high school, my parents divorced, and a house fire soon followed. I began looking for a school activity to keep me busy and out of the streets. I wasn't sure what to pursue, but God guided me to explore computers. I asked my computer science teacher if he had any school activities because my mom always said, "an idle mind is the devil's workshop."

My high school had two computing opportunities: Girls Who Code and I3 at Georgia Tech. I signed up for I3 at Georgia Tech, which is where I met Dr. Christina Gardner-McCune. Being around her and seeing a Black woman with a PhD, calling her "Doctor," was an incredible experience. She encouraged me to pursue a degree in computer science. I ended up earning my undergraduate degree from Albany State University, and now Dr. Gardner-McCune is my colleague!

Ultimately, I began to explore computing research because I had a mentor who looked like me and believed in me.

What were some of the challenges you faced as a Black woman in Computing?

In grad school, being at a predominantly White institution was very isolating. When I first started, I was the only young Black woman, which made me feel underprepared. Everyone else around me was male and had access to resources I didn't even know I needed.

How did you first hear about the CRA widening participation mentoring program at Grace Hopper and what motivated you to get involved?

My mentor, Dr. Monica Anderson, said, "You need to be a part of this. This is something that I feel will greatly benefit you. You get to meet other people of color and women in computing." I wanted to experience something different from what I was used to seeing in Alabama. Meeting the women there, talking to them, and hearing about their experiences — learning about the trials and tribulations they overcame — made me feel less alone in my journey.

Amanda Holloman *(continued)*

Can you describe your experience with the CRA WP mentoring program? How did it impact your educational and professional journey?

It really motivated me to do more. It gave me something to look forward to and strive for. I realized that if I didn't make it, I wouldn't be able to help someone else. The program inspired me to keep going so I could hopefully support and inspire other young women. Career-wise, it opened my eyes to the different avenues I could explore. It got me thinking, "Maybe I want to go into industry and do research through different companies, or maybe I want to be a data analyst. Or perhaps I understand academia and want to teach, be an instructor, or do research."

Having these opportunities laid out in front of me helped me see what I was most comfortable with. Talking to different women and hearing their experiences helped me narrow down my interest in staying in academia. I like autonomy and having the opportunity to explore my own curiosities.

Can you share any specific moments or interactions during the mentoring program that were particularly impactful or memorable?

I'll never forget it. Grace Hopper is HUGE. It was so amazing. I remember walking past a long line of people waiting to talk at the Apple booth when a woman asked if I had applied to work at Apple. I hadn't considered it because I'd heard they weren't really looking for PhDs at the time. She asked about my research, and I told her about my focus on olfactory interactions. She was so intrigued that she signed me up on the spot and brought me to the front of the line to talk to another researcher. She was so excited by my work. It was really inspiring to have someone I had just met have that much faith in me. That moment taught me not to count myself out.

How did having a mentor through CRA-WP or otherwise influence your approach to research and your career trajectory?

It really changed my whole career trajectory and my life. God has blessed me with intelligent women to guide me from kindergarten all the way up. When I got to graduate school, having my mentor from high school, Dr. Christina Gardner McCune, as well as Dr. Monica Anderson and Dr. Susan Vrbsky at UA, really motivated me to want to be a mentor myself.

During the pandemic, I founded a nonprofit called The BankHead Foundation, which aims to offer new perspectives to encourage independent thinking and self-sufficiency and allows me to continue mentoring young women. This year, I was also sponsored by a Christian community school in Gainesville, Florida, to support a summer camp for young women. I'm sponsoring seven young ladies, and we go on field trips, I teach them computer science, and we reflect on how to be a better person, woman, friend, daughter, and sister, and how to achieve their dreams. I tell them, "Whatever I do for you, you have to promise me that you'll pay me back by helping another young lady. I'm only able to sit here and do this for you because women before me did it for me. So, to pay me back, you have to help someone else."

I teach them that we are standing on the shoulders of the women who came before us. You're living your life for the people before you and after you, and you can only do your best in the present moment.

I was very blessed to have many mentors, especially Christina Gardner, Dr. Monica Anderson, my high school vice principal Ms. Taylor, and Ms. Danielle Evans. These mentors introduced me to different environments, opportunities, and ways of life, showing me how to carry myself and how to answer questions.

Amanda Holloman *(continued)*

What advice would you give to young women of color who are considering a career in computing research?

There will be times when it's not easy. Nothing worth having in life ever comes easy, and if it does, you won't have it for long. CS research is very rewarding, but it's also very demanding and consuming. Make sure it's something you genuinely want to do. Find a purpose—find a cause that truly resonates with you.

For me, it was olfactory research because I wanted to help alleviate negative physical manifestations like anxiety attacks and panic attacks, specifically psychogenic seizures. My mom was diagnosed with epilepsy, but I could tell it was not regular epilepsy. After a lot of research, it became apparent that they were psychogenic seizures. Having something close to me kept me from giving up. Find something that means something to you, a cause you're willing to lose sleep over and sacrifice for. Don't give up because your CS research is going to be a small dot in the big circle of life and research. Your dot is important because, without it, the circle doesn't close. Make your dot the brightest it can be.

It's going to get hard, but don't give up. Stay motivated and keep your mind focused. It's not just for you; remember why you're doing it and keep going. If my mentors taught me anything, it was "don't give up." You can stop, take a break, and cry if you need to, but don't give up.

How do you balance your research teaching and mentor responsibilities?

I know what I'm doing it for, and I just try to stay focused. I have a notebook where I write down everything I have to do and color-code it: pink for research, yellow for personal matters, and green for my nonprofit. I write everything down, and when one sheet gets full, I move to a new one. But I have to cross everything out before starting a new sheet. Having my responsibilities laid out helps me get all my ideas and thoughts out of my head and see them concretely. It doesn't feel as overwhelming because I can prioritize tasks based on their deadlines.

Staying organized like that really helps. Also, having a good support system is crucial because there are days when I don't feel my best. Calling my support system and having them speak life into me helps a lot. A good support system, a clear focus on what you need to do, and prioritizing your responsibilities are key.

How can organizations and institutions better support underrepresented groups and computing research?

Having a good financial support system in place to assist students from backgrounds like mine, where parents may not be able to fully support them with tuition and basic necessities like groceries, would be immensely helpful. When I was about to graduate, I didn't even have enough funds to pay for my cap and gown. My department chair ended up covering the cost for me. Without these mentors providing financial, mental, emotional, and spiritual support, I wouldn't have been as successful as I am today.

Expanding the Pipeline: Hack Your Way to an Undergraduate Research Group

CRA-WP
Computing Research Association
Widening Participation

By Brian Harrington, University of Toronto Scarborough

Involving undergraduate students in research can improve their academic performance, raise their self-esteem, and make them more likely to consider graduate school. Starting an undergraduate research group, especially for a teaching-stream faculty, can feel like a daunting task that requires lots of time, energy, and money. But with a few simple hacks, you too can start up your own group and help your students on their way to careers in research.

The goal of this guide is to build a self-sustaining undergraduate research group where:

1. You can provide basic exposure to research to as many students as possible
2. Students will build their research skills as they progress
3. The skills that the students develop will be of benefit to them whether or not they go to graduate school
4. Everything is entirely 'opt-in', so that students progress based on effort, but never feel compelled to take on more than they can handle
5. You can do the above on little to no budget, and without burning yourself out

We highlight a few key strategies.

Step 1: Weekly paper reading group

This is a cheap and easy way to get your group rolling. Once per week, choose a paper, distribute the pdf (tip: don't send the doi, sending the pdf directly will save the students the hassle of struggling to access the paper), and a week later you meet to discuss and analyze. This gives students an easy opportunity to familiarize themselves with reading and discussing papers.

Ways to hack this step:

- Have the students present the papers: This provides students opportunities for public speaking and presenting practice and takes some of the burden off you. Depending on your size, they can present solo or in small groups.
- Choose papers you'd have to read anyway: If you keep the focus of the group similar to your own research, you can avoid having to spend time on papers just for the reading group. (mini-hack: hold a special session where you teach the students about peer review by helping me with your backlog of review papers).
- Let the students slack off: Aside from the students who are presenting that week, it doesn't matter if the rest of the audience has deeply read and understood the paper. In fact, you can encourage first timers to not read the paper so they can just absorb the discussion. This also helps students not feel overwhelmed if they can't keep up in a given week, or worse yet, to stop showing up because they miss a week or two.
- Slack off yourself: while you probably can't get away without having read the paper at all, you don't need to know every detail of the paper to help facilitate a group discussion. It's not the end of the world if you've only had time to quickly skim the paper beforehand, especially if you're choosing papers within your area of expertise, you can probably bluff your way through the occasional week

Step 2: Literature Mapping

Literature reviews require a deep understanding and analysis of papers. Literature maps, on the other hand, are simpler projects that let you leverage a group of people, and get students to read a lot of papers, but don't require too much depth on any individual paper. In literature mapping, you simply categorize papers on a number of dimensions to produce multi-dimensional maps. So if you want to find all the papers that use a particular methodology on a particular population, or papers that evaluate a particular intervention using a

particular analysis technique, you can find it. These maps are beneficial to the community, and require students to read the papers in a directed, guided fashion, looking for specific questions "Does this paper use interviews?", or "Are the results reported by gender?"

Ways to hack this step:

- Make the literature mapping project a reward for delivering good quality presentations in the reading group. This will motivate students to put in the effort throughout the term and also guarantees that the students have at least the fundamental exposure to research necessary to read and assess the papers.
- Double-code everything: Each paper should be read and coded by at least two students separately, and their answers should be compared. It gives a sense of accountability, and an opportunity for discussion when it comes time to resolve discrepancies, and also lets you be reasonably certain that your maps show what you claim they do.
- Use shared spreadsheets: There are fancy tools out there, but a simple shared spreadsheet is easier to set up, and way less hassle to administer. We have made a template spreadsheet that facilitates all assignments and resolving coding discrepancies, along with some scripts to turn your output into pretty LaTeX tables and heat maps at https://github.com/BrianHarringtonUTSC/LiteratureMapping
- Make it what you can make it: Lit-mapping projects as a summer reading course, as a paid internship, or even as a `just for fun' summer project. Obviously, the amount you can offer students in terms of money/course credit will dictate how much you can expect out of them (footnote: if you CAN afford to reimburse your students, please do), but these projects can go anywhere from a super serious research project that is marked and assessed, to a fun light activity where students drop in and out as time permits (just make sure you're clear about the expectations with your students at the outset).

Step 3: Research Symposium

By the time students have completed a literature mapping project, they're ready to start being helpful to full research projects. Establishing an annual undergraduate research symposium in the fall lets every student who did a summer project, or a summer reading course, or just did some cool project over the summer, have an opportunity to present their work in a (semi) formal setting.

Ways to hack this step:

- Use symposium submissions as end of term project deliverables: Students doing capstone courses, reading courses, or projects all probably have to be delivering some sort of end-of-project presentation/writeup anyway. Let them re-use that work for the symposium
- Accept (almost) everything: Just make students submit an abstract, and then accept them as long as the abstract shows that they have done a reasonable amount of work. As the symposium grows, you will likely need to be pickier in your acceptances, but by that point, you will hopefully have trained some students who can help you perform the reviews.
- Pad it out: if you're worried that your group doesn't have enough projects to support a symposium, have students present other projects they've done, allow students to represent stuff from the previous year, and fill out the schedule with some faculty talking about their own research.
- Keep it simple: your symposium doesn't need to feel like a big international conference. You don't need a complex schedule and peer review process. Most of the students won't know what to expect, so whatever you can do is probably enough to give them a good experience
- Make it (feel) formal: even keeping it simple, you can do a few little things to make the symposium feel like a bigger deal. Printing up some nice looking posters, making a good looking submission form, and sending a formal sounding acceptance email, inviting someone to give a "keynote", little things can make students feel like they're getting a more "real" experience

Step 4: Combine it all into one big funnel

The best part about this model is that it creates a natural funnel for students. As many students as you can fit in the rooms can attend reading group sessions, and even if all they do is just sit and listen, they still get some exposure to research. Then a small number who show up regularly and show that they're attentive can be invited to present. Of the ones who show dedication in their presentation, you can invite some to literature mapping projects, and then those who excel in the projects can be invited to participate in full research projects and present at the symposium. At each stage, students can get more involved if they're willing to put in the effort, or they can stop at any stage if they don't feel they have the time or energy to move on to the next level.

Not only does this funnel naturally select for students who are going to have the time and dedication to proceed to the next stage, it teaches them the skills in a nicely scaffolded way, building up from listening, to discussing, to reading, to analyzing, to conducting research.

This is the model I used to build my own undergraduate research group on no budget, with minimal external support, and without drowning myself in extra work. Some of these steps may work for you, others may not. And you'll probably find your own version that will work in your context. But the key is this: your activities and your group don't need to be perfect. They can be messy and hacked together, as long as you're helping and supporting your students, and giving them experiences they wouldn't get otherwise.

The take-home message here is: Cut corners, take the easy route, use every hack available until you. Your first attempt won't be perfect, it may even be a flop, but an imperfect flop is better than nothing at all. Keep pushing forward, making small improvements each year, and eventually, you too can hack your way to an undergraduate research group.

About the Author

Brian Harrington is a Professor, Teaching Stream at the University of Toronto Scarborough. His teaching focuses on introductory computer science for non majors and social topics courses developing research, writing, and presentation skills. Since 2017, he has focused on CS education with an emphasis on involving undergraduate student in research. His undergraduate research team has published over 20 papers with more than 50 student co-authors, many of whom have gone on to top graduate programs. He holds his MSc and DPhil from Oxford University.

CCC Extends Warm Welcome to New Council Members

CCC
Computing Community Consortium
Catalyst

By Petruce Jean-Charles, Communications Associate, CCC

CCC is thrilled to announce that the following six computing researchers have joined the CCC Council:

- Weisong Shi, University of Delaware
- Rayid Ghani, Carnegie Mellon University
- Sebastian Elbaum, University of Virginia
- Rachel Greenstadt, New York University
- Manish Parashar, The University of Utah
- Gabrielle Allen, University of Wyoming

New Council Members *(continued)*

Starting July 1, newly appointed members will begin their three-year terms on the CCC Council. Consisting of 20 individuals with expertise spanning various computing areas, they play a vital role in steering CCC's visioning initiatives and facilitating the emergence of innovative ideas for future computing research.

The CCC and CRA extend our gratitude to outgoing council members whose terms conclude on June 30, and recognize their outstanding commitment and contributions to the CCC and the wider computing research community:

- Sven Koenig (University of Southern California)
- Brian LaMacchia (Farcaster Consulting Group)
- Mona Singh (Princeton University)
- Ufuk Topcu (University of Texas at Austin)

Interested in becoming a council member? Each spring, the CCC issues a call for nominations for Council members starting the following July. For more information, please visit the CCC website or contact CCC Director Mary Lou Maher at mmaher@cra.org.

Weisong Shi is an Alumni Distinguished Professor and Department Chair of Computer and Information Sciences at the University of Delaware (UD). He leads the Connected and Autonomous Research (CAR) Laboratory. Dr. Shi is the Honorary Center Director of a recently funded NSF eCAT Industry-University Cooperative Research Center (IUCRC) (2023-2028), focusing on Electric, Connected, and Autonomous Technology for Mobility. He is an internationally renowned expert in edge computing, autonomous driving, and connected health. His pioneer paper, "Edge Computing: Vision and Challenges," has been cited over 7300 times. Before joining UD, he was a professor at Wayne State University (2002-2022). He served in multiple administrative roles, including Associate Dean for Research and Graduate Studies at the College of Engineering and Interim Chair of the Computer Science Department. Dr. Shi also served as a National Science Foundation (NSF) program director (2013-2015). He is a Fellow of IEEE, an ACM Distinguished Scientist, and a member of the NSF CISE Advisory Committee.

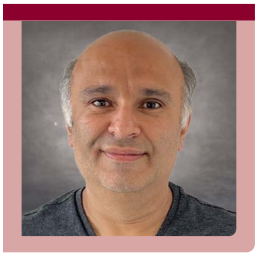
Sebastian Elbaum is a Professor in the Department of Computer Science at the University of Virginia where he co-leads the Lab for Engineering Safe Software (LESS Lab). His research aims to build dependable systems through domain-specific analysis techniques. He is the recipient of an NSF Career Award, an IBM Innovation Award, a Google Faculty Research Award, an FSE Test of Time Award, five ACM SigSoft Distinguished Paper Awards, and multiple best paper awards. He also holds several patents. He regularly serves in program committees at the top software engineering and robotic conferences, and has served as Program Co-Chair for ISSTA07, ESEM08, and ICSE2015, and as Steering Committee Chair for ICSE. He co-founded the company Drone Amplified. His latest work focuses on robotic systems with learned components. He is an ACM Fellow and an IEEE Fellow.

Manish Parashar is Director of the Scientific Computing and Imaging (SCI) Institute, Chair in Computational Science and Engineering, and Presidential Professor, Kalhert School of Computing at the University of Utah. He recently completed an IPA appointment at the National Science Foundation as Office Director of the NSF Office of Advanced Cyberinfrastructure where he oversaw investments in national cyberinfrastructure. He also served as co-chair of the National Science and Technology Council's Subcommittee on the Future Advanced Computing Ecosystem and the National Artificial Intelligence Research Resource Task Force. Manish's expertise is in high performance parallel and distributed computing and cyberinfrastructure, and he has made pioneering contributions towards enabling new insights through large-scale computations and data in a range of science and engineering domains. Manish has received a number of awards for his research and leadership, including most recently the 2023 IEEE Computer Society Sidney Fernbach Award and the 2024 CRA Distinguished Service

New Council Members *(continued)*

Award. Manish is the founding chair of the IEEE Technical Consortium on High Performance Computing (TCHPC), and is a Fellow of AAAS, ACM, and IEEE/IEEE Computer Society.

Gabrielle Allen is the Founding Director of the School of Computing at the University of Wyoming, where she is also a Professor of Mathematics and Statistics, and Adjunct Professor of Physics and Astronomy. She received a B.S. in Mathematics from Nottingham University in 1988, completed Part III of the Math Tripos (MASt) at Cambridge University in 1989, and received a PhD in Physics from Cardiff University in 1993. She has previously held academic positions in interdisciplinary computational science at Cardiff University, Max Planck Institute for Gravitational Physics, Louisiana State University, Skolkovo Institute of Science and Technology, and the University of Illinois Urbana-Champaign. From 2011 to 2012 she served as a Program Officer at the National Science Foundation in the Office of Cyberinfrastructure. Her research work has focused on the development and application of scientific community software, including the Cactus Framework, Einstein Toolkit, and Grid Application Toolkit. While her work has focused on the modeling of black holes, neutron stars, and gravitational waves, she has worked in diverse disciplinary fields including computer science, education, petroleum engineering, computational chemistry, coastal modeling, and computational fluid dynamics. Dr. Allen was awarded the Gordon Bell Prize in Supercomputing in 2001, the IEEE International Scalable Computing Challenge award in 2009, and the High-Performance Bandwidth Challenge award in 2002. In 2017 she was elected a Fellow of the American Physical Society.



Rayid Ghani is a Distinguished Career Professor in the Machine Learning Department and the Heinz College of Information Systems and Public Policy at Carnegie Mellon University. Rayid works at the intersection of AI/ML/Data Science and Public Policy/Social Good, focusing on developing and using these technologies to help tackle public policy and social challenges with a deliberate focus on fairness and equity. Rayid closely works with governments and nonprofits to help develop systems in policy areas such as health, human services, criminal justice, education, public safety, economic development, and urban infrastructure. He is also passionate about teaching practical ML and data science and started the Data Science for Social Good Fellowship that trains computer scientists, statisticians, and social scientists from around the world to work on data science problems with social impact. His research focuses on Human-ML collaborative systems, dealing with fairness and bias issues in ML/AI systems, and on AI governance. Before joining Carnegie Mellon University, Rayid was the founding director of the Center for Data Science & Public Policy, research associate professor in Computer Science, and a senior fellow at the Harris School of Public Policy at the University of Chicago. Previously, he was the chief scientist of the Obama 2012 Election Campaign where he focused on data, analytics, and technology to target and influence voters, donors, and volunteers. In his ample free time, Rayid obsesses over everything related to coffee and works with nonprofits to help them with their data, analytics, and digital efforts and strategy.

Rachel Greenstadt is a Professor of Computer Science at New York University where she teaches graduate-level courses in computer security and privacy. She founded the Privacy, Security, and Automation Laboratory at Drexel University in 2008. She leads a research team of PhD students and undergraduates with interests and expertise in information extraction, machine learning, human-centered computing, privacy, trust, and security. Dr. Greenstadt's scholarship has been recognized by the privacy research community. She is an alum of the DARPA Computer Science Study Group and a recipient of the NSF CAREER Award. Her work has received the PET Award for Outstanding Research in Privacy Enhancing Technologies, the USENIX Distinguished Paper Award, the CSCW Best Paper Award, and the Andreas Pfitzmann Best Student Paper Award. She served as co-editor-in-chief of the journal Proceedings on Privacy Enhancing Technologies (PoPETs) for the 2017 and 2018 volumes and was the co-program-chair of the 2021 USENIX Security Symposium. Her research has been featured in the New York Times, the New Republic, Der Spiegel, and other local and international media outlets.

Learn more about the CCC Council and its members on our **webpage**!

CCC Q&A: A High Performance Computing Researcher Explains Sustainable AI

CCC
Computing Community Consortium
Catalyst

By Petruce Jean-Charles, Communications Associate, CCC

CCC spoke with one of its council members, Michela Taufer about her work in high performance computing (HPC) and her contributions to sustainable AI.

Taufer has profoundly shaped the landscape of HPC through pioneering contributions that transcend traditional boundaries. Her career spans pivotal areas including volunteer computing, large-scale data management analytics workflows, and accelerator-based supercomputing. Taufer introduced groundbreaking techniques to ensure computational accuracy in unpredictable volunteer computing environments, laying a foundation for reproducible outcomes. She also championed principles to enhance data FAIRness long before their widespread adoption, significantly influencing modern data management practices in HPC.

Taufer's innovative solutions, such as the homogeneous redundancy algorithm and composite precision approach, have advanced reproducibility in diverse computing systems, fostering trust in scientific computing and underlining her enduring impact on HPC's evolution and credibility worldwide.

What interests you about sustainable AI?

My interest lies in sustainable AI for science. Two key challenges intrigue me a lot these days: the power consumption required to train AI models and their opacity. The two challenges are linked.

With power consumption, AI models are increasingly deployed in new research areas, such as high-throughput data analytics, to understand how our planet changes. I am referring to aspects like modeling the ocean, predicting soil moisture patterns, and tracking changes in atmospheric composition – all aspects that significantly impact our lives. With the growing deployment of satellites and sensors, the amount of data available is increasing, enabling the training of more powerful AI models. However, training these models on High Performance Computing (HPC) resources is extremely power-intensive, highlighting the urgent need to minimize the power consumption of HPC resources. I often hear alarming statistics about the power required to train even simple models.

Estimates for the energy consumption involved in training are often compared to the yearly energy use of multiple households, and these numbers are pretty scary. Unfortunately, many of these figures are speculative and fail to provide a clear picture to the general public. I want the HPC community to come together to define straightforward methods to assess these numbers and make them understandable to the public.

With the opacity of AI models, ensuring that AI models are explainable and reproducible is another critical challenge that intrigues me. Why should we trust the outcomes of AI models? Are these outcomes reproducible? I believe that to answer these questions, we need to learn from the training processes of AI models. However, to save energy, we often store only the trained models and their final fitness values without capturing the training lifespan in a shareable and searchable format. This limits our ability to learn, reuse, and reduce resource use.

We should address this chicken-and-egg problem—should we use less energy and discard information? Or should we save information even if it's causing higher costs and have the tools to rely on the AI model? I prefer the second solution because, while this approach might consume power in the short term, it creates public trust in AI models by providing information to reason about them. Furthermore, lessons learned can help reduce training in the long term, thus saving energy in the future.

I want the HPC community to come together and define a sustainable tradeoff that has a long-term impact on reasoning about AI models and their outcomes while mitigating power consumption by promoting the reusability of models based on lessons learned from past training.

How can high-performance computing positively address climate challenges?

The HPC community can deliver methods, workflows, and data commons to reduce training costs. Efforts like modeling AI model's fitness and cutting training based on the model are crucial. By recording and annotating the generated parameter values describing AI models, we can make this knowledge searchable and reusable. We have come a long way in dealing with large amounts of performance data generated by supercomputing and scaling problems to hundreds of thousands of cores. Now, the community needs to repurpose some of that expertise for contexts that can significantly impact society.

It is not just about computing. We must keep in mind the need for efficient data management and security, which are critical components of sustainable AI. We should come together to standardize data-sharing practices, ensuring that data is easily accessible and transferable among users. By working together, we can create systems that support seamless data management and protect sensitive information, thereby promoting an environment of shared discovery and collaboration.

So what can researchers do to improve the sustainability of these AI models?

Collaboration is essential! The multifaceted challenges we face, from reducing energy consumption to improving the transparency of AI models, require a collective effort from diverse experts, encompassing software developers, energy-efficient hardware designers, data managers, and more. No organization possesses the necessary skills and resources to comprehensively address sustainable AI. By collaborating, we can pool our resources and knowledge, leading to robust and practical solutions. For instance, merging the strengths of HPC systems with the scalability and flexibility of cloud computing can create more efficient platforms for AI inferences.

Collaboration can also significantly reduce the costs associated with sustainable AI. We can lower individual expenses by sharing infrastructure and resources, making HPC and Cloud resources more accessible. Community clouds and shared investments can help break down financial barriers. This shared approach not only makes advanced technologies more affordable but also lowers the entry barriers for early career and disadvantaged colleagues.

Can you give us an example of a successful collaborative project?

I am currently engaged in an NSF-funded project to reduce neural network training costs through parametric modeling, workflow optimization, and establishing a data commons. This initiative addresses the substantial computational demands of developing precise neural networks for varied scientific datasets and applications. By introducing methods that allow for the early termination of neural network training, we significantly accelerate the search process and decrease resource usage.

A key collaborative success of this project is the development of a modular workflow that separates the search for neural architectures from the accuracy prediction. This separation provides the flexibility needed to tailor fitness predictions to different datasets and problems, thus enhancing the efficiency of neural architecture searches. Additionally, we have established a neural network data commons that meticulously records the lifecycle of neural networks, from generation through validation training. This data commons is invaluable as it enables other researchers to utilize these neural networks in their own studies, promoting reproducibility and facilitating the analysis of how network architectures impact performance on specific tasks.

The project also includes a robust educational component. Through the Systers program at the University of Tennessee Knoxville, we actively mentor underrepresented groups, particularly women in electrical engineering and computer science. The mentorship and curricula development designed for a diverse student body broaden the project's impact beyond its scientific and technical achievements.

Power-consumption and explainable AI are big challenges, but they are worth researching and are necessary to prevent climate change.

CCC Catalyzing Interdisciplinary Computing Research Task Force Releases New CRA Best Practices Document

CCC
Computing Community Consortium
Catalyst

By Petruce Jean-Charles, Communications Associate, CCC

In a series of six engaging roundtable discussions led by the Computing Community Consortium (CCC), 40 computing research experts from academia, industry, and government explored the complexities of interdisciplinary computing.

Their goal: to pinpoint the hurdles and needs for fostering effective cross-disciplinary research. The consensus? Each team member brings a unique set of skills and viewpoints that, while invaluable, can sometimes be challenging to harmonize. Differences in institutional incentives, disciplinary norms, and expectations can complicate collaboration.

Based on a qualitative analysis of these discussions and existing research in the field, the task force crafted a best practices document to help researchers navigate the interdisciplinary landscape from start to finish. Here are the key takeaways:

1. **Connect Early:** Initiate collaboration or join research teams at the beginning of your project to lay a solid foundation for teamwork.
2. **Embrace Flexibility:** Stay open to innovative ideas and new methods of communication and dissemination.
3. **Commit to Learning:** Be prepared to adapt and learn from your interdisciplinary colleagues.
4. **Maintain Transparency:** Clearly communicate disciplinary norms regarding authorship, funding, and methodologies.
5. **Acknowledge Biases:** Recognize and address any biases or assumptions you might have about other disciplines.

According to member Pam Wisniewski, it was valuable to hear perspectives from different stakeholders – from junior faculty, senior faculty who have successfully led large interdisciplinary collaborations and funding agency representatives.

From the discussions, Wisniewski learned there needs to be a change in the mindset and culture around how interdisciplinary research in computing should be conducted.

"I heard over and over that interdisciplinary research is harder – even harder than research in a single discipline – but it is often discounted as being easier or less valued than the more technical forms of computing research," Wisniewki said. "Honestly, I think this is the biggest problem we need to tackle moving forward – in changing the perceptions of interdisciplinary research in computing, so that we don't have to continually evangelize the benefits as we are also trying to do the hard work."

Katie Siek, CCC Council Vice Chair and member of the task force, explained that she was inspired by the wide range of successful experiences roundtable participants shared, and how unanimously senior members of the computing field emphasized the importance of uplifting the interdisciplinary work of junior faculty.

"I learned how amazing our community is and how much work we have been doing with researchers in lots of different disciplines – from physics to sociology to K-12 education to HIV community partners, " Siek said. "The other part that gave me a lot of hope was how senior researchers emphasized the need to talk to and support junior faculty in interdisciplinary work – so we added another round table specifically for junior researchers to tell us their current experiences and challenges."

By following these practices, researchers can better navigate the complexities of interdisciplinary projects and harness the full potential of diverse expertise. Access the best practices document on the CCC Task Forces page, and consider sharing it with anyone engaging in interdisciplinary research projects.

Industry's Growing Presence at the CRA Conference at Snowbird

CRA-I
Computing Research Association
Industry

By Helen Wright, Manager, CRA-I

The Computing Research Association (CRA) Industry Committee (CRA-I) was pleased to welcome over 60 industry professionals and affiliates to the CRA Conference at Snowbird this July.

One of CRA and CRA-I's primary goals is to foster collaboration between industry, academia, and government. The CRA's biannual conference, historically attended by around 350 computing research leaders, including chairs/heads/deans of departments/schools/colleges of computer science, computer engineering, and information technology, as well as leaders from U.S. industrial and government computing research laboratories and centers interested in computing research issues, provides an excellent platform for such interaction. In recent years, the inclusion of an Industry track has further enriched the conference, catering not only to industry professionals but also to academics interested in industry collaboration. This year, CRA-I organized three well-received sessions in the industry track: Best Practices in Industry Affiliate Programs, Dual Appointments: Straddling Academia and Industry, and GenAI for Research and Discovery. Each session attracted over 50 participants and sparked substantial discussion.

In addition to the industry track, an industry "Meet and Greet" was held before the official sessions to facilitate early engagement. Participants recommended that CRA-I could put together best practices and or develop models for partnerships in new areas such as sustainable computing and networking. These topics could generate new directions and collaborations around potential research between academia and industry.

On the last day of the conference, CRA-I hosted a wrap-up lunch for industry participants and affiliates. The lunch provided a platform for valuable feedback on how to enhance industry participation in future conferences and identify topics of mutual interest. During the lunch, participants proposed initiating educational initiatives where industry could play a more active role in mentorship programs. Two challenges frequently faced by students seeking industrial internships were highlighted: navigating the CPT (Curricular Practical Training) approval processes at universities and managing the credit fees associated with internships. Participants encouraged CRA-I to explore these areas further.

Another significant discussion point was the issue of establishing best practices for the diversity of companies that make up today's computing industry to participate in research and build productive relationships with academia. Dubbed "Research in a Box", this would enable companies to learn from each other on what approaches work most effectively. This would benefit CRA-I, the industries involved, and their academic partners.

These are just a few of the many insightful ideas shared throughout the week. CRA-I extends its gratitude to all participants at Snowbird for their invaluable contributions. Your insights are crucial to our growth and addressing the pressing issues facing the industry today. We look forward to seeing you at future CRA and CRA-I events! Please sign up for our updates here.

Professional Opportunities

Carleton College

Assistant Professor of Computer Science

Carleton College invites applications for a tenure-track position in computer science at the Assistant Professor level. Position to begin September 1, 2025. We welcome candidates with any specialization in computer science or closely related fields, and we are particularly interested in candidates committed to teaching a diverse student body. Applications are due October 2, 2024. View the *full job posting here*.

Carnegie Mellon University

Faculty Hiring All Tracks

The School of Computer Science at Carnegie Mellon pushes the boundaries of computer science research and education. The School houses seven departments: Computational Biology, Computer Science, Human-Computer Interaction, Software and Societal Systems, Language Technologies, Machine Learning and Robotics.

SCS is seeking to fill several faculty positions across all departments, in all tracks and at all levels, with joint appointments when appropriate. The four faculty tracks in our School include: tenure, research, systems and teaching tracks. We are seeking candidates with a strong interest in research and/or teaching, an earned Ph.D. (in computer science or relevant fields), and outstanding academic credentials. Such candidates should be effective at collaborating with other faculty. Candidates for tenure and teaching track appointments should also have a strong interest in graduate and undergraduate education and therefore must be prepared to teach in a wide variety of settings, including large undergraduate lecture courses and classes delivered in non-traditional formats. Research track faculty are not required to teach and generally focus most or all of their effort on cutting-edge research. Systems track similarly teach only on an exceptional basis and focus all or most of their effort on designing and building novel systems.

Candidates with a commitment toward building an equitable and diverse scholarly community are particularly encouraged to apply. We seek to continuously improve the diversity of our student, staff and faculty populations, including and especially through annual faculty hiring processes.

Each department's hiring committee thoroughly reviews the qualifications of every applicant, and are particularly enthusiastic about applicants whose background and experiences would make them unique among our faculty. Applications from candidates who have a demonstrated track record in mentoring and nurturing women and students from groups traditionally underrepresented in computer science are strongly encouraged.

We will begin accepting applications beginning August 5, 2024. To ensure full consideration of your application, please submit all materials no later than December 11, 2024. In your cover letter, please indicate clearly the department(s) you are applying to. You can learn more about our hiring plans and application instructions by visiting *https://scsdean.cs.cmu.edu/faculty-hiring*

IMPORTANT: At this site you will find guidance regarding specific timelines for review of applications in each of our departments.

Please send email to *faculty-search@cs.cmu.edu* with any questions.

Carnegie Mellon University shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

Carnegie Mellon University

Faculty Hiring Teaching Track

The School of Computer Science (SCS) at Carnegie Mellon University is one of the world's leading organizations for computer science academic research and education. The college houses seven departments: Computational Biology, Computer Science, Human-Computer Interaction, Software and Societal Systems, Language Technologies, Machine Learning, and Robotics. Carnegie Mellon

Professional Opportunities

University is located in Pittsburgh, PA, USA, a vibrant yet affordable city known especially for its opportunities and resources in medicine, technology, the arts, and higher education.

SCS is seeking to fill several teaching track faculty positions, across all departments, with joint appointments when appropriate. The teaching track in SCS offers career-oriented positions focused on educational excellence.

Candidates for teaching track appointments should have strong interest and experience in graduate and undergraduate education, a Ph.D. in Computer Science or a relevant field, and outstanding academic credentials. Some programs will consider applicants with an MS and significant experience. The position involves teaching classes in their general area of expertise, ranging from large undergraduate lecture courses to small studio courses depending on departmental needs.

In addition to being excellent educators, candidates are encouraged to contribute to the department through activities such as research, outreach, advising, or curriculum development.

Candidates with a commitment to building an equitable and diverse scholarly community are particularly encouraged to apply. We encourage applications from candidates who have a demonstrated track record in mentoring and nurturing students from groups traditionally underrepresented in computer science.

We will begin accepting applications beginning August 4, 2024. We will review applications based on two deadlines: October 2, 2024 and December 11, 2024. To ensure full consideration of your application, please submit all materials no later than your chosen deadline. In your cover letter, please indicate clearly the department(s) to which you are applying. You can learn more about the hiring plans of each department and application instructions by visiting *https://scsdean.cs.cmu.edu/faculty-hiring*.

Please send an email to *faculty-search@cs.cmu.edu* with any questions.

Carnegie Mellon University shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities, and prohibit discrimination against all individuals based on their race, color, religion, sex, or national origin. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

Georgia Institute of Technology

Postdoctoral Researcher – Cybersecurity

The School of Cybersecurity and Privacy at the Georgia Institute of Technology has an immediate new opening for a full-time Postdoctoral Researcher in the area of Cybersecurity.

The successful applicant will work with Prof. Brendan Saltaformaggio and the Cyber Forensics Innovation (CyFI) Laboratory at the Georgia Institute of Technology in Atlanta, GA. More information about the CyFI Lab's research can be found here: *https://cyfi.ece.gatech.edu/*

The successful applicant will join the CyFI Lab and conduct research in cyber forensics and computer system security, key applications in the analysis of untrusted/malicious software and the security of IoT/mobile/cyber-physical systems.

Applicants should be motivated to both join existing projects as well as propose new opportunities and directions. The successful applicant will work with Prof. Saltaformaggio as well as graduate and undergraduate researchers in the lab.

Apply here: *https://academicjobsonline.org/ajo?joblist=4307-26282*

Hamad Bin Khalifa University

Faculty Position in Information and Computing Technology (Open Rank)

The Division of Information and Computing Technology at HBKU's College of Science & Engineering is seeking applications for a faculty position in the rank of Assistant Professor. Priority will be given to applicants with expertise in Artificial Intelligence, Cyber Security, and Integrated Circuit Design. The role encompasses teaching, research, and contributing to

university and professional service. Faculty members at HBKU enjoy access to top-tier research facilities, ample research funding, and globally competitive salaries. ***Apply now*** for a chance to join our academic community, and help us shape the future of Information and Computing Technology.

Institute for Defense Analyses

Research Computer Scientist – IDA Center for Computing Sciences

The Institute for Defense Analyses Center for Computing Sciences (IDA/CCS), a non-profit Federally Funded Research and Development Center (FFRDC), is looking for outstanding researchers to address difficult computing problems vital to the nation's security. IDA/CCS is an independent, applied research center sponsored by the National Security Agency (NSA) that operates in the public interest, free from organizational conflicts of interest. Emphasis areas for IDA/CCS technical staff include high-performance computing, computer vulnerability research, cryptography, signal processing, and advanced techniques for analyzing extremely complex data sets. Stable funding provides for a vibrant research environment, and an atmosphere of intellectual inquiry free of administrative burdens.

We're looking for candidates with strong records of solving problems in computer science, physical science, or engineering. IDA/CCS research staff work on complex topics often engaging multidisciplinary teams, so candidates should demonstrate depth in a particular field as well as a broad understanding of computational issues and technology. Because the problems of interest are continually evolving, IDA/CCS recruitment focuses on self-motivation, strength of background, and talent, rather than specific area of expertise. A PhD is helpful but not required.

IDA/CCS offers a competitive salary, an excellent benefits package, and a flexible schedule that encourages work-life balance. All applicants must be U.S. citizens with an ability to meet security clearance requirements - TS/SCI with polygraph.

Please see that job posting (***https://phh.tbe.taleo.net/phh01/ats/careers/v2/viewRequisition?org=INSTITUTEDA&cws=39&rid=3093***) for more information.

Northeastern University

Khoury College Teaching Faculty and Campus Leadership

The Khoury College of Computer Sciences at Northeastern University is looking for passionate teacher-scholars to join our faculty. Khoury College is a fun, dynamic environment with great colleagues who are deeply committed to fostering a diverse and inclusive learning environment and to generating diversity of thought and broadening participation in the field of computing.

Teaching, building relationships with students, and service to the college & university are all integral components of the position. Additionally, Khoury College supports teaching faculty who choose to pursue impactful activities beyond these responsibilities, including research & scholarship, diversity initiatives, and outreach to the local community.

We have a variety of teaching-track positions available beginning September 2024 or January 2025 across our campuses in Arlington, VA; Boston, MA; Miami, FL; Portland, ME; Seattle, WA; Bay Area, CA; and Vancouver, Canada, as well as our Online "campus." We are especially focused on recruiting dynamic leaders with a demonstrated track record of higher-education administrative impact (e.g., department chair, program coordinator) as the Director of Computing Programs at our Seattle and Miami campuses.

Full descriptions of all positions and instructions for applying can be found on our open faculty positions page:

https://www.khoury.northeastern.edu/information-for-overview/prospective-faculty/open-positions/teaching-faculty/

Purdue University

PostDoc in Applied Machine Learning

We are seeking applicants for a postdoc position that offers a unique and great opportunity of interdisciplinary training in machine learning and functional genomics. This position is funded by the initiative of the Institute for Physical Artificial Intelligence at Purdue University to support postdocs whose innovative projects in artificial intelligence have the ability to make tangible impact on real-world problems. The postdoc will partner

with two advisors (Dr. Jing Gao and Dr. Ying Li), who are from different disciplines and have established collaborations.

The funded postdoc will receive an annual salary of $70,000 and benefits, $2,500 for professional development and $50,000 to support the research. The position is under yearly renewable contract, and the total funding is for two years and possible to be extended for the 3rd year.

PhD degree in computer science, bioinformatics, statistics, biology or in any related field is required.

This position is available in September 2024, and will remain open until filled.

For more details, and to apply, please visit *https://engineering.purdue.edu/~jinggao/postdoc.htm*.

Texas A&M University Corpus Christi

Tenure-Track Faculty: Assistant Professor or Associate Professor

The *Department of Computer Science* at Texas A&M University-Corpus Christi invites applications for a tenure-track faculty position in Computer Science at the rank of Assistant Professor or Associate Professor **to begin Spring 2025**. Rank will be determined based on qualifications. The department offers BS, MS, and PhD degrees in Computer Science.

The department faculty direct research labs including MANTIS , iCORE, HPC Systems Lab, Software and System Security Lab, and Cybersecurity Research and Innovation Lab (CRIL). The department has research collaborations with the Conrad Blucher Institute, Harte Research Institute, and Lone Star Unmanned Aircraft Systems. The department has 23 full-time faculty with more than 300 BS, 325 MS and 25 doctoral students. The department's faculty are active in research areas including machine learning, programming languages, computer networks, cybersecurity, high performance computing, IoT, UAS, and geospatial systems.

Required Qualifications

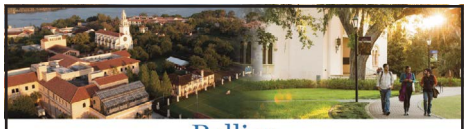
- An earned Ph.D. in Computer Science or a closely related field. Advanced ABD will be considered; degree must be conferred at the time of appointment.
- Strong track record of original research with publications.

Preferred Qualifications

- Experience teaching undergraduate and graduate classes.
- Preferred areas of research include: AI/ Machine Learning, Cybersecurity and Privacy, IoT, software security, Mobile software development, game software development, databases, software engineering, operating systems, distributed systems, and cloud computing.

The following documents must be submitted *TO APPLY*:

1. A cover letter mentioning the rank interested (Assistant or Associate).
2. Teaching and research philosophy statements
3. CV
4. At least three professional references and contact information.



Rollins

Assistant Professor, Computer Science

Rollins College invites applications for a **tenure-track computer science position** at the **assistant level**, beginning in August 2025.

Our dynamic department is looking for a colleague who is excited about teaching and mentoring at a liberal arts college. The successful applicant should be able to teach a variety of computer science courses, ranging from introductory level to advanced undergraduate.

Rollins is committed to fostering a diverse and inclusive campus community.

To learn more, please visit: https://www.rollins.edu/about-rollins/diversity-inclusion/index.html.

For the full job description and to apply, visit: https://apptrkr.com/5319305

ST. OLAF COLLEGE

Assistant Professor of Computer Science

Description

The Department of Mathematics, Statistics, and Computer Science at St. Olaf College invites applications for a full-time, tenure track position in Computer Science at the Assistant Professor level to begin August 2025. We are looking for candidates who have a Ph.D. in Computer Science, or a closely related field, and who can contribute broadly to our growing computer science program through teaching, research and supervision of undergraduate research.

To apply, visit: https://apptrkr.com/5364841

Professional Opportunities

Review of applicants will begin by September 15th, 2024, and search will continue until position is filled.

Texas State University

Assistant or Associate Professor of Instruction

The Department of Computer Science at Texas State University (TXST) invites applicants for multiple Assistant/Associate Professor of Instruction positions to start as early as the Fall 2024 semester. We are seeking candidates to teach a variety of courses primarily at the undergraduate/graduate level and participate in institutional service. The position is a nine-month, non-tenure line faculty appointment.

The department offers the following degree programs: Bachelor of Science (BS) in computer science, Bachelor of Arts in computer science, Master of Science in computer science, Master of Arts in computer science, and Doctor of Philosophy in computer science. The BS degree is ABET accredited.

The San Marcos campus is in the Texas Hill Country and is only 30 minutes from Austin and 45 minutes from San Antonio, both of which have international airports and are home to some of the largest IT companies. Texas State University Round Rock campus is in one of the fastest-growing cities in the nation. The Collin College Technical campus is a modern educational institution located in the vibrant city of Allen, Texas.

Rank and salary will be commensurate with the candidate's experience and qualifications.

All positions are subject to availability of funds.

Only applications submitted through the Texas State University website will be accepted and considered: *https://jobs.hr.txstate.edu/postings/46269*

Tsinghua University

Institute for Interdisciplinary Information Sciences (IIIS) Tsinghua University Computer Science Faculty Openings

The Institute for Interdisciplinary Information Sciences (IIIS), headed by Turing Award winner Professor Andrew C. Yao, is a well-established academic unit at Tsinghua University, aimed at creating a world-class environment for research and education in computer science and related disciplines. IIIS currently has 32 full-time tenure-track faculty members, and is actively recruiting outstanding scholars to join IIIS in its exciting growth toward excellence.

We invite applications from highly-qualified candidates in areas including (but not limited to) Algorithms, Artificial Intelligence, Machine Learning, Information Security, Financial Technology, and Quantum Information.

Positions at Assistant/Associate/Full Professor levels are available. The remuneration package will be very attractive, driven by market competitiveness and individual qualifications. Initial appointments are normally made on a fixed-term contract. Subsequent contract renewal, promotion and tenure all follow standard international practices.

Further information about the Institute is available at *http://iiis.tsinghua.edu.cn/en* or from the postal address: IIIS Faculty Recruitment, FIT Building, Room 1-208, Tsinghua University, Beijing 100084, PR. China. Please send applications or nominations in the form of an application letter enclosing a current CV to *iiisrecruit@mail.tsinghua.edu.cn* , with the subject line"<candidate_name>: IIIS Computer Science Faculty Application".

The University of Alabama in Huntsville

Assistant Professor of Computer Science

ABOUT THE POSITION: The Department of Computer Science at The University of Alabama in Huntsville (UAH) invites applicants for one tenure-track faculty position at the Assistant Professor beginning August 2024. Desired area of research is cybersecurity, especially digital forensics and malware analysis. Candidates must be able to teach in cybersecurity and cybersecurity-related areas. Prior teaching experience in computing is desirable. Candidates who have a secondary area of interest in data science or operating systems are desirable. Outstanding candidates in other areas will also be considered. Candidates will be expected to seek funding from agencies such as the U.S. Department of Defense or Department of Justice or the National Aeronautics and Space Administration (NASA), due to UAH's proximity to Redstone Arsenal. Ideally, a candidate should have a background with one or more of these U.S. government agencies.

A Ph.D. in computer science or a closely related area is required. The successful candidate will have a strong academic background and be able to secure and perform funded research in areas typical for publication in well-regarded academic conference and journal venues. In addition, the candidate should embrace the opportunity to provide undergraduate education.

The department has a strong commitment to excellence in teaching, research, and service; the candidate should have good communication skills, strong teaching potential, and research accomplishments.

The Computer Science department offers BS, MS, and PhD degrees in Computer Science and contributes to interdisciplinary graduate degrees in cybersecurity and software engineering. Faculty research interests are varied and include cybersecurity, mobile computing, data science, software engineering, visualization, graphics and game computing, AI, image processing, pattern recognition, and distributed systems. The annual NSF Higher Education Research and Development (HERD) survey ranked UAH as #11 in federally-financed computer and information sciences research expenditures.

APPOINTMENT DATE: Fall, 2024

ABOUT THE COLLEGE: The UAH College of Science advances cutting-edge research and offers first-rate degree programs thanks to our distinguished faculty and state-of-the-art facilities. Our location in Huntsville facilitates partnerships and collaborations with NASA, the US Army, NOAA, the Hudson Alpha Institute of Biotechnology, and the numerous high-tech companies located in Cummings Research Park, the second largest research park in the country. College of Science students enjoy the benefits of a research-intensive institution in a medium-sized university.

ABOUT THE UNIVERSITY: The University of Alabama in Huntsville, classified as a Very High Research Activity institution, offers academic and research programs in the Colleges of Arts, Humanities, and Social Sciences; Business; Education; Engineering; Nursing; Professional Studies; and Science. *https://www.uah.edu/about*

ABOUT HUNTSVILLE: Huntsville (known as "Rocket City") maintains one of the highest per capita incomes and standards of living in the Southeast, and is a culturally diverse community. It is a national center of aerospace and high technology research and is home to NASA's Marshall Space Flight Center. U.S. News recently ranked Huntsville as the best place to live in 2022-2023 among the 150 most populous metro areas in the country. Huntsville offers a variety of educational, recreational, and cultural opportunities.

APPLICATION PROCEDURE AND DEADLINE: Interested parties must submit a detailed resume with references to *info@cs.uah.edu* or Chair, Search Committee, Dept. of Computer Science The University of Alabama in Huntsville, Huntsville, AL 35899. Qualified female and minority candidates are encouraged to apply. Initial review of applicants will begin as they are received and continue until a suitable candidate is found.

The University of Alabama in Huntsville is an affirmative action/equal opportunity employer of minorities/ females/ veterans/ disabled.

Please refer to log number:
POSITION 1: 24-25-595

University of California, Riverside

Open Rank Professor of Teaching Position in Computer Science and Engineering

The Department of Computer Science and Engineering at the University of California, Riverside invites applications for multiple tenured or tenure-track faculty positions. Specifically, the department seeks applications for an open rank of Professor of Teaching in Computer Science.

The Computer Science and Engineering Department currently has over 40 faculty members, including multiple ACM/IEEE/AAAS Fellows and Young Investigator/ NSF CAREER award holders, who pride themselves in combining top-quality teaching with cutting-edge research. The research projects in the department are funded by federal (NSF, NIH, DoD) or industrial sponsors, with the new awards to the department for 2022/23 exceeding 22 million dollars. The department offers several undergraduate degrees, as well as MS and Ph.D. degrees in Computer Science, with 200 Ph.D. students currently enrolled. Information regarding the department is available at *http://www.cs.ucr.edu*.

The Marlan and Rosemary Bourns College of Engineering is a well-established,

rapidly growing college at UCR. Ranked in the top 50 best public research universities for engineering by U.S. News & World Report, BCOE has over 140 faculty members, more than 3,700 undergraduate students, 1,100 graduate students, and more than $44 million in total annual research expenditures. The college has five departments, 11 undergraduate degree programs, 10 graduate degree programs, and 11 research centers.

Successful candidates will have a proven record of or exceptional promise for developing a portfolio of high-quality teaching at the undergraduate and graduate levels, and in developing a vibrant externally-funded research program. UC Teaching Faculty are expected to engage in scholarly activities and teach a regular course load at both the undergraduate and graduate levels, and participate in service activities at the department, college, campus, and professional levels. Candidates should also demonstrate clear potential for complementing and/or synergistically leveraging existing activities within the department, college, and campus.

Appointments are expected to begin on **July 1, 2025.** Salary will be commensurate with education and experience. Candidates must have met the requirements for the Ph.D. by the time of appointment. Advancement through the faculty ranks at the University of California is through a series of structured, merit-based evaluations, occurring every 2-3 years, each of which includes substantial peer input.

The posted UC salary scales set the minimum pay determined by rank and/or step at appointment. See Table(s) 3. The salary range for this position is $103,700 – $224,900. "Off-scale salaries" and other components of pay, i.e., a salary that is higher than the published system-wide salary at the designated rank and step, are offered when necessary to meet competitive conditions. See campus compensation page for additional information.

To apply for the position interested individuals are required to submit a cover letter, a curriculum vitae, three letters of reference or contact information for three references, a Statement of Teaching, a Statement of Research, and a Contribution to Diversity Statement to the AP Recruit website at *https://aprecruit.ucr.edu/JPF01956*. Inquiries should be directed to *search@cs.ucr.edu*. For more information regarding the specific areas of interest and application procedures, please visit *http://www.engr.ucr.edu/hireme*. The review of applications will begin on **October 1, 2024,** and will continue until the position(s) are filled.

University of Illinois Urbana-Champaign

Non-tenure Track (Open Rank) Specialized Faculty Positions (full-time and part-time) - iSchool

The School of Information Sciences (iSchool) seeks to hire outstanding full-time, specialized faculty members at the rank of Lecturer/Senior Lecturer, or Teaching Assistant/Associate Professor to join our dynamic and collegial school. In addition, part-time positions are available at the rank of Adjunct Lecturer.

For a full job description and to apply, please create a candidate profile at *illinois.csod.com/ux/ats/careersite/1/home/requisition/10371?c=illinois* and upload your letter of application (which should indicate the courses applicants are able to teach), CV, and a list of three professional references, including contact information.

For full consideration, please apply by the priority deadline of **6:00 pm (CST) on July 11th, 2024.**

The U of I is an EEO Employer/Vet/Disabled that participates in the federal E-Verify program and participates in a background check program focused on prior criminal or sexual misconduct history.

UNIVERSITY OF OREGON

Executive Director of the School of Computer and Data Sciences

The University of Oregon (UO), Oregon's flagship public research institution, seeks a strategic, visionary, and highly collaborative leader and builder to serve as the Executive Director of the new School of Computer and Data Sciences (SCDS). Combining the university's growing strength in computer science with its ongoing investment in data science, the new School of Computer and Data Sciences opened in fall 2023. Housed within the College of Arts and Sciences (CAS), SCDS is an innovative hub in the Pacific Northwest for advancing education and research in computer and data sciences, engaging with the wider world to tackle interdisciplinary challenges, and building a training pipeline for a diverse group of practitioners and leaders.

For more details including the full position profile and submission of inquiries, nominations, or applications, please see the Isaacson, Miller website here:

https://apptrkr.com/5364994

Professional Opportunities

University of South Alabama

Assistant/Associate Professor of Cybersecurity, Assistant/Associate Professor of Computer Science (multiple)

The School of Computing (SoC) at the University of South Alabama (USA) invites applicants to fill two open positions: a full-time Assistant/Associate Professor of Computer Science and a full-time Assistant/Associate Professor of Cybersecurity. Applicants for the Assistant/Associate Professor of Computer Science positions must hold a Ph.D. in Computer Science or a closely related field. Tenure-track applicants for the Assistant/Associate Professor of Cybersecurity position must hold a Ph.D. in Information Technology, Information Services, or a closely related field. For more information and application instructions visit *https://www.southalabama.edu/departments/academicaffairs/facultyposition.html*.

Review of applications will begin upon receipt.

The University of South Alabama is an EO/AA Employer - minorities/females/veterans/disabilities/sexual orientation/gender identity.

Yale University

Assistant Professor of Marketing

The Yale School of Management seeks applicants in Marketing for two tenure-track faculty positions (one quantitative and one behavioral) at the rank of Assistant Professor.

Applicants must have a Ph.D. or equivalent degree (or will earn the degree within one semester from the start of the appointment) in Quantitative or Behavioral Marketing or a field related to quantitative or behavioral marketing such as Economics, Computer Science, Statistics, or Engineering; or Psychology, Consumer Behavior, Organizational Behavior, Decision Research, or Behavioral Economics. We are seeking applications from graduating students, post-docs, and recent graduates who show exceptional promise.

The selected candidate will teach graduate (MBA)- and/or PhD-level courses and advise and mentor students, while conducting high-quality research representing early demonstration of intellectual leadership in their area of study.

You would be joining our group of 16 full-time faculty, with 9 members focused on behavioral research (Corey Cusimano, Jason Dana, Ravi Dhar, Shane Frederick, Joowon Klusowski, Nathan Novemsky, Taly Reich, Deborah Small, and Gal Zauberman) and 7 members focused on quantitative research (Alex Burnap, Soheil Ghili, Vineet Kumar, Jiwoong Shin, K. Sudhir, Kosuke Uetake, and Tong Wang.)

Appointment terms

This is a full-time, tenure-track position located at the Yale School of Management in New Haven, Connecticut. Appointments will be made for the 2025 – 2026 academic year, beginning July 1, 2025. The initial term is typically three years. Appointment as Associate Professor (untenured) is possible for more experienced applicants who meet the University's qualifications for that rank.

Application Instructions

Visit *http://apply.interfolio.com/147799*. Applicants should submit a cover letter, curriculum vitae, job market paper, research statement (optional) and contact information for three letters of reference. Requests for references will be immediately sent via Interfolio. Only complete applications will be reviewed.

Timing

Review of applications will begin immediately and continue until the position has been filled, or until February 28, 2025, whichever occurs first. We encourage everyone to submit their applications before the end of July to ensure maximum consideration. Only complete applications will be considered.

Yale University is an Affirmative Action/Equal Opportunity employer. Yale values diversity among its students, staff, and faculty and strongly welcomes applications from women, persons with disabilities, protected veterans, and underrepresented minorities.