CRN At-A-Glance

CRA and Microsoft Launch New Fellowship to Advance Trustworthy AI Research

CRA, with support from Microsoft, has launched the CRA Trustworthy AI Research Fellowship for Early Career Scholars. The program provides interdisciplinary training and support to help researchers integrate ethical and societal considerations into AI development.

Read more on page 4.

CRA Joins Broad Coalition Backing the American Science Acceleration Project (ASAP)

CRA has endorsed ASAP, a bipartisan initiative aiming to accelerate U.S. scientific innovation by enhancing data access, AI tools, and computational infrastructure. CRA joins a wide coalition of supporters across academia, industry, and government.

Read more on page 6.

Unlocking Blockchain's Industrial Potential: CRA-I Virtual Roundtable – May 7, 2025

CRA-Industry will host a virtual roundtable on May 7 exploring blockchain's growing role across industries—from supply chains to decentralized AI. Experts from EY, Oracle, VeChain, and more will discuss real-world applications, trends, and regulation.

Read more and sign up to join on page 8.

In This Issue

cra.org/crn

CRA Update: Computing Faculty Hiring Impacted by Federal Funding Agency Uncertainty

By Kari George, PhD, Senior Research Associate, CERP

Recent decisions by the current U.S. administration have plunged colleges and universities across the country into uncertainty, particularly regarding concerns with current and future support of federal research funding. Since the inauguration, institution leaders have seen issues with facilities and administration costs (i.e., indirect) at the National Institutes of Health (NIH) and a short pause in payments and grant reviews at the National Science Foundation (NSF). While NSF recently resumed hosting review panels and processing awards, the disruptions in grant processes and concerns with federal financial support for academic research prompted many higher education institutions to evaluate their budgets and adjust their plans. Robert Kelchen, higher education finance scholar and professor at the University of Tennessee, Knoxville anticipated the budget freezes higher education institutions would likely implement. Kelchen stated, "The question is not whether there will be pauses or freezes in institutional budgets, but rather how long they will last."

This turmoil and uncertainty with federal funding agencies — and their support of U.S. academic research — has contributed to hiring freezes across both public and private universities, particularly at R1 and R2 institutions that receive significant research funding. In early March, CRA issued a joint statement with five other computing organizations that urged Congress to protect U.S. research investments, as recent federal actions are threatening critical research funding in computing and putting the U.S. leadership in artificial intelligence, quantum computing, and other critical fields at risk.

Faculty Hiring Pulse Survey

To understand how federal research funding uncertainty may be affecting computing departments and their faculty hiring processes specifically, CRA's Center for Evaluation the Research Pipeline (CERP) conducted a pulse survey of CRA members from March 14-20, 2025. CERP contacted 243 CRA academic member units and received responses from 134 leaders (55% response rate) at 126 unique institutions across the country.

Results show that 90 percent of the survey respondents launched a faculty search this academic year. Among respondents who reported having available positions, there was an average of 3.23 open tenured or tenure-track positions and 2.14 open teaching-track faculty positions available at the institutions.

Hiring Pauses, Freezes, and Chills

Academic leaders provided insight into how federal funding uncertainty is influencing their academic units. As shown in **Figure 1**, more than one-third of respondents (34%) reported that the uncertainty around federal funding

Source: Faculty Hiring Pulse Survey (2025). Center for Evaluating the Research Pipeline. Computing Research Association.
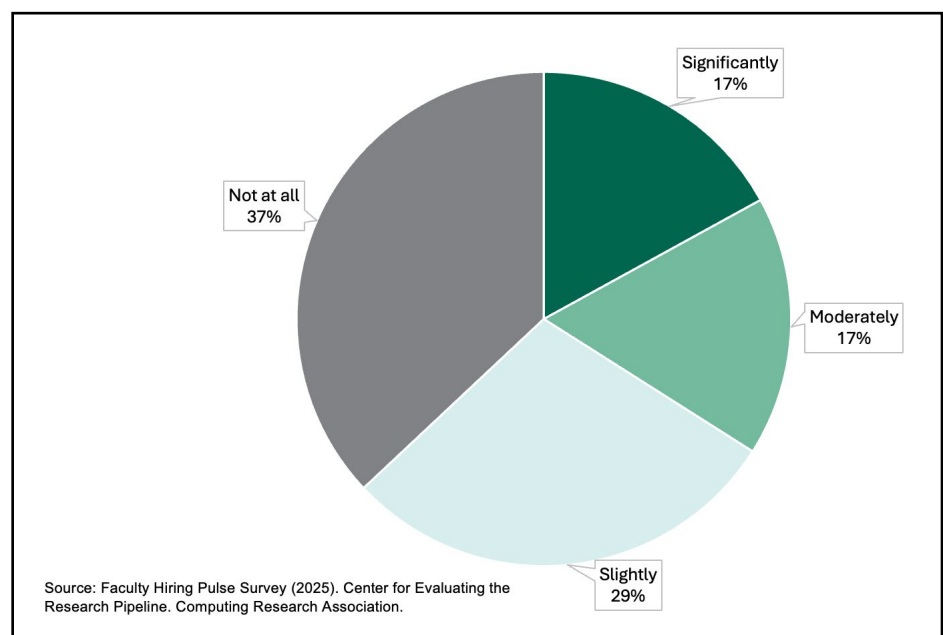
Figure 1: Proportion of respondents who reported the extent to which the uncertainty around federal funding agencies affected their faculty search process (n=126)

agencies had significantly or moderately affected their faculty search process. Another 29 percent indicated that it had slightly impacted their search process.

Results also paint a picture of how computing faculty hiring may be detrimentally impacted by the uncertainty of federal funding. Specifically, 23 percent of respondents (representing 28 unique institutions) who launched a faculty search indicated that their academic unit implemented a full or partial hiring freeze for faculty (as shown in **Figure 2**). However, it is important to note that this pulse survey only provides a one-time snapshot of hiring freezes. Since closing the survey,
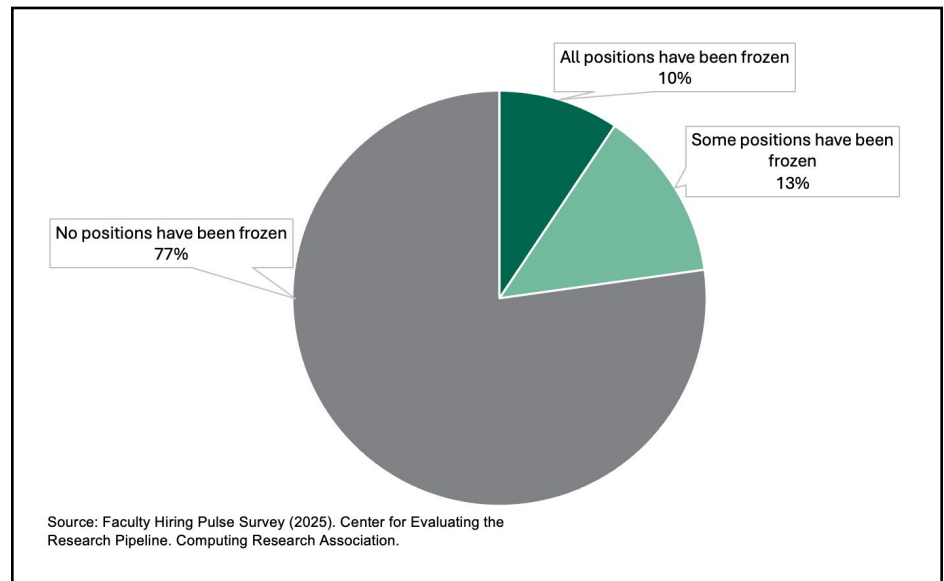

Figure 2: Proportion of respondents who reported whether their institutions implemented a faculty hiring freeze for their academic unit in computing (n=127)

several more state systems and individual universities have announced hiring freezes. In other words, if the pulse survey was done today, the numbers would likely be higher.

Among those respondents who indicated that some or all faculty positions had been paused (n=19 unique institutions), we examined the number and proportion of open faculty positions that were affected. Results show that (1) 15 percent of open tenured/tenure-track positions have been affected, representing approximately 50 positions for the institutions that responded, and (2) 13 percent of open teaching-track faculty positions have been affected, representing approximately 20 positions for the institutions that responded. In total, from the institutions represented in our survey, there are approximately 70 fewer faculty positions available for graduating PhD students this year due to pauses in faculty hiring. This number would likely be much higher when considering all institutions in the United States and, again, we expect the number to be even higher if our pulse survey was done today.

In comments, some respondents shared that they completed their faculty searches prior to the new administration and funding agency uncertainty. Several academic leaders also expressed that their search is ongoing and they have intentions to complete it, but they may not be able to make offers to additional candidates if their first round of offers are rejected. Some respondents expressed concerns shared by faculty at their institutions, with one reporting that "There is no formal freeze yet, just vibes coming down from campus leadership that we should pull back." Collectively, survey findings and comments reveal how the uncertainty is having a chilling, and sometimes explicitly negative, impact on computing faculty search processes and hiring decisions.

Implications for the Computing Community

Hiring pauses and freezes will have an impact on computing departments across the country as needed faculty positions will go unfilled, which could mean a heavier load for other faculty and larger class sizes or reduced course offerings. While these impacts are likely to be felt across academic disciplines, they may be particularly acute in computing as enrollments in computing majors continue to rise (e.g., see Table 1 of the most recent CRA Taulbee Survey).

Further, federal research funding uncertainty may have implications for the future of the computing research ecosystem, potentially impacting both graduate student applications and admissions decisions (which will be a topic of CRA's next pulse survey), as well as interest in computing academic careers. While conditions are expected to evolve in the weeks and months ahead, it is clear that computing faculty hiring, and the ability of colleges and universities to maintain and expand robust pathways for computing research, are at risk. CRA will soon be advertising opportunities for the computing community to join together this July, to discuss how we can learn from each other to cope with the uncertainties that exist today and support computing research pathways now and in the future.

The survey data were collected by the **Center for Evaluating the Research Pipeline** (CERP). CERP provides social science research and comparative evaluation for the computing community. Subscribe to the CERP newsletter by clicking **here**.

This material is based upon work supported by the U.S. National Science Foundation [Award #2335072] and the Computing Research Association (CRA). Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the U.S. National Science Foundation or CRA.

CRA and Microsoft Launch New Fellowship to Advance Trustworthy AI Research

By Matt Hazenbush, Director of Communications

This announcement was originally featured on the CRA Bulletin on April 3, 2025.

The Computing Research Association (CRA), with support from Microsoft, is pleased to announce the launch of the **CRA Trustworthy AI Research Fellowship for Early Career Scholars**. Inspired by recommendations from the 2022 National Academies report, **Fostering Responsible Computing Research**, the program provides early-career computing researchers with structured interdisciplinary training, collaborative opportunities, and resources to tackle critical societal questions surrounding artificial intelligence (AI).

Fellowship Goals and Activities

The fellowship supports early-career researchers in infusing ethical and societal considerations into computing research, particularly in the context of AI development. Fellows will actively engage with experts from multiple disciplines, contribute to a national Trustworthy AI lexicon and framework, lead or collaborate on Trustworthy AI initiatives at CRA partner institutions (e.g., **CRA member** and **CAHSI** institutions), and help establish a scalable model for interdisciplinary Trustworthy AI training.

The fellowship begins with an introductory virtual meeting in July 2025, followed by a four-day in-person field school in August. Quarterly virtual meetings throughout the fellowship duration will then sustain collaboration and advance research.

"The CRA Trustworthy AI Research Fellowship represents our commitment to fostering responsible innovation by creating a critical connection between computing and the social sciences," said Tracy Camp, Executive Director and CEO of CRA. "We appreciate the support from Microsoft and are excited to empower early-career researchers to lead this crucial interdisciplinary dialogue and proactively shape the future of AI."

"Effectively addressing the societal complexities of AI demands collaboration across multiple fields," said Mary L. Gray, Senior Principal Researcher with Microsoft Research. "This fellowship enables emerging researchers to explore these important intersections and contribute to solutions that build on the National Academies' recommendations."

Fellows will receive a stipend of $16,500, funding to support travel, lodging, and meals associated with the field school, virtual meetings throughout the year, as well as professional development opportunities and visibility within the research community.

Applications Due April 30, 2025

Applications for the inaugural 2025-2026 CRA Trustworthy AI Research Fellowship are now open and must be submitted by **April 30, 2025**. The application consists of a brief online form requesting contact and academic information, a CV, a description of your interdisciplinary social science experience and/or training, and a short essay on your interest in becoming a CRA Trustworthy AI Research Fellow.

Application Portal

Qualified applicants should:

- Have completed their PhD within one to three years prior to application.

- Hold a primary PhD degree in a computing-related field (such as computer science, computer engineering, data science, or information systems).

- Possess secondary training or significant research experience in at least one social science discipline, such as anthropology, communication and media studies, studies of vulnerable populations, history, labor studies, political science, science and technology studies (STS), or sociology.

- Hold a faculty or visiting researcher position (e.g., postdoc, fellowship) at an institution of higher education in the United States.

Interested scholars should visit the **fellowship webpage** for more details.

Help Spread the Word

We encourage the computing research community to share this fellowship announcement with qualified early-career researchers who may benefit from this opportunity.

For more information or questions about the fellowship, please contact Janine Myszka at **jmyszka@cra.org**.

CRA Joins Broad Coalition Backing the American Science Acceleration Project (ASAP)
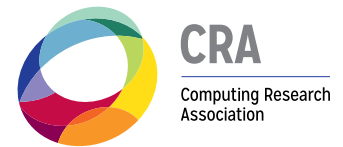
By Matt Hazenbush, Director of Communications, and Brian Mosley, Associate Director of Government Affairs

The Computing Research Association (CRA) has endorsed the American Science Acceleration Project (ASAP), a national initiative led by Senators Mike Rounds (R-SD) and Martin Heinrich (D-NM). ASAP seeks to significantly accelerate scientific innovation in the United States across critical domains — including biotechnology, materials science, medicine, energy, and agriculture — by leveraging advancements in computing, data science, and artificial intelligence (AI).

ASAP envisions building a robust scientific infrastructure that empowers researchers with state-of-the-art resources, enhanced collaboration, and advanced computational capabilities. The initiative is grounded in five core pillars:

- Making scientific data more accessible and interoperable

- Enhancing national computational infrastructure

- Developing advanced AI tools to expedite discovery

- Promoting cross-disciplinary collaboration

- Modernizing regulatory processes to reduce barriers and accelerate progress

In endorsing ASAP, CRA joins a broad and diverse coalition of supporters across academia, industry, healthcare, national security, and technology. Organizations backing the initiative include Microsoft, Google, OpenAI, IEEE-USA, the Association of American Universities, the Association of Public and Land-grant Universities, the Task Force on American Innovation, Carnegie Mellon University, the Massachusetts Institute of Technology, and many others committed to ensuring the United States remains at the forefront of global scientific and technological advancement.

Nancy Amato, Chair of the CRA Board of Directors, is among the leaders featured in a collection of quotes from those across research, industry, and academia who have voiced support for the initiative. She stated:

> "This effort is exactly what the nation's research enterprise needs right now. If the nation is serious about remaining the world's premier location for scientific research; if the nation is serious about making big bets in artificial intelligence, quantum computing, high performance computing, and other critical technologies; and if the nation is serious about fulfilling the promises made in the Chips & Science Act, then investing in the scientific infrastructure to drive innovative breakthroughs across scientific and technological fields is a must. CRA, and the computing research community, stand ready to assist however we can."

To read CRA's full statement of support, visit the CRA Government Affairs blog.

CRA and CCC Share Best Practices to Support Interdisciplinary Research

By Catherine Gill, Communications Associate, CCC

Interdisciplinary research in computing is vital for addressing complex societal challenges. However, despite its importance, fostering successful interdisciplinary collaborations remains a significant challenge.

Interdisciplinary research is high-risk, high-reward, and requires a long-term commitment — often five to 10 years to yield meaningful results. Research involving multiple diverse disciplines also often requires more communication and planning to ensure all researchers understand what each other is doing and how their work fits into the project overall. Furthermore, interdisciplinary contributions may not fit traditional publication formats, making it difficult for this kind of research to be published and for researchers themselves to be evaluated for their part in a project, which is key during tenure review and promotion evaluations.

The Computing Research Association (CRA) and its Computing Community Consortium (CCC) gathered insights from 40 experts across academia, industry, and government through a series of roundtable discussions to identify challenges in interdisciplinary research. The results of these discussions are being published in a series of best practices documents.

The first, published in July 2024, recommended **Best Practices for Researchers** collaborating on interdisciplinary teams. Highlighting the unique challenges these teams face, co-author **Elena Agapie**, Assistant Professor of Informatics at the Donald Bren School of Information and Computer Sciences at the University of California, Irvine, explains:

> "Interdisciplinary research adds several layers of complexity that are not apparent in typical research projects. For one, team members from different backgrounds need to establish a shared vocabulary and create dedicated time to communicate their perspectives and methodology, to truly understand each other. Assumptions can be a major roadblock in interdisciplinary work. It is important for teams to invest time early in a collaboration to agree on shared research goals and approaches, outline individual responsibilities, and set communication practices to save significant time and prevent potential conflicts down the line."

The second paper of the series, which has just been released, provides **Best Practices for Funders** to support interdisciplinary research, including guidelines for government agencies, industry, philanthropic donors, and non-profit organizations. Co-author **Elizabeth Bruce**, Director and Strategy Lead, Innovation and Society at Microsoft, points to the initial challenges researchers face and how funders can intervene:

> "Researchers often face a 'chicken and egg' problem when trying to start interdisciplinary projects. Without initial funding or institutional backing, it's challenging to explore new directions and build meaningful collaborations with experts from other fields. However, without existing relationships and defined research directions, you can't secure funding! Funders can help catalyze these collaborations by providing planning grants and facilitating connections between experts from diverse research backgrounds. Funders also need to recognize that significant interdisciplinary breakthroughs often take time. Funding cycles should be flexible enough to accommodate the longer timelines and iterative nature of this type of research."

Stay tuned for the third and final paper in this series, which provides recommendations for organizations to support their interdisciplinary research teams.

Unlocking Blockchain's Industrial Potential: CRA-I Virtual Roundtable – May 7, 2025

By Helen Wright, Manager, CRA-I

Behind the headlines around blockchain and cryptocurrencies, the application of blockchain technology in industry is expanding at a rapid pace. While it is best known for financial applications in fintech and decentralized finance, blockchain is transforming supply chains, product-provenance tracking, certification of sustainability practices, real-world asset record-keeping, and even traditional financial infrastructure. Looking further ahead, researchers are investigating blockchain as a foundation for decentralized AI models, offering an alternative to today's monolithic systems.

To explore these emerging applications and the enabling technologies behind them, CRA-Industry (CRA-I) will host the **Blockchain in Industry Virtual Roundtable** on May 7, 2025, from 3:00-4:40 pm ET / 12:00-1:40 pm PT.

This event will bring together leading experts in blockchain technology to discuss industry trends, real-world deployments, and regulatory developments shaping the responsible use of blockchain.

Panelists
This roundtable features the following individuals:

- **Paul Brody** – *Global Blockchain Leader, EY*
  Oversees blockchain strategy and solutions, including tokenization platforms and analytics tools. A leading advocate for public blockchains and privacy technology.

- **Elizabeth Kukka** – *CEO, Purpose for Profit*
  Brings expertise in leveraging blockchain for sustainable business models.

- **Mark Rakhmilevich** – *Vice President of Product Management and Development, Oracle*
  Responsible for fintech, blockchain, and transaction management solutions.

- **Antonio Senatore** – *CTO, VeChain Foundation*
  Leads a global team of blockchain developers across multiple countries. Has extensive experience in AI, Web3, and enterprise blockchain applications.

- **Kevin Worth** – *Strategic Executive and Advisor*
  Experienced in the digital asset and blockchain ecosystem, with a background in scaling innovative ventures and governance.

Moderator
- **Hank Korth** – *Professor, Lehigh University*
  Director of the Blockchain Lab within the Center for Financial Services. Leads research on zero-knowledge proofs, blockchain benchmarking, and digital currency consensus models.

Key Topics of Discussion
Attendees can expect an insightful discussion on:

- Emerging industry trends and real-world blockchain deployments.

- Alternative approaches to deploying blockchain technology in various sectors.

- The evolving global regulatory landscape for blockchain adoption.

Join the Conversation

This roundtable is a must-attend for researchers, industry professionals, and policymakers interested in the practical and future applications of blockchain technology. Register now to gain insights from industry leaders and explore the transformative potential of blockchain beyond the financial sector.

Register Here

New Pathways to Research Experience: A Flexible Research Experience Course to Reach Community College Students

CRA
Computing Research Association

By Sathya Narayanan (California State University Monterey Bay), Kelly Shaw (Williams College), and Indika Walimuni (California State University Monterey Bay)

The **Computing Talent Initiative** (CTI) is an institute at California State University, Monterey Bay, focused on broadening the computing talent pipeline to serve students from all three public higher education systems of California. CTI provides computer science students, particularly those from California community colleges and regional public universities, with comprehensive support to obtain meaningful work-based learning experiences that complement their **academic learning**.

Through scaffolded online modules, peer learning communities, open source project support, and connections to industry experiences, CTI helps students develop both technical and professional skills necessary for success in tech careers. As part of this mission, CTI has developed guidance and supported students applying to Research Experiences for Undergraduates (REU) programs since 2020.

During the past three years, CTI has worked with over 1,000 students from 70 community colleges, 21 California State University and nine University of California campuses, resulting in more than 400 students having meaningful work-based learning experiences during the summer or academic year.

In 2024, CTI and **CRA's UR2PhD program** partnered to offer a research experience course, based on the **UR2PhD Research Methods Training Course** curriculum. In this article, we present the challenges that motivated us to collaborate on offering this course, the course design, participant data, early lessons, and future plans.

Over The Past Three Years

400+

students in the early stages of their college journey have completed a work-based learning experience with mentorship from an industry professional as a result of their participation in CTI.

Our Students Represent

All Segments of CA Higher Education

CC	**40%**
CSU	**52%**
UC	**8%**

56%
of Students are First Generation

The Challenges: Access to an Initial Research Experience

For many students, particularly those who are starting at a community college or regional PUI (primarily undergraduate institution), the traditional path to research involvement is not easily available. These students often juggle coursework with employment and family responsibilities, making it difficult to commit to intensive research experiences without first understanding research processes and their potential benefits. Moreover, many lack connections to family or friends with research experience, leaving them with little concrete knowledge about what research entails or how it might benefit their academic and professional futures. This represents a significant challenge across California's three public higher education systems, where over 40 percent of students come from low-income backgrounds, and more than 30 percent are first-generation college students. With California Community Colleges serving two million students, California State University serving 450,000, and the University of California serving 290,000, the number of students with limited exposure, if any, to research is high.

The conventional approach to undergraduate research requires students to commit to significant time in a faculty member's lab before they've had a chance to explore if research aligns with their interests or career goals, essentially asking them to take a leap of faith. This approach not only creates challenges for students adapting to research environments but also leads to high turnover in research groups, ultimately discouraging faculty from mentoring undergraduate researchers.

To address these challenges, we wanted to test a fully-online, asynchronous course that provides a step-by-step introduction to research and that allows students to explore this path without asking them to make a significant time commitment at the outset.

Course Design: Try Before You Commit

The CTI Accelerate 201R course uses a thoughtfully structured, milestone-based approach that allows students to explore research methodologies before committing to a full research experience. The comprehensive curriculum includes:

Milestone 1: Research Foundations

- **Course orientation** with clear expectations and community-building through Slack

- **Introduction to the research process** and characteristics of effective researchers, building students' research identity and confidence

- **Research ethics training** covering responsible conduct and avoiding misconduct, establishing the professional standards expected in the field

Milestone 2: Research Literacy

- **Research paper comprehension skills,** teaching students the structure of academic papers and effective reading strategies

- **Literature search techniques,** including how to find relevant papers and trace research backwards and forwards in time

Milestone 3: Research Design

- **Experimental design principles,** introducing students to the methodological foundations of research

- **Quantitative vs. qualitative approaches** to help students understand different research methodologies

- **Research question and hypothesis development,** providing practical experience in framing research problems

Milestone 4: Research Communication

- **Data visualization fundamentals,** including hands-on practice with Python

- **Figure and graph creation,** teaching students how to effectively present research findings visually

Milestone 5: Research Dissemination & Reflection

- **Research writing and presentation skills,** focusing on effectively communicating findings

- **Future pathways in research,** helping students identify next steps

- **Research identity reflection,** book-ending the course with pre/post surveys to measure growth

Throughout the course, students engage with content through multiple modalities: instructional videos, interactive post-lesson activities, and practical examples from an educational research project on Reading Guides [1] that serves as a case study for students to apply their new research knowledge and develop their skills. Students then choose to recreate the experiments, data analysis, and data visualizations presented in either a Computational Biology [2] research paper or a Natural Language Processing [3] research paper through the use of pre-designed Google CoLabs. This scaffolded approach allows students to experience key aspects of the research process and develop fundamental research skills in a low-stakes environment before deciding whether to pursue more intensive research opportunities like REUs. The course's effectiveness could be enhanced by expanding the range of computing research areas available to students.

The flexible, self-paced structure accommodates students' busy schedules while providing enough structure through milestones to keep them engaged and progressing. By focusing on both technical skills and identity development, the course helps students determine if research is right for them while building the foundation they need to succeed if they choose to continue on this path.

In addition to learning about research and developing practical research skills, students are also provided with structured guidance to help them find and apply for REUs after they complete the course's research milestones. This support includes guidance for writing a research statement, reaching out to get faculty recommendation letters and opportunities to connect with PIs from REU programs across the country.

Current Reach and Demographics

Our initial data shows promising engagement across student populations:

Category	Enrolled in Course	Completed up to Milestone 3 out of 5	Number of students with REU offer
Number of Students	121	27	7
First Generation	45%	55%	71%
Community College Students	43%	51%	86%

It is particularly encouraging to observe the representation of community college students (43% of enrollees) and first-generation students (45% of enrollees) among participants and a higher percentage of them (51% and 55% respectively) engaging in the curriculum.

Early Signs of Impact

While it's still early in the program's implementation, we're seeing multiple positive indicators based on pre- and post-course surveys:

- Eight out of 12 students reported improved comfort levels with research processes and skills

- Five out of 12 students indicated refinement in their understanding of how research skills apply to their future careers

- 11 students have applied for REU positions, with seven receiving offers so far

These numbers suggest that even a relatively brief exposure to research concepts can help students build confidence and take steps toward deeper research involvement.

One participant, Gabriel Martinez, a second-year electrical engineering and computer science major at South Western College in Chula Vista, shared: "I'm very excited to share that I got accepted into the Early Engagement in Semiconductor Materials and Technology REU at Michigan State University this summer. The project I got accepted into, I will apply quantum computational methods and AI in semiconductor design. This REU was a top choice for me. I want to give a shout-out to CTI and the 201R course, this course has increased my confidence in being successful in my REU and giving me the tools to be a better researcher."

The preliminary data suggests this approach may help address longstanding challenges in diversifying the research pipeline. Students who might otherwise never explore research are gaining exposure to its concepts and practices. However, we recognize that significant work remains. Completion rates need to improve, and we need longitudinal data to understand the long-term impact on students' educational and career trajectories.

Looking Ahead

Looking ahead, CTI is expanding our approach in two key directions. First, we're embedding research methodology directly into the summer open source experience we offer, focusing on systematic question development and evolution as part of the existing weekly reflection posts that students are expected to write. Second, we're restructuring our course pathways to facilitate easier student access to the research experience course, enabling them to allot sufficient time to complete the course.

As we continue refining this approach, several promising developments beyond CTI's work are underway for providing students with a way to explore what research is and entails without requiring them to make a significant, uninformed commitment to a research project.

In particular, the course materials developed for this CTI / UR2PhD course have been adapted for use for:

1. A January term course at Williams College

2. A one-credit, in-person course at UVA

The UR2PhD program is also planning to offer the course asynchronously online starting in early July for:

• Students who don't yet have a research advisor, and

• Students who have started research projects with faculty mentors but whose timing doesn't align with UR2PhD's synchronous courses.

We view these implementations as potential models that other institutions might adapt for their own contexts, and we welcome conversations about how this approach might be tailored to different educational settings.

By creating this low-stakes entry point to research experiences, we hope to make research more accessible to all students.

Acknowledgments

References

[1] Lieu, Rebekah, et al. "Improving exam performance in introductory biology through the use of preclass reading guides." CBE—Life Sciences Education 16.3 (2017): ar46.

[2] Moshiri, Niema. "TreeSwift: A massively scalable Python tree package." SoftwareX 11 (2020): 100436.

[3] Prabhakaran, Vinodkumar, Ben Hutchinson, and Margaret Mitchell. "Perturbation Sensitivity Analysis to Detect Unintended Model Biases." Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP). 2019.

New Joint CRA Whitepaper Highlights Industry Engagement in Academic Research
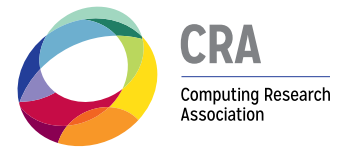
By Helen Wright, Manager, CRA-I

The Computing Research Association (CRA) has released a new whitepaper, ***Industry Engagement in Academic Research*** — a joint effort of two of its programmatic committees, CRA-Industry (CRA-I) and the Computing Community Consortium (CCC).

The paper, authored by **Elizabeth Bruce** (Microsoft), **Randal Burns** (Johns Hopkins University), **Theo Drane** (AMD), **Mary Lou Maher** (CCC), **Manish Parashar** (University of Utah), **Divesh Srivastava** (AT&T), Michela Taufer (University of Tennessee, Knoxville), and **Helen Wright** (CRA/CRA-I), highlights the importance of industry engagement in academic research to foster a strong, reciprocal relationship to advance knowledge, develop technologies, and drive long-term success.

Collaboration between academia and industry is essential for advancing computing research and translating breakthroughs into real-world applications. While universities push the boundaries of knowledge, industry brings resources, scale, and pathways to commercialization. But effective engagement requires more than just a talent pipeline — it should be a dynamic, two-way exchange. Industry can help shape research agendas, while academia offers deep expertise and solutions to emerging technological challenges.

The whitepaper highlights key models for engagement, including:

- **Industry-funded university research collaborations** that pair PhD students and faculty with industry researchers to tackle transformative challenges.
- **University partnerships with national labs**, offering students hands-on experience in real-world research environments.
- **Sustaining industry presence near universities**, ensuring satellite offices remain connected to academic research ecosystems.
- **Industry-University Cooperative Research Centers (IUCRCs)**, where companies pool resources to guide pre-competitive research.
- **Dual appointments and flexible degree models**, allowing students and industry professionals to bridge academic and industry work.

To maximize the impact of these partnerships, the whitepaper recommends long-term funding models, expanded internship and co-op programs, streamlined intellectual property (IP) agreements, and greater industry involvement in academic curricula.

For a deeper dive into these insights and recommendations, read the full whitepaper here.

Undergraduate Research Highlight: AI for Good: Researching Alzheimer's Disease

By Alejandro Velasco Dimate (CRA-E Fellow, College of William & Mary) and Emma McDonald (CRA-E Fellow, University of Alberta)

This Q&A highlight features Benjamin Burns, an Honorable Mention of the 2024 CRA Outstanding Undergraduate Researcher Award *program. Ben is an undergraduate majoring in Data Analytics at The Ohio State University.*

What brought you to computing research?

I have seen the devastating effects of Alzheimer's disease firsthand through my frequent volunteerism with nursing homes that specialize in dementia care. I want to make an impact beyond just offering comfort and condolences to Alzheimer's disease patients. I am determined to provide a cure, and I believe that biomedical artificial intelligence research will be instrumental in doing so.

CRA-E
Computing Research Association
Education

How did you get started with research?

In my first year of college, I met my research advisor Professor Xia Ning at a networking event coordinated by my fellowship program, and I started working in Ning Lab soon after. Although my primary research interest at the time was in Alzheimer's disease, Dr. Ning steered me towards recommender systems for my first project. Compared to the biomedical domain, the recommender systems field can make for a much friendlier research environment for beginners. With well-established baselines and clean datasets, I was able to focus on machine learning methodology and avoid any data preprocessing headaches that inevitably come with "messy" biomedical data. And now that I am working on "messier" biomedical projects, I will admit that I sometimes miss the simplicity of sequential recommendation data!

Benjamin Burns, B.S. in Data Analytics, The Ohio State University

Can you tell us about your current project?

Under the guidance of Dr. Ning and clinical collaborator Dr. Douglas Scharre from the Wexner Medical Center's Neurological Institute, I am leading a project to develop a deep learning model that utilizes multimodal medical data (e.g., MRI, PET, biospecimen samples) to predict Alzheimer's disease patients' rates of cognitive decline. This is important for providing more personalized care because the progression of Alzheimer's disease varies widely from patient to patient. Many state-of-the-art Alzheimer's disease predictive models are enhanced by utilizing multimodal data. Multimodal models generally perform better than unimodal models on the same prediction task because additional modalities provide relevant and complementary information. However, multimodal models suffer from extreme performance degradation when one or more of these modalities are missing during inference. Since missing modalities are common in realistic clinical settings, we must develop novel multimodal methodologies that are robust to missing modalities to ensure that they are clinically applicable. I aim to propose a novel multimodal model for Alzheimer's disease progression prediction that maintains strong unimodal performance while still being able to flexibly incorporate additional modalities when they are available.

What are some challenges you faced when getting into research?

There is a very steep learning curve in deep learning. When I was just starting out in the lab, I remember taking weeks at a time to read through and fully comprehend a single paper. I believe the first paper I read closely was "Attention Is All You Need." Nearly every sentence introduced an unfamiliar concept that warranted its own deep dive, and I soon found myself tangled in a web of literature with an exponentially growing backlog of papers to read next. I eventually found my footing, but it did not come quickly nor easily.

What about challenges with the project?

I made the decision to reformulate my prediction problem in the middle of my project. Rather than performing classification on normal cognition to mild cognitive impairment conversion, I shifted my focus to regression on clinical dementia rating which provides a more refined view of Alzheimer's disease progression. Although this reformulation has ultimately strengthened my project, it took a lot of effort to shift gears just as I was gaining momentum with the original formulation. After all, research begins with "re" for a reason. We search for answers but rarely find them on our first try. Instead, we search again, perhaps with a slightly different approach. And then again. We continue searching and "re"-searching many more times. Research is an inherently iterative process.

How has participating in research shaped your professional path?

Participating in undergraduate research has introduced me to a new level of reasoning that is extremely powerful. As a researcher, you are able to not only keep up with an evolving field but also command its direction.

CRA-E
Computing Research Association
Education

What do you think are the most important qualities for a successful researcher?

Successful researchers are comfortable with uncertainty. Unlike undergraduate education, where clear-cut answers almost always exist, research deals with the unknown. In order to push the boundaries of knowledge, you must be able to embrace ambiguity.

Do you have any advice for other students looking to get into research?

Be persistent and resilient. Your hypotheses will sometimes be wrong, and, more often than not, your results will not match your expectations. These moments are not failures — they are essential to the research process.

You can read more entries in the *Undergraduate Research Highlight* series on the student stories section of CRA-E's **SPARC** (Student Pathways into Research in Computing) website, which features stories, guidance, and resources for students exploring research in computing.

Infographic: Showcasing Evaluation Results from the 2025 CRA Leadership Academy

CERP
Computing Research Association
Evaluation

By Heather Wright, Associate Director of Data and Evaluation

After being promoted to full professor, many academics find themselves asking, "What do I do now?" or "How can I become a better leader?" The CRA Leadership Academy helps answer these questions through a workshop focused on professional development for recently or soon-to-be promoted full professors in North America.

As highlighted in last month's Computing Research News recap of the 2025 event, the Academy is described as "…an intensive workshop designed to cultivate essential leadership skills and foster peer connections".

Evaluation results from the CRA Center for Evaluating the Research Pipeline (CERP) affirm that the February 2025 workshop was a valuable experience for attendees. For example, 94 percent of survey respondents reported that the statements "I learned more about the types of leadership positions that exist in the computing community" and "I met people I would like to continue working with" were mostly or completely true of their workshop experience. The figure on the next page further illustrates these results.

Furthermore, 100 percent of respondents reported a stronger interest in pursuing leadership roles in their career as a direct result of participating in the CRA Leadership Academy. This sentiment is also reflected in the open-ended comments provided by attendees. One participant shared, "I feel like I walked away with a lot of reflection on time management, setting priorities, and making decisions as a leader."

Overall, CERP's evaluation results demonstrate that the CRA Leadership Academy effectively equips attendees with the tools needed to navigate their new roles as full professors. Attendees particularly valued the workshop's focus on common leadership challenges and felt better prepared for their future careers.

How true are the following statements regarding your experience with the Academy overall?
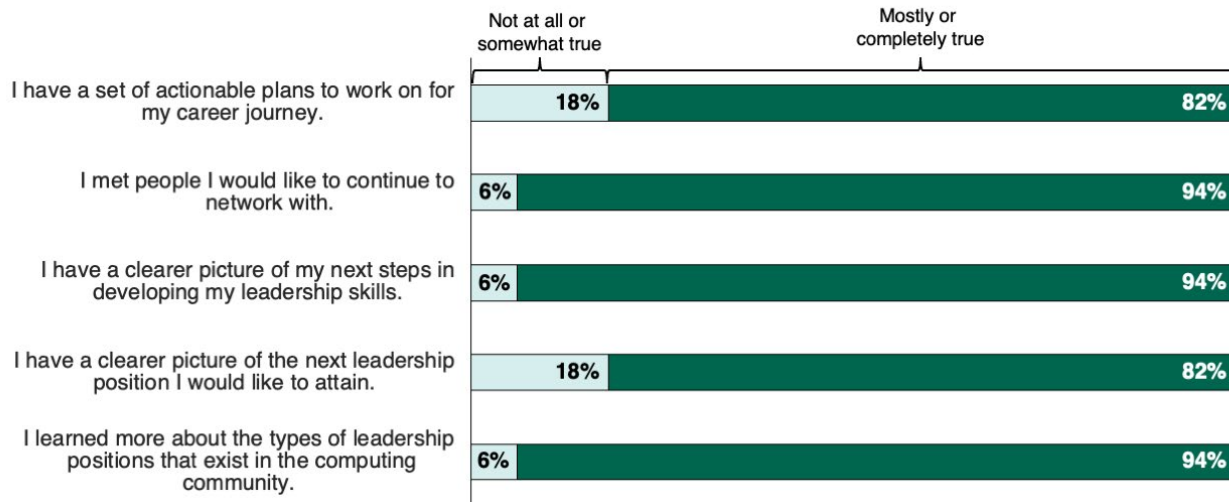
Notes: Respondents could select choices displayed on a 4-point scale from (1) Not at all true to (4) Completely true. Scale points are merged in the figure above for visualization purposes. Number of respondents: 17
Source: CRA Leadership Academy Feedback Survey (2025). Center for Evaluating the Research Pipeline. Computing Research Association.

The Center for Evaluating the Research Pipeline (CERP) collected the data analyzed for this infographic through an evaluation survey sent to attendees of the 2025 CRA Leadership Academy. The sample includes 17 responses, representing 40 percent of the total population.

Expanding the Pipeline: Reducing Barriers to Entry and Participation in Cybersecurity Education

By Daniel Votipka, Assistant Professor of Computer Science, Tufts University

As we rely more and more on technology, which has continued to proliferate into our daily lives and supports more critical functions, this increases the need for skilled practitioners to perform security reviews, intended to ensure early vulnerability identification and mitigation. This need is compounded by the continual rise in cyberattacks. Unfortunately, this demand has outpaced the supply of qualified workers, with some estimates suggesting a four million job shortfall in 2024. Many governments and private institutions

have undertaken initiatives to grow the cybersecurity workforce. For example, the U.S. government recognized this as a major national security issue in 2021 with an executive order on Improving the Nation's Cybersecurity. However, the issue remains.

One necessary step to close this gap is improving cybersecurity education. Cybersecurity education most often takes the form of hands-on hacking exercises, often referred to as capture-the-flag challenges. In these exercises, students are given a vulnerable program and instructed to find and exploit the vulnerability, allowing them to access a hidden flag value. This flag can then be submitted to a scoring oracle as proof of exploitation. These exercises enable active learning. Hacking exercises are common in security courses as homework to help students apply concepts learned in class and there are a wide range of exercises available online, along with a plethora of online supplemental resources (e.g., guides, example exploits, etc.). In theory, any curious student interested in the area has the resources available to learn this skill. In the dozens of interviews I have conducted with cybersecurity professionals, whenever I have asked about cybersecurity education, they credited these hacking exercises as their primary learning method. These exercises also play a central role in the U.S. government's recent National Cyber Workforce and Education Strategy.

Unfortunately, while there is a plethora of challenges and resources available and we have observed success in the workforce from people who participate, questions remain regarding the accessibility and utility of current offerings. Prior surveys of hacking exercise participants have shown high dropout rates, suggesting a potential barrier to participation.

In light of this, my students, collaborators, and I began our ***Vulnerability Discovery for All*** project about five years ago. Within this project, we have sought to:

1. Understand currently offered hacking exercises,

2. Identify struggles students face using this learning tool, and

3. Learn how students rely on their communities to provide educational support.

Through this deep foundational understanding of hacking exercises, we are able to make recommendations for cybersecurity education to improve all students' experiences. This article summarizes work done to answer each of our three main questions.

Pedagogical Review of Existing Hacking Exercises
As was mentioned above, there are a wide range of exercises available online hosted by academic institutions (e.g., picoCTF, Pwn College, iCTF), government agencies (Cyber Sentinel Skills Challenge), tech companies (e.g., Google CTF, fbctf), non-profits (e.g., GirlsGo CyberStart, Smash the Stack), and for-profit education firms (e.g., MetaCTF, Vulnhub, Root-me.org). Many of these exercises already serve hundreds of beginners on a yearly basis.

The first step in improving hacking exercises was to understand what is currently available. Therefore, we performed a pedagogical review of 31 hacking exercises targeted to beginners in cybersecurity. In this review, we considered whether the exercises employed various recommended and applicable pedagogy, such as active feedback and supporting student metacognition. We also reached out to the organizers of all the reviewed exercises to get feedback on our review and interview them to understand the reasoning behind the structure of their exercise. We were able to interview the organizers of 15 exercises.

In our interviews, we found that most of the people organizing these exercises are security experts, not experts in education. However, even when exercise structure and presentation decisions were made in an ad-hoc manner based on the organizers' personal opinions, we still observed several creative approaches. In fact, most of the 30 pedagogical dimensions we considered were implemented by at least one exercise. We highlighted these approaches in the paper in the hopes of encouraging broader, more consistent adoption, which some organizers have already done. Additionally, our interviews had the dual benefit of exposing

organizers to education literature concepts they were not aware of. We even heard multiple organizers formulating improvements they could make to their exercises. For example, one said "I don't know if I ever heard of metacognition before … that could really guide us in developing problems that can guide our learners even better." For readers interested in the details of our review or specific examples of exercise design that you can use in your own exercises, check out our IEEE S&P 2021 research paper.

In addition to the existing array of solutions identified, we also found gaps requiring future work. Many of these challenges center on the fact these exercises are powered by the effort of the hacking community. That is, to produce a sufficient scale of unique challenges and student resources, most exercises rely on community member to develop content (i.e., challenges or resources), acting primarily as a repository. This approach gives students a large number of unique challenges to learn from that would be impossible for the organizers to produce in a reasonable time. However, this impacts the challenges' consistency and coherence, making it hard for students to build connections between concepts across challenges. It also reduces the likelihood individual community members employ pedagogical best practices, which are often more time consuming. This led us to our next question as we sought to understand how this impacts beginning students' ability to engage with these exercises.

Beginners' Struggles with Hacking Exercises

To investigate beginners' actual experiences in hacking exercises, a PhD student on the project, James Mattei, along with our collaborator Marina Sanusi Bohuk from MetaCTF, interviewed 37 students from across the country who had little to no prior experience with hacking exercises. In particular, we focused on binary exploitation challenges (e.g., buffer/heap/integer overflows, format string vulnerabilities) which is often considered the most challenging vulnerability category. Participants were asked to solve a basic binary exploitation challenge while James observed and asked questions about their process. Participants used a development environment preconfigured with useful reverse engineering and binary exploitation. They were also given a reference sheet of useful command line arguments and encouraged to use any resources online they thought might be helpful. Each student was given one hour to complete the challenge. James then performed a detailed qualitative analysis, labelling over three thousand events characterizing student behaviors across all interviews.

So, how did the interviews go? Unfortunately, not so well. Most participants were unable to solve the challenges in the allotted time even with hints from James (including the vulnerability's type and location) and the vast majority of those able to complete the challenges did so only because of those hints. Instead, many students became frustrated and lost, with one participant saying, "Wow, I really suck at these … This was actually, legitimately terrible." This high level of difficulty and frustration explains the significant dropout rates in prior work, so the next obvious question is where are students struggling and what can we do to help?

The first common challenge we observed was in participants' ability to perform common technical tasks in binary exploitation like providing hex values as input to a program, interpreting hex output from gdb, or using the appropriate endianness for target addresses. Participants, who were all computer science majors who had completed a machine structure and assembly programming course and were fluent in C, were aware of relevant topics, but did not have practice using them. For example, one participant when asked if they had previously learned about endianness, said, "Oh, right. I remember learning about that, I just didn't really think it was important."

Further, we provided each participant with a reference sheet directly specifying many relevant commands, but they could not make the connection to these sheets without a hint. While these issues seem trivial, they were particularly time consuming for our participants even though they are not directly related to the learning goal, i.e., understanding the vulnerability. Therefore, we see this as a prime opportunity for hacking exercise organizers to have a big impact with little effort. At a minimum, these exercises should provide a reference sheet with common technical tasks (which many already do), and nudge students to reference this sheet whenever students get stuck.

The other challenge was more complicated as students struggled to identify the right terms to search for, how to evaluate whether a search result was relevant, or how to translate information they found in online resources to their challenge. On its face, this is obvious. Students do not know what they do not know when approaching a new subject. This is why we teach lectures and think a lot about topic structure to help guide students through complex concepts. However, because students might only take one security course and the specifics of these vulnerabilities are not always taught in introduction to security courses, students often approach these exercises mostly without this structure — as in our interviews. This issue again is rooted in the fact that many hacking exercises and resources lack overarching structure due to the crowdsourced nature of the content providing additional evidence for the need to point out additional work to build this supporting structure. One example effort that is promising in this direction is The CTF Primer, produced by the organizers of picoCTF. This document provides an overview of relevant concepts with examples tailored to the specifics of relevant challenges on picoCTF, one of the most popular education-focused hacking exercises.

For more details about the interviews and results, check out our USENIX Security 2025 research paper.

Community Support for Hacking Exercises

In our prior study, we found most participants could not solve the challenges by themselves, but we know many people have been successful in learning through these hacking exercises. In practice, this is most often through support from their personal relationships (e.g., friends, mentors, colleagues) and the broader security community (e.g., online forums, organizations, workshops). This has been a clear theme of all the prior interviews and surveys we have conducted with security professionals.

Since community plays such an important role in cybersecurity education to overcome the significant challenges getting started, we, along with collaborators at University of Maryland, Colorado School of Mines, and the University of Chicago, next sought to understand how welcoming the community is and whether this differs for groups historically underrepresented in cybersecurity. To do this, Samantha Katcher, the PhD student who led this work, surveyed 342 cybersecurity professionals asking them about their perceptions and experiences of belonging in local and global communities associated with cybersecurity. In this survey, we used multiple validated psychometric measures to assess various aspects of belonging, as well as open ended questions to capture examples of participants' particularly good and bad community experiences.

As a positive note, most of our participants indicated they had some local sub-communities where they could go to ask questions or discuss ideas and had reasonably high scores on measures regarding whether they believed they belonged in and could be successful in the field. Unfortunately, all our participants reported low levels of psychological safety, a measure of an individual's comfort with speaking up and presenting their own opinions without fear of a negative response. The average score for psychological safety fell in the bottom quartile of scores when compared to respondents from other domains.

Also, this lack of safety was most prominent among women, who reported statistically significantly higher rates of severe harassment and unsupportive environments due to their identity. This is only likely to get worse. Women were more likely to find community in an identity-focused group (e.g., Women in Cybersecurity), so as these groups have recently lost funding, this could have a significant impact on women who are new to cybersecurity and their ability to find the relationships necessary to be successful.

Together, these results call for a change in culture in the cybersecurity community to be more welcoming, patient, and supportive to all. We cannot solve this issue through purely technical or engineering means and it seems extremely unlikely there will be any top-down pressure for community culture change in the near future. Instead, a grassroots effort is needed to change the culture with everyone in the cybersecurity community making local efforts to invite participation and demonstrate empathy to others as they join.

For more details about the survey and results of this study, check out our SOUPS 2024 research paper.

CRA-WP
Computing Research Association
Widening Participation

Acknowledgements

About the Author

Daniel Votipka is the Lin Family Assistant Professor of Computer Science at Tufts University. His work focuses on understanding the processes and mental models of professionals who perform security-related tasks such as secure development, vulnerability discovery, network defense, and malware analysis to make security work more accessible and inclusive through improvements in automation, education, and policy.

UR2PhD's Summer Institutional Partner Deadline Is Quickly Approaching

CRA
Computing Research Association

By Julia Sepulveda, Senior Program Associate, CRA-E

Undergraduate research can play a critical role in facilitating student learning and faculty development. CRA's UR2PhD program makes it easier for students to step into research and discover whether or not it's a path they'd like to explore further. It also makes it less intimidating for graduate students to step into leadership roles and reduces barriers for faculty to get undergraduates involved in their labs.

How Does UR2PhD Make It Easier for Departments to Offer Research Experiences?

The UR2PhD program offers four primary activities:

- An undergraduate research training course,
- A graduate student mentor training course,
- Computing research engagement and awareness workshops, and
- Graduate school application workshops.

The courses provide students with the structure and space to learn, practice, and discuss their progress as researchers or as mentors. And the workshops provide additional opportunities for students to familiarize themselves with research opportunities beyond their knowledge.

The **undergraduate research training course** specifically provides undergraduate students with the scaffolding needed to legitimately participate in a hands-on research project. Through the course instruction and assignments, students develop their understanding of research concepts and build their confidence in executing research activities. Students work to build foundational reading, writing, and visualization skills while applying them to a specific project.

The **graduate student mentor training course** supports students who are serving as research mentors to undergraduates. The course teaches students how to recognize when students are struggling, and how to respond to situations they're likely to encounter. The course helps to prepare mentors to think about how their actions can help facilitate or inhibit research productivity and effectiveness.

Why Should Academic Programs Partner with UR2PhD to Expand Their Capacity to Provide Research Experiences?

UR2PhD institutional partners are departments or colleges that commit to broadening undergraduate participation in research. Schools designate a local coordinator to recruit, support, and engage faculty and students in the UR2PhD undergraduate research training and graduate student mentor training courses.

Given that participation in research can help recruit and retain students in computing, it is incredibly important for academic programs to seriously consider the types of experiences they are offering students. The UR2PhD undergraduate research training and graduate student mentor training courses provide students with structured learning opportunities, where students are actively building community and support systems, without overly increasing a faculty member's teaching or research load.

Where Can You Learn More About How You, Your Colleagues, and Your Students Can Get Involved?

On **Monday, April 21, 2025** at 1:00 pm ET / 10:00 am PT, the UR2PhD team will be hosting an informational meeting for faculty and staff. During this meeting, our team will provide an overview of UR2PhD program activities, entry points, and benefits. Register now to participate!

REGISTER NOW

If for any reason you cannot attend this session, we encourage faculty members to explore our page for potential institutional partners. Here, you will be able to find resources about how our program can fit into your existing activities and how you can get started.

UR2PhD strives to be a program that facilitates career development and preparation, enabling students and faculty to reach their full potential by providing them with the resources they need. We hope you'll consider joining us along this journey.

In Case Your Missed It (ICYMI) Items from Across CRA: April 2025

By Matt Hazenbush, Director of Communications

CREATE AI Act, Which Establishes NAIRR, Reintroduced

Reps. Obernolte (R-CA) and Beyer (D-VA) have reintroduced the CREATE AI Act, which would formally establish NAIRR. The bill now allows private and federal agency donations to support the program, reflecting budget pressures in Washington. While bipartisan support exists, the bill's path forward remains uncertain. Read more on CRA's Policy Blog.

CRA Responds to White House AI Action Plan RFI

CRA submitted comments to the White House's AI Action Plan RFI, urging support for basic academic research, robust evaluation frameworks, funding for NAIRR and FASST, energy-efficient AI, and workforce development. The response was informed by CCC and CRA-Industry leaders. Read the full response here.

CCC Shares California Call for Input on AI Frontier Models Oversight

California has released a draft report outlining approaches to governing advanced AI systems, aiming to balance innovation with safety and ethics. Co-authored by leading experts, the report invites feedback from the research community. Read more on the CCC blog.

CRA-Industry Seeks Nominations for Council Members

CRA-Industry is seeking nominations for new Council members to help guide its mission of strengthening collaboration between industry, academia, and government in computing research. Ideal candidates are visionary leaders eager to shape impactful initiatives. Learn more and submit a nomination here.

Considering a Teaching Career in Computing? Join the CRA-E Career Landscape Workshop Series

The CRA-E Career Landscape Workshop Series is a free virtual webinar series designed for graduate students, postdocs, and industry professionals exploring academic careers with a focus on teaching. Attendees from all computing disciplines are welcome.

Over three interactive sessions in May, experienced faculty will provide insights into teaching-oriented career paths, how to prepare for these roles, and how to navigate the hiring process. Each session includes panel discussions, Q&A, and networking opportunities.

Session Schedule:

- **May 6:** What is the landscape of teaching-oriented careers?
- **May 13:** How can I prepare myself for a teaching-oriented career?
- **May 20:** How do I apply for teaching-oriented positions?

All sessions will be on Zoom at 6:30 PM ET / 3:30 PM PT.

Register Now!

CRA
Computing Research
Association

Visiting Assistant Professor Of Computer Science

The Department of Computer Science at **Bucknell University** welcomes applications for two full-time, in-person **Visiting Assistant Professor (VAP)** positions that will begin in August, 2025.

We seek educators who are excited to teach undergraduate Computer Science courses such as Introduction to Computer Science, Data Structures, Software Engineering, Computer Organization, and Algorithm Design. We encourage applications from individuals with expertise in any field of Computer Science and related fields.

We strongly encourage candidates from groups underrepresented in higher education to apply. Our department of 17 faculty is collegial and collaborative. We look forward to welcoming, supporting, and mentoring new colleagues.

Each visiting professor will teach 6 courses annually, with lab sections counting as a half course each.. Research activities are encouraged, but not required. As full and equal members of our Faculty, the successful candidates will have access to Bucknell's resources for teaching and learning development, generous professional development funding for travel, and support to engage in research with our students.

Candidates must hold an MS or PhD in Computer Science or a closely related field by the start of employment.

Each position is a one-year term, but reappointment may be considered based on performance and departmental needs. Positions are full-time, in person, 9-month, benefits-eligible, exempt faculty positions.

To apply or for additional details, see: https://apptrkr.com/6005606

All applications must be received through careers.bucknell.edu.

Review of applications will begin on March 7, 2025, and continue until filled.

The Hong Kong University of Science and Technology (Guangzhou)

Faculty Positions in AI, Distributed Systems, Cybersecurity, Microelectronics, and Data Science in Internet of Things (IoT) Thrust, HKUST(GZ)

Faculty Positions in AI, Distributed Systems, Cybersecurity, Microelectronics, and Data Science in Internet of Things (IoT) Thrust, HKUST(GZ)

The Hong Kong University of Science and Technology (HKUST) Guangzhou (GZ) campus was established in 2022.

For more information, you may visit the university website (*hkust-gz.edu.cn*).

The Internet of Things (IoT) Thrust is an academic department in HKUST (GZ). We specialise in research and teaching related to all aspects of IoT and digital societies. You can find the list of our existing faculty at *https://iott.hkust-gz.edu.cn/people/p_faculty/*.

Expected Qualifications

Candidates should hold a Ph.D. degree and work in one or more areas related to the IoT Thrust. Areas of interest include but are not limited to:

- Sensors/actuators; embedded systems; microelectronics
- Artificial intelligence; data science; machine learning; optimization
- Security and privacy-enhancing technologies
- Metaverse technologies; human-computer interaction
- Distributed computing and systems; wireless communications; computer networking
- IoT applications

English is the medium of instruction and administration and therefore candidates should have excellent oral and written English language skills.

How to apply:

Please submit the application via the HKUST (GZ) Recruitment System (*https://facrecruit.hkust-gz.edu.cn/*).

Department Chair, SUNY Korea Computer Science

The State University of New York (SUNY) Korea invites exceptional candidates for the Chair of the Computer Science Department position. SUNY Korea is a SUNY-affiliated campus at the Incheon Global Campus (IGC) in Incheon, South Korea. IGC hosts a diverse academic community, including SUNY Korea, the University of Utah, George Mason University, Ghent University, and a Stanford University research center, with further expansions planned. SUNY Korea offers a comprehensive range of undergraduate and graduate degree programs from Stony Brook University (SBU) in Long Island, New York, and the Fashion Institute of Technology (FIT) in New York City.

SUNY Korea aims to offer exceptional undergraduate and graduate education, giving students a comprehensive American university experience in Korea. Students enrolled in Stony Brook University (SBU) programs, such as Computer Science, spend three years at the Incheon campus and one year at the Stony Brook campus in New York, earning degrees conferred by SBU. For more details, visit www.sunykorea.ac.kr.

As one of the most active research departments at SUNY Korea, the Computer Science Department offers BS, MS, and PhD programs, along with a newly launched MS in Data Science developed in collaboration with the Department of Applied Mathematics and Statistics. The Computing Accreditation Commission of ABET accredits the BS in computer science. More information about the department is available from its website: https://apptrkr.com/6025524.

Reporting directly to the Provost, the Chair will provide strategic leadership for the department, championing innovation and excellence in research and education. A complete description of the required qualifications for the position is available at https://www.sunykorea.ac.kr/en/html/sub10/1001.html.

To apply, please submit the following in a single PDF file to cs-search@sunykorea.ac.kr:(1) Cover letter/ letter of application with a statement on the vision and relevant experience as articulated in the position description, (2) Curriculum vitae, (3) Statements of teaching and research interests, (4) Contact information for three professional references, (5) Transcripts (unofficial or official) for the highest degree earned.

Inquiries should be directed to cs-search@sunykorea.ac.kr. Applications will be reviewed starting on April 15, 2025, and remain open until the position is filled.

Assistant Professor of Practice/Area Coordinator

40114BR
Position DescriptionThe School of Professional Studies, part of Texas Tech University Online, invites applications for a full-time, 12-month Assistant Professor of Practice (.50FTE)/Area Coordinator (.50FTE) in Human-Centered Artificial Intelligence and Computing Applications to begin September 1, 2025. This is a remote position and does not require relocation to Lubbock, TX. This role will enhance interdisciplinary collaboration, support faculty development, and meet student needs by developing relevant coursework and facilitating research and creative opportunities. Additionally, this position contributes to the university's mission through teaching in the areas of computing applications and human-centered artificial intelligence, mentoring students in professional and career preparation and serving as liaison with professional contacts and entities on behalf of the department or program. This is a non-tenure track, multi-year renewable appointment contingent on successful annual and cumulative performance appraisals as well as a majority affirmative vote of the academic unit.

Position Description
The School of Professional Studies, part of Texas Tech University Online, invites applications for a full-time, 12-month Assistant Professor of Practice (.50FTE)/Area Coordinator (.50FTE) in Human-Centered Artificial Intelligence and Computing Applications to begin September 1, 2025. This is a remote position and does not require relocation to Lubbock, TX. This role will enhance interdisciplinary collaboration, support faculty development, and meet student needs by developing relevant coursework and facilitating research and creative opportunities. Additionally, this position contributes to the university's mission through teaching in the areas of computing applications and human-centered artificial intelligence, mentoring students in professional and career preparation and serving as liaison with professional contacts and entities on behalf of the department or program. This is a non-tenure track, multi-year renewable appointment contingent on successful annual and cumulative performance appraisals as well as a majority affirmative vote of the academic unit.

Major/Essential Functions
At Texas Tech University, the Professor of Practice title is used to recruit individuals with exceptional backgrounds and achievements in academic, business, government, or other professional practice. Primary responsibilities normally will be to teach in an area of expertise, mentor students in professional and career preparation, and liaise with professional contacts and entities on behalf of the department or program.

In line with TTU's strategic priorities to engage and empower a diverse student body, enable innovative research and creative activities, and transform lives and communities through outreach and engaged scholarship, applicants should have experience working with diverse student populations at the undergraduate and/or graduate levels within individual or across the areas of teaching, research/creative activity, and service.

As a faculty member and Area Coordinator in the School of Professional Studies, you will be expected to: Develop and teach undergraduate and graduate courses in computing applications and human-centered artificial intelligence, develop and update curriculum to reflect current trends, advancements, developments, and innovations in the areas of computing applications and human centered artificial intelligence, build and maintain professional engagement and currency in fields of computing applications and human centered artificial intelligence, represent the department in university committees and external organizations, schedule curriculum for online delivery; make teaching assignments, oversee departmental resources, and administrative tasks, mentor and advise students on academic and career goals, hire and evaluate faculty in areas computing applications and human-centered artificial intelligence, represent the unit at university committees and external organizations, and other duties as assigned.

Required Qualifications/ Preferred Qualifications
In addition to the required qualifications, individuals with the following preferred qualifications are strongly encouraged to apply:
- Terminal degree in computing applications, artificial intelligence, or a related field
- Administrative experience in an academic setting, i.e. program coordinator, assistant/associate chair, or chair
- Substantial professional experience of ten years or more in computing applications, AI, or a related field, in industry, government, or academia.

Special Instructions to Applicant
Please include the following documents in your application:
- Curriculum Vitae
- Cover Letter addressing the required and preferred qualifications of the position
- Five professional references including contact informationQuestions about this position should be directed to Dr. Patrick Hughes, Dean, School of Professional Studies, Search Committee Chair at http://patrick.hughes@ttu.edu. If you need assistance with the application process, contact Human Resources, Talent Acquisition at hrs.recruiting@ttu.edu or 806-742-3851.

Minimum Hire Rate

To apply, visit https://apptrkr.com/6051719

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, gender expression, national origin, age, disability, genetic information or status as a protected veteran.

The University of North Dakota
Dean of the College of Engineering & Mines

The University of North Dakota is seeking candidates for the position of Dean of the College of Engineering & Mines (CEM). Located on an active 516-acre campus in Grand Forks, ND, a vibrant college town of 60,000 residents, UND has a student enrollment of over 15,000 and offers more than 225 fields of study across nine colleges. UND is accredited by the Higher Learning Commission (HLC) and anticipates achieving the Carnegie classification of Very High Research Activity (R1) with over $182 million in research expenditures.

Reporting directly to the Provost and Vice President for Academic Affairs, the Dean is the leader of UND's largest and fastest growing college. The Dean will provide leadership and facilitate an environment for accomplishing strategic goals, as well as aligning the functioning of CEM with UND's broader academic identity and strategic planning. The Dean is responsible, in cooperation with the Provost, for academic and administrative planning; budgeting; administration and implementation of department, college and university policies; fundraising and external relations. The Dean, in partnership with the faculty, is responsible for academic program development and review; faculty and staff recruitment; development and evaluation of faculty; and student relations.

More information, including a position profile with a full description of preferred qualifications and key qualities, as well as application instructions, is available at **https://apptrkr.com/5978246**. The anticipated starting date of the new Dean will be July 1, 2025, or as soon as reasonable thereafter.

Applications received by Thursday, March 27, 2025, are assured consideration. The UND Dean of the College of Engineering & Mines Search Committee is being assisted by Academic Search. Confidential discussions about this opportunity may be arranged by contacting consultants **Ann Hasselmo (ann.hasselmo@academicsearch.org)** and **Chris Butler (chris_butler@academicsearch.org)** at **UNDDeanCEM@academicsearch.org**

EEO Statement
All qualified applicants will receive consideration for employment without regard to disability or protected veteran status. People with disabilities and veterans are strongly encouraged to apply.

Veterans Preference
Veterans claiming preference must submit all proof of eligibility by the closing date. Proof of eligibility includes a DD-214 or NGB 22 and, if claiming disabled status, a current letter of disability from the VA dated within the past 12 months.

CLERY STATEMENT
In compliance with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, the University of North Dakota publishes an Annual Security and Fire Safety Report. The report includes the University's policies, procedures and programs concerning safety and security, as well as three years of crime statistics for our campus. Prospective employees are entitled to a copy of this report. The report and statistical data can be found online at UND.edu/annual-security-report. A paper copy of the report may also be requested from the UND Police Department located at 3851 Campus Road, Grand Forks, N.D. 58202.

Confidentiality of Application Materials
Pursuant to NDCC 44-04-18.27, applications and any records related to the applications that identify an applicant are confidential, except records related to the finalists of the position, which are open to the public after the search committee has identified three or more finalists who will be invited to campus. Successful completion of a criminal history background check on the finalist is required.

Applicants must be legally authorized to work in the United States. Anyone needing assistance or accommodations during any part of the application or interview process should Academic Search at 202.332.4049.

Visiting Assistant Professor, Computer Science

The Department of Computer Science in the College of Social Sciences, Mathematics and Education at The University of Tampa invites applications for a full-time Visiting Assistant Professor position for the 2025-26 academic year, beginning in August 2025.

The ideal candidate will have earned a Ph.D. in computer science or a closely related field and have a broad background in computer science. ABD will be considered; however, the terminal degree must be earned by July 2025 as a condition of employment. Applicants must be currently authorized to work in the United States on a full-time basis.

The normal teaching load is three four-credit hour courses per semester. The successful candidate is expected to teach a wide variety of undergraduate courses in computer science. Strong candidates from all areas within computer science will be considered; however, applicants with teaching experience in software engineering and DevOps, data mining and data management, machine learning and artificial intelligence, computer graphics and visualization, and human-computer interaction are especially encouraged to apply.

The University of Tampa is an equal opportunity/affirmative action employer dedicated to excellence through diversity and does not discriminate based on age, race, sex, disability, sexual orientation, national origin, religion, marital status, gender identity, veteran status, or any other non-job-related criteria.

To apply, visit: https://apptrkr.com/6043559