UNIVERSITY OF UTAH

ONE-U RESPONSIBLE ARTIFICIAL INTELLIGENCE INITIATIVE

ANNUAL REPORT

INAUGURAL EDITION • 2023–2024

SCI

THE UNIVERSITY OF UTAH®

ABOUT US

The University of Utah One-U Responsible Artificial Intelligence Initiative (One-U RAI) aims to harness the transformative power of AI to benefit society. U President Taylor Randall launched the $100 million initiative in October 2023 to support interdisciplinary AI research with real-world impact in three thematic areas where the U has deep expertise.

THEMATIC AREAS

Building on Research Strengths Across the U

One-U RAI brings together the applied research and technological expertise, advanced cyberinfrastructure, and workforce needed to advance translational AI and lead the region and nation in achieving societal good. The initiative will grow the U's pool of AI researchers, increase computing power and resources, and engage the broader community through partnerships and public events.

VISION

A reality where AI is responsibly leveraged to address critical local, regional, and global challenges and benefit humanity.

MISSION

To realize a transdisciplinary ecosystem that catalyzes and nurtures responsible innovation, translation, application, and study of the function, use, and impacts of AI toward addressing scientific and societal grand challenges.

APPROACH

Spark and sustain large multidisciplinary collaborations, leverage existing strengths to focus on novel research and training, and pioneer solutions with regional impact and beyond to distinguish the U.

FOUNDATIONS

- Ethical development of technology
- Interdisciplinary collaboration to address technical and societal challenges
- Knowledge and skill sharing to effectively navigate the AI world
- Community engagement for societal impact
- Advocating for policy and responsible AI practices

LETTER FROM THE DIRECTOR

I have been honored to lead the ambitious and visionary One-U Responsible Artificial Intelligence Initiative and am delighted to share our achievements over its first year in this report. The initiative has brought together an amazing set of experts from across the University of Utah to define three core thrust areas, establish processes and support structures, and launch its first set of programs: faculty fellows, postdoctoral fellows, and distinguished visitors. In parallel, we've started establishing the cyberinfrastructure resources critical to responsible AI. We've also engaged in extensive community building and outreach—including through our partnership with The Leonardo, a nonprofit museum of creativity and innovation in downtown Salt Lake City.

All of this would not have been possible without the vibrant interdisciplinary community that has generously given their time to define the initiative and move it forward. In our committees and working groups, 50 faculty and staff members across 12 colleges have contributed their expertise, setting the stage for the U to harness AI to solve the world's pressing problems. Still more faculty and partners from government and industry, representing more than 75 entities, have joined us at our events. They've helped us showcase AI's challenges and opportunities—its capacity to tutor students, track pollution, help doctors save lives, and more. Thanks to the collaborative, innovative people powering this initiative, we're well-positioned to benefit the state, region, and world.

All of this would not have been possible without the vibrant interdisciplinary community that has generously given their time to define the initiative and move it forward.

Looking ahead, we're excited to work with our inaugural program awardees and launch our initial cluster hires early next year. All of these programs aim to assemble leading AI experts across various fields. They will be our driving force, producing novel ideas with real-world applications. We're also poised to expand our cyberinfrastructure, ensuring Utah remains at the forefront of discovery and technological innovation.

We invite you to be a part of this initiative by attending an event, signing up for a special interest group, or leveraging one of the opportunities listed at rai.utah.edu. We are driven by our mission to harness AI to address scientific and societal grand challenges, and we hope you'll join us.

—Manish Parashar

LEADERSHIP TEAM

One-U RAI is part of the **Scientific Computing and Imaging (SCI) Institute**, which is led by Manish Parashar and has a renowned history in collaborative, translational research. The initiative leadership team—with additional help from SCI staff—provides day-to-day services and support, from building community partnerships to launching research programs.

Manish Parashar
Director, SCI

Penny Atkins
Director of Research & Science, SCI

Kelly Hermans†
PR/Communications Manager, SCI

Mike Kirby*
Professor, Kahlert School of Computing & SCI

Patti Ross
Chief Corporate Engagement Officer, University of Utah

†Added in May 2024.
**Served on the leadership team prior to his July 2024 appointment as assistant vice president for research strategic initiatives; now serves on the Executive Committee.*

EXECUTIVE COMMITTEE

The executive committee was launched in February 2024 to oversee and coordinate the execution of One-U RAI. This committee is chaired by SCI leadership and has 10 members, including faculty from across the U. Inaugural members will serve one- or two-year terms with future members serving staggered two-year terms. Members are integral to RAI outreach, from sharing updates with peers across campus to speaking at events.

From left, Executive Committee member **Jim Hotaling** moderates a One-U RAI Industry Partnership Summit healthcare panel that included **Bob Ohgami** (University of Utah and ARUP Laboratories) and **Ruth Nicholson Klepfer** (Medtronic). *Read more about the summit on pages 12–13.*

William Anderegg
School of Biological Sciences, College of Science

Simon Brewer
School of Environment, Society, & Sustainability, College of Social & Behavioral Science

Nina de Lacy
Psychiatry, Spencer Fox Eccles School of Medicine

Jim Hotaling
Surgery, Spencer Fox Eccles School of Medicine

Mike Kirby
Kahlert School of Computing, Price College of Engineering

Sameer Patil
Kahlert School of Computing, Price College of Engineering

Aaron Quinlan
Human Genetics, Spencer Fox Eccles School of Medicine

Kathy Sward
Nursing, College of Nursing

AC Tan
Oncological Sciences, Spencer Fox Eccles School of Medicine

Sara Yeo*
Communication, College of Humanities

**Avery Holton (Communication, College of Humanities) served for six months during Yeo's sabbatical.*

FAST-ACTION WORKING GROUPS

Guiding One-U RAI Toward Transformational AI Research

In February 2024, One-U RAI established three fast-action working groups made up of experts from across campus aligned with the thematic areas. Each working group developed a vision and mission statement that captured the core components of a One-U RAI approach. Groups delivered final recommendations in July and presented them at the **One-U RAI Inaugural Symposium on Sept. 23**. U faculty in each area also presented their AI-related research, giving the U community a better understanding of what future One-U RAI research could look like.

ENVIRONMENT

VISION

Combined expertise in environment, climate, and AI will lead to reductions in the environmental impacts of human activity and increased resilience to environmental change as a result of collaboration, training opportunities, and advanced technology, policy, and solutions.

MISSION

To responsibly develop and use AI to understand and address critical human-environmental challenges from local to global scales in a manner that promotes resilience and fosters sustainable development.

"The University of Utah could be really one of the foremost places in connecting those dots."

William Anderegg (left)—working group co-leader and director of the Wilkes Center for Climate Science and Policy—at the **One-U RAI Inaugural Symposium** on using AI research to link climate events like wildfires to health impacts. *Also pictured,* ***Derek Mallia*** *(see page 11) and* ***Isabelle Freiling*** *(see pages 8 and 11).*

ACTIVITIES & IMPACTS

- **Sustainable AI:** establish ethical governance, assess environmental impacts, explore broader societal effects of AI on environmental misinformation and social inequities, and develop responsible and environmentally conscious AI applications.
- **AI for Environmental Resilience:** improve climate and air datasets and models, accelerate climate technologies and solutions, enhance risk detection and mitigation, and enable planning and sustainable development.

ENVIRONMENT WORKING GROUP

CO-LEADS

William Anderegg
School of Biological Sciences, College of Science

Tim Collins
School of Environment, Society, & Sustainability, College of Social & Behavioral Science

Court Strong
Atmospheric Sciences, College of Mines & Earth Sciences

Amanda Bakian
Psychiatry, Spencer Fox Eccles School of Medicine

Elizabeth Callaway
English, College of Humanities

Ram Gouripeddi
Biomedical Informatics, Spencer Fox Eccles School of Medicine

Heather Holmes
Chemical Engineering, Price College of Engineering

Akil Narayan
Mathematics, College of Science

Masood Parvania
Electrical & Computer Engineering, Price College of Engineering

Alessandro Rigolon
City & Metropolitan Planning, College of Architecture + Planning

HEALTHCARE & WELLNESS

VISION

Regionally important problems in healthcare and wellness are solved by pioneering AI-powered solutions that are both globally relevant and applicable to future challenges.

MISSION

To bring leading-edge AI technologies to the bedside and community in a safe and equitable manner and to transform health and wellness practice, foundational AI development, and basic science innovation through an accelerated cycle of collaboration.

> **"We were all born. This has transformative potential impact for human health."**
>
> **Nathan Blue**, assistant professor of obstetrics and gynecology, at the symposium. Blue uses AI to inform delivery timing in higher-risk pregnancies.

> **"AI is not here to replace medical experts. It's about revealing what's hidden and enhancing workflow."**
>
> **Shireen Elhabian**, associate professor of computing, at the symposium. Elhabian and her team develop automated tools to improve medical imaging, helping clinicians inform their diagnoses. Traditional methods result in simplified geometric measurements that don't capture full anatomy.

ACTIVITIES & IMPACTS

- **Data Sharing and Integration:** invest in the integration, aggregation, and federation of biomedical data that scale across and within healthcare systems and data types.
- **Operationalization of Biomedical Data:** provide leading-edge infrastructural, privacy, and computational solutions to operationalize real-world biomedical data.
- **Promotion of Data Governance:** develop data governance structures that are responsive to clinical, research, and policy stakeholders.

HEALTHCARE & WELLNESS WORKING GROUP

CO-LEADS

Brian Baucom
Psychology,
College of Social & Behavioral Science

Nina de Lacy
Psychiatry,
Spencer Fox Eccles School of Medicine

Vicky Tiase
Biomedical Informatics,
Spencer Fox Eccles School of Medicine

Fred Adler
School of Biological Sciences,
College of Science

Ana Marasović
Kahlert School of Computing,
Price College of Engineering

Laura Marquez
Digital Transformation,
University of Utah Health

Dan Scharfstein
Population Health Sciences,
Spencer Fox Eccles School of Medicine

Martin Tristani-Firouzi
Pediatrics,
Spencer Fox Eccles School of Medicine

Chun Yuan
Radiology,
Spencer Fox Eccles School of Medicine

TEACHING & LEARNING

VISION

The responsible and ethical design, development, and use of AI creates a system of higher education that fosters universal access and inclusion, empowers faculty and students, and benefits society.

MISSION

To advance research on teaching approaches and learning experiences that develop and deploy responsible AI to enrich the knowledge, skills, and adaptability of faculty and students across the many disciplines in higher education.

ACTIVITIES & IMPACTS

- **Optimized Education:** understand the use of AI to improve the quality, effectiveness, and value of teaching and learning.
- **AI-Powered Assistance:** develop virtual teaching and research assistants to amplify the student learning experience and manage teaching workload.
- **Integration of Ethical and Responsible AI:** the ethics of AI use in curriculum design and delivery and responsible AI design and evaluation, including data privacy, transparency, and bias detection and mitigation.

"We can help students advance their critical thinking skills."

Rohit Aggarwal (left), working group member and professor of operations and information systems, at the symposium. Aggarwal investigates how AI affects skill development. His early results show that AI initially improves our ability to perform tasks, but the benefits diminish over time—underscoring the need for critical thinking. *Also pictured, far right, working group co-leader* ***Andrea Rorrer****.*

"We've developed a conceptual framework for supporting AI and pedagogy... We want faculty to understand what AI is and what it's useful for."

Anne Cook (center), working group member and director of the Martha Bradley Evans Center for Teaching Excellence, at the symposium. The center's many resources for faculty include AI 101, a self-directed Canvas course on how to use AI to do things like create lesson plans and assessments.

TEACHING & LEARNING WORKING GROUP

CO-LEADS

Mike Kirby
Kahlert School of Computing, Price College of Engineering

Andrea Rorrer
Educational Leadership & Policy, College of Education

Kathy Sward
Nursing, College of Nursing

Rohit Aggarwal
Operations & Information Systems, David Eccles School of Business

Jim Agutter
Multi-Disciplinary Design, College of Architecture + Planning

Anne Cook
Educational Psychology, College of Education

Leslie Francis
Law, College of Law; Philosophy, College of Humanities

Deborah Keyek-Franssen
University Connected Learning

Rob MacLeod
Biomedical Engineering, Price College of Engineering

Lien Fan Shen
Film & Media Arts, College of Fine Arts

Jon Thomas
University Information Technology

FACULTY ENGAGEMENT COMMITTEE — Launched in fall 2024 to guide the execution of initial RAI activities, including application review, awardee integration, and program assessment. *Read about programs on page 8.*

Fred Adler
School of Biological Sciences, College of Science

Divya Chandrasekhar
City & Metropolitan Planning, College of Architecture + Planning

Anne Cook
Educational Psychology, College of Education

Heather Holmes
Chemical Engineering, Price College of Engineering

Ken Kawamoto
Biomedical Informatics, Spencer Fox Eccles School of Medicine

Rob MacLeod
Biomedical Engineering, Price College of Engineering

Akil Narayan
Mathematics, College of Science

Jeff Phillips
Kahlert School of Computing, Price College of Engineering

Lien Fan Shen
Film & Media Arts, College of Fine Arts

Shane Wallace
J. Willard Marriott Library

EXTERNAL ADVISORY COMMITTEE — Formed in spring 2024 to act as a sounding board and connect RAI with complementary efforts across the country. Members span industry, government, and academia.

Anthony Annunziata
IBM

Margaret Busse
State of Utah Department of Commerce

David Danks
University of California San Diego

Susan Gregurick
National Institutes of Health Office of Data Science Strategy

Greg Jones
NVIDIA

Bassam Salem
University of Utah & Mindshare Ventures

Elham Tabassi
National Institutes of Science & Technology

Nicholas Tatonetti
Cedars-Sinai Medical Center

Valerie Taylor
Argonne National Laboratory

CULTIVATING RESEARCH EXPERTISE

One-U RAI aims to attract and retain top talent through the support of current faculty and the hiring of new faculty in the thematic areas. In its first push to achieve this goal, One-U RAI in late fall announced its inaugural awardees: 7 faculty fellows, 1 postdoctoral fellow, and 1 distinguished visitor.

FACULTY FELLOWS ▶

The faculty fellows span six colleges across the U and their work is expected to drive progress in one or more of the initiative's thematic areas: environment, healthcare and wellness, and teaching and learning. One-U RAI will typically award three to five fellows each year, but increased that number for 2025 due to a strong applicant pool and excitement from U leadership.

"Our inaugural cohort of faculty fellows represents a wonderful cross-section of U faculty," said Manish Parashar, director of the SCI Institute, which houses One-U RAI. "We look forward to integrating their expertise into One-U RAI and working toward shared goals, from recommending guardrails that protect individuals to applying AI to solve complex societal challenges."

The initiative's Faculty Engagement and Executive committees recommended seven fellows out of an applicant pool of 28. Awards may be used flexibly and amount to 25% of a fellow's base salary, with a maximum award of $75,000 and a minimum award covering the average annual cost of a graduate student in the fellow's department. Fellowships are awarded for three years and may be renewed following review.

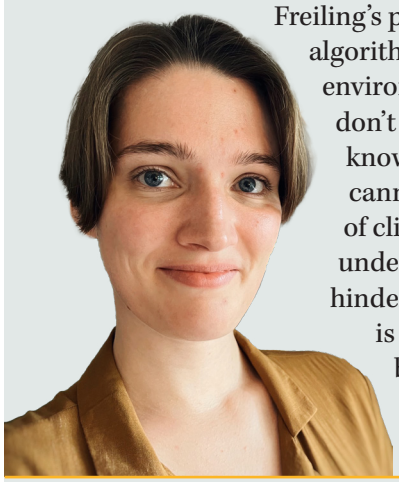
BRIAN CODDING

Professor, Anthropology, College of Social & Behavioral Science

Codding's work applies machine learning and deep learning models to aid Indigenous-led conservation and restoration projects. He will work with community partners around the use of AI for understanding and addressing critical human-environmental challenges. "This will include building partnerships, inclusive training datasets, and models that responsibly represent the environmental management needs and goals of tribal members," he said. Ultimately, he hopes to help inform restoration and conservation efforts that improve ecosystems and livelihoods in Utah.

ISABELLE FREILING

Assistant Professor, Communication, College of Humanities



Freiling's publications identify the challenges that algorithms pose in understanding online information environments, such as social media, where researchers don't know who sees what. "For example, if we do not know who saw a message about climate change, we cannot measure its effect on people's perceptions of climate change," she said. Freiling is advancing understanding of how this lack of access to data hinders theory building. Science communication is critical to advancing AI responsibly, she said, because it helps to reach diverse audiences affected by AI and identify ethical issues.

MAGGIE FRENCH

Assistant Professor, Physical Therapy & Athletic Training, College of Health

French brings a foundational knowledge of AI and machine learning; a unique combination of skills related to neurorehabilitation, bioinformatics, and data science; and expertise related to patient-centered outcomes. She uses biomedical data and AI to examine complex patterns in rehabilitation and develop predictive models of outcomes, particularly for stroke recovery. "Curating a robust dataset is essential to setting the stage for my research goals and for ensuring the responsible application of AI to high-quality data in healthcare," she said.

CHENGLU LI

Assistant Professor, Educational Psychology, College of Education

Li has developed and investigated numerous AI models in teaching and learning, including responsible large language models (LLMs) for scalable online-learning support. He focuses on the personalization of education through fair, accountable, and transparent AI tools and learning analytics grounded in rich learning theories. "I intend to collaborate on research and grant proposals promoting educational equity through AI and organize or contribute to venues to raise awareness of AI's societal impacts among educators and students," Li said.

ANA MARASOVIĆ

Assistant Professor, Kahlert School of Computing, Price College of Engineering

Marasović develops and rigorously evaluates frontier AI models, such as LLMs, to empower people through effective AI-assisted decision-making, communication, and creativity. "I advocate for simulations where dynamic and complex interactions unfold over time, where risks are evident, and accountability is promoted, as in real-life decision-making," she said. "I will, as a faculty fellow, create a robust testbed to assess the readiness of LLMs and the human-AI collaboration methods developed by my lab, ultimately enhancing both their development and their ability to improve student learning."

VINEET PANDEY

Assistant Professor, Kahlert School of Computing, Price College of Engineering

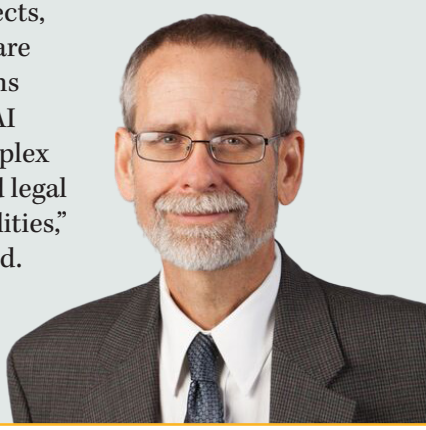
Vineet expects to use his training in human-centered design to create AI-powered digital health platforms, such as smartphone-based tools that measure movement and cognitive performance to reduce expert load in clinical assessment and rehabilitation. "I see a massive opportunity to do foundational work bringing together two areas—human-computer interaction and AI—that have diverged over time," he said. "Responsible AI technologies need human-centered design with multiple stakeholders to be useful in complex situations like healthcare."

> **"These programs aim to assemble leading AI experts across various fields. They will be our driving force, producing novel ideas with real-world applications."**
>
> **Manish Parashar**
> Director of the SCI Institute and One-U RAI

MARK YANDELL

Professor, Human Genetics, Spencer Fox Eccles School of Medicine

For the last eight years, Yandell has worked almost exclusively on the development of machine learning and AI tools in genomics and population health. A major focus of his work is genetic diagnosis for critically ill newborns. "Responsible AI is the common theme running through all these projects, as healthcare applications involving AI entail complex ethical and legal responsibilities," Yandell said.



THEMATIC AREA KEY

- Environment
- Healthcare & Wellness
- Teaching & Learning

Photo credit: Erik Jepsen, UC San Diego University Communications

DISTINGUISHED VISITOR

DAVID DANKS

Professor, Data Science, Philosophy, & Policy at University of California San Diego

One-U RAI's first distinguished visitor will be David Danks, a professor of data science, philosophy, and policy at the University of California San Diego, and a member of the initiative's External Advisory Committee. "David brings tremendous expertise, national leadership experience, and collaborations," Parashar said. "As a leader in his field, David is the right person to help us launch this program in a sustainable way."

Danks's research ranges broadly across data science, AI, ethics, policy, cognitive science, and more. He develops AI algorithms and systems, primarily around causal learning and reasoning for biomedical and social challenges. Danks works extensively on AI governance, particularly methods, policies, and education to produce trustworthy, responsible AI systems. He also conducts philosophical research on the nature of AI responsibility, trustworthiness, and related concepts.

"I actively work to translate this research for the public benefit, whether through my service on committees such as the National AI Advisory Committee, or public speaking and writing for non-academic offices," Danks said.

"My research, teaching, and service are all closely aligned with the mission of One-U RAI. I am excited about the possibility of being a distinguished visitor. I have no doubt that I will find many connections across the University of Utah. I have been impressed by all of the people I have met there."

Danks's first visit will include a distinguished lecture. He'll return to identify clear research questions and resources, and again to kick off research collaborations.

In the first cycle of applications, the One-U RAI Faculty Engagement and Executive committees recommended one distinguished visitor from a pool of six. This program supports extended visits by leading researchers. It covers travel costs and provides an honorarium tied to the length of stay. One-U RAI expects to invite three to five visitors each year and reviews applications on a quarterly basis.

POSTDOCTORAL FELLOW

BLAKE VERNON

School of Environment, Society, & Sustainability, College of Social & Behavioral Science

Mentored by Brian Codding & Simon Brewer

Vernon will build an AI hydrological model and open-source tools that estimate soil moisture and runoff potential, ultimately aiding efforts like sustainable development. "While a great deal of work is being done in AI research to understand the consequences of climate change for hydrological systems, the complexity of the models makes them extremely hard to implement and interpret," Vernon said. "This project seeks to overcome those challenges."

The One-U RAI Faculty Engagement and Executive committees recommended one postdoctoral fellow from an applicant pool of five. The program covers salary and benefits, including retirement, for two years. One-U RAI expects to award three to five postdoctoral fellowships each year and accepts applications quarterly.

CLUSTER HIRES
COMING IN EARLY 2025

One-U RAI will support the hiring of clusters of experts to solve real-world, cross-cutting problems in the thematic areas. Each transdisciplinary cluster will be comprised of a renowned senior faculty member, two to three promising early- to mid-career faculty members, a team of software/data professionals and practitioners, and research staff and students.

ENGAGING COMMUNITY

One-U RAI engages diverse stakeholders—including more than 600 people subscribed to our emails—and fosters collaborative discussions on best practices, ethical considerations, and societal impacts.

"AI is not a hurricane bearing down on us. It is us. And it's events like this that give me a lot of optimism. We can do better."

David Danks, professor of data science, philosophy, and policy at UC San Diego, at the symposium panel on the promise of AI. *Pictured from left: RAI External Committee members **Margaret Busse**, **Danks**, **Susan Gregurick**, and **Nicholas Tatonetti**.*

ACADEMIC COMMUNITY

Virtual Town Hall (May 8)

While One-U RAI representatives presented to various leadership groups, departments, and colleges throughout early 2024, the first One-U RAI open forum was held in May. This virtual town hall attracted more than 65 attendees from across campus, representing a wide array of departments and career levels.

Inaugural Symposium ▲ (Sept. 23)

Just prior to its first anniversary, One-U RAI hosted an inaugural symposium. This daylong event highlighted the university's accomplishments in applied AI research and opportunities to leverage the collaborative environment to become a national leader in responsible AI. In addition to sharing progress in the three thematic areas, the symposium provided opportunities for the nearly 200 attendees to engage with responsible AI experts, including U researchers and local and national partners.

"There have been these massive investments in science and technology over the past five years of a scale that we haven't seen since the Cold War... AI has been at the forefront of this."

▲ Julia Lane: The Measurement of AI (May 10)

Also in May, One-U RAI hosted Julia Lane, a professor at New York University and prior senior advisor in the Office of the Federal Chief Information Officer at the White House supporting the implementation of the Federal Data Strategy. Lane presented on the measurement of AI's impact on the economy and research landscape, including why it's important for policy development, the difficulties of doing the measurement, and possible solutions. After the presentation, Lane signed copies of her book *Democratizing Our Data: A Manifesto* and met with stakeholders from across campus to learn about efforts at the U.

"If a message was created by generative AI, how much error needs to be in that message for us to call it misinformation? Does that differ if the message came from a scientist?"

Isabelle Freiling, U assistant professor of communication and an inaugural One-U RAI faculty fellow, at the symposium. Freiling investigates the nuances of misinformation, the challenges of combating it, and its potential effects on the environment.

"With the limited datasets that we have, we can't just machine learning or AI our way out of the smoke-forecasting problem... We're going to have to take more of a hybrid approach."

Derek Mallia, U research assistant professor in atmospheric sciences, at the symposium. Mallia combines AI and machine learning with physics-based models to predict dispersion of wildfire smoke over time.

REGIONAL COMMUNITY

Industry Partnership Summit ▶ (June 10)

The summit welcomed over 100 experts from industry, government, and academia with an overarching goal of enabling and promoting partnerships in responsible AI. The event identified opportunities for collaboration in the use and development of AI, with panel discussions on workforce development, infrastructure, healthcare, and policy. Key takeaways included the need to balance innovation with responsibility, advance and democratize technology, and foster public-private partnerships. The summit concluded with a call to action to further these efforts, which led to the development of four special interest groups and the initial framework of a community consortium.

Special Interest Groups

These public groups aim to create community around topics of common interest in responsible AI and provide a forum for open and thoughtful exchange of ideas and sharing of experiences, best practices, and effective solutions. Special interest groups are initially being organized around four key topics:

- **Infrastructure:** led by Greg Jones (NVIDIA), Sara McLaughlin (Amazon Web Services), and Jim Stewart (Utah Education and Telehealth Network)
- **Policy:** led by Shadman Bashir (Utah Tech University), Whit Johnson (Foley and Lardner LLC), and Brady Young (Utah Department of Commerce)
- **Frameworks & Best Practices:** led by Denise Farnsworth (Inspire Privacy and Security), Caren Frost (University of Utah), and Jared Hoskins (Summit V)
- **Workforce & Education:** led by Jimmy McDonough (Utah System of Higher Education) and Kevin Williams (MadBrains AI)

> "This is a game of really large models... We think of the GPU as the king of this race, but the king of this thing is data."

Greg Jones, NVIDIA, at the summit panel on workforce development. Jones is on the RAI External Advisory Committee and co-leads the infrastructure special interest group.

> "Our goal is not to get out there and bring the heavy hammer down. It's that Venn diagram of encouraging innovation, protecting the public, actively observing, and learning."

Margaret Busse, executive director of the Utah Department of Commerce, at the summit panel on policy. Busse is on the RAI External Advisory Committee.

Community Consortium

The responsible AI community consortium is a formal framework where industry, government, academia, and the public engage in the responsible development and use of AI. This framework was initially created with a small group of core members of industry including Zach Boyd (Utah Department of Commerce Office of AI Policy), Greg Jones (NVIDIA), Bob Ohgami (University of Utah and ARUP Laboratories), Bassam Salem (University of Utah and Mindshare Ventures), and Nate Sanders (School AI).

Advocating for Responsible AI Policy

One-U RAI has been engaged with AI policy locally through Utah's Office of AI Policy and globally though the AI Alliance. Additionally, collaboration with the Utah State Board of Education aims to ensure all K–12 students have opportunities to learn about technology, broadening the audience for the RAI teaching and learning mission.

Responsible AI Speaker Series at The Leonardo—and More!

One-U RAI leveraged the partnership between the SCI Institute, Huntsman Cancer Institute, and The Leonardo museum to offer a three-part responsible AI speaker series on what the public should know about AI and how it may impact our future. Speakers included a variety of U faculty members, from doctors to computer scientists, and guests had a chance to browse the museum's *Into the Mind of AI* exhibit. One-U RAI leaders have also participated in a number of community events—including at the Natural History Museum of Utah, Utah State University, and rotary clubs—and provided content for local and national news outlets on topics from misinformation in election years to education policy around AI. *Read more on the back page.*

“What are the new roles? I suspect that 9 out of 10 of them will be ones that we can’t predict… Gone are the days where we expect someone to pick their 40-year career at the age of 18. So education is going to truly have to be lifelong, which is great for us as a university. And we are going to be able to adapt and be agile.”

Bassam Salem, University of Utah and Mindshare Ventures, at the summit panel on workforce development. Salem is on the RAI External Advisory Committee.

“Transparency and liability are only as good as people recognizing that they need transparency, or that they may have been harmed. And that goes back to people really having some level of understanding that isn’t just uneducated fear, but is reliable concern.”

Leslie Francis, University of Utah professor of law and philosophy, at the summit panel on policy. Francis also served on the RAI Teaching and Learning Working Group.

CAPTURED *at* COMMUNITY EVENTS

Clockwise from top left:

1. **Elham Tabassi**, a senior scientist at the National Institutes of Science and Technology, delivers the keynote talk at the symposium. Tabassi is on the RAI External Advisory Committee.
2. **Ed DiBella**, right, the director of the Utah Center for Advanced Imaging Research, enjoys the fall weather with another symposium guest during a break.
3. From left, symposium guests **Paula Lozano Gonzalo, Julia Souza Silvestrin, Jose Alvarez, Cristina De La Vieja,** and **Shadman Bashir**, all from Utah Tech University. Bashir co-leads the RAI policy special interest group.
4. From left, **Jimmy McDonough** and **Kevin Williams** encourage symposium guests to join the RAI workforce & education special interest group, which they co-lead.
5. From left, summit guests **Shannon Smith** and **Eric DeBord** from Microsoft.

ADVANCING CYBERINFRASTRUCTURE

One-U RAI will acquire, deploy, and operate advanced AI cyberinfrastructure to leverage state-of-the-art AI technologies and support AI researchers and students across the state.

The University of Utah has a rich history of innovation, exemplified by its early involvement in the ARPANET—the precursor to the modern Internet—and in creating the technology that powered companies such as Adobe, Pixar, Silicon Graphics, and Evans and Sutherland. This pioneering spirit continues to drive technological advancements across the state and positions Utah as a leader in the digital age.

Now, researchers are increasingly turning to AI to spur such discoveries. "There is an urgent need to establish and operate an advanced cyberinfrastructure ecosystem for AI, the technology of the future, across the state," said Manish Parashar, director of One-U RAI and the SCI Institute, which houses the Center for High Performance Computing (CHPC). This ecosystem, Parashar explained, must integrate computing, storage, networking, and support services for Utah's researchers, entrepreneurs, practitioners, and educators. "By acting swiftly, we can open new avenues for advancement in developing and using AI across all fields and disciplines to drive research, spark innovation, and catalyze economic development and leadership," Parashar said.

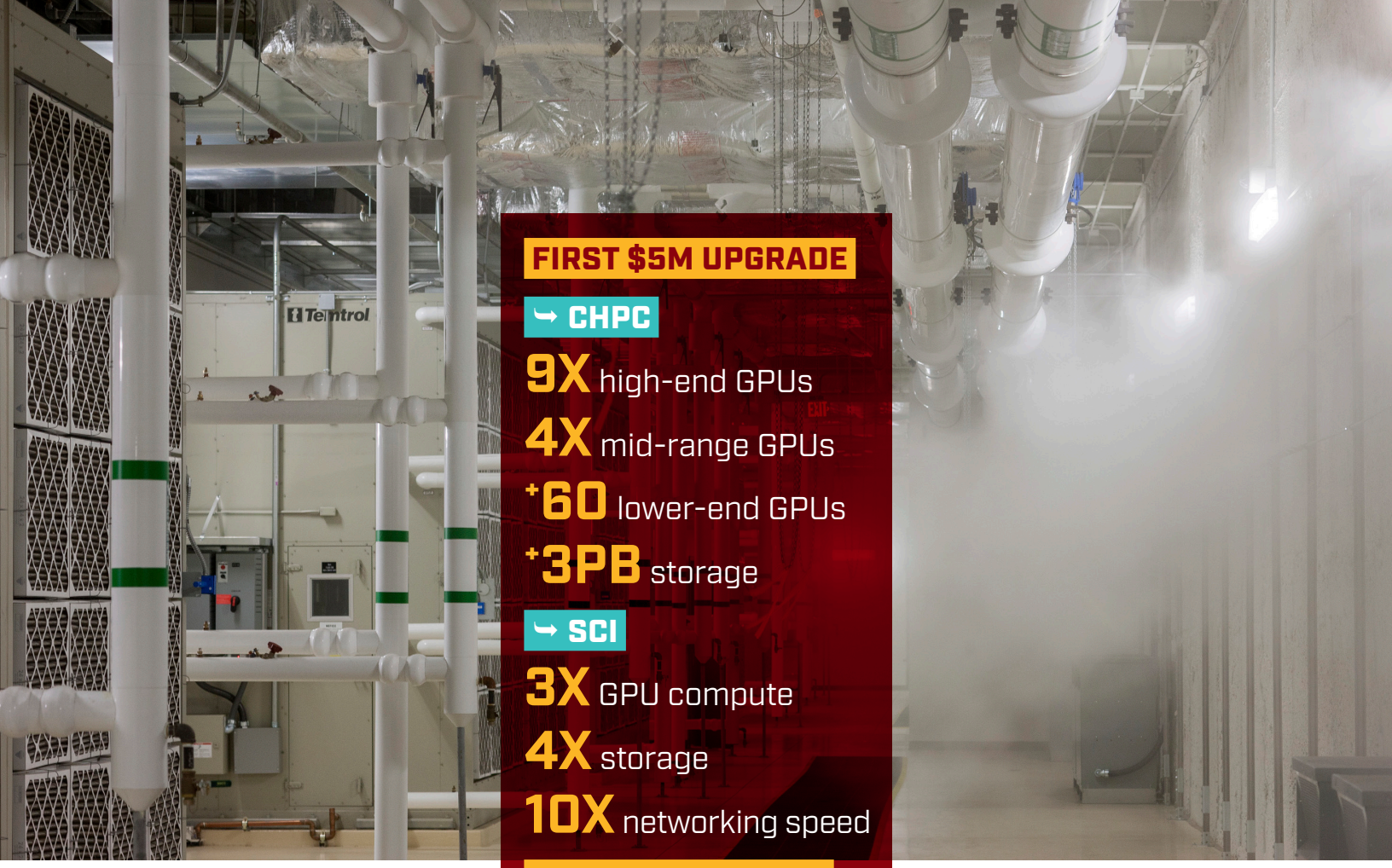
One-U RAI will invest in providing widely accessible advanced cyberinfrastructure resources and services critical for driving AI research and development. Specifically, the initiative will expand CHPC, prioritizing the addition of data center capacity, including the necessary modifications for power and cooling, the hiring of personnel as needed, and scaling-up its operations as a regional resource. "The SCI Institute and CHPC bring over three decades of experience in designing, deploying, and operating cyberinfrastructure both locally and nationally, and can host the advanced cyberinfrastructure ecosystem for AI," said Parashar, a leader in developing AI and computing infrastructures. He's the former office director of the National Science Foundation's Office of Advanced Cyberinfrastructure and co-chair of the National Artificial Intelligence Research Resource Task Force.

> **"The SCI Institute and CHPC bring over three decades of experience in designing, deploying, and operating cyberinfrastructure both locally and nationally, and can host the advanced cyberinfrastructure ecosystem for AI."**
> **Manish Parashar**

Currently, the U serves the computing and data needs of researchers and students at institutions across the state and is recognized as a national leader in research computing and data, with key roles in multiple national cyberinfrastructure projects such as the National Data Platform. Starting in 2025, One-U RAI cyberinfrastructure investments will significantly increase AI-ready computing and data capabilities while also expanding expertise and improving onboarding services.

One-U RAI has dedicated $15 million to advance cyberinfrastructure and is exploring additional federal and state funding.

Photos of the University of Utah Center for High Performance Computing, cover and pages 14–15
Credit: Paul Richer / RICHER IMAGES



FIRST $5M UPGRADE

↳ CHPC

9X high-end GPUs

4X mid-range GPUs

+60 lower-end GPUs

+3PB storage

↳ SCI

3X GPU compute

4X storage

10X networking speed

FUTURE UPGRADES

2–4X
capability increase every two years as new generations of GPUs become available

The current investments will be spread over three $5 million installments, the first of which will focus on replacing aging infrastructure and adding computing and storage capacity at SCI and CHPC. Specifically, the immediate investment will increase storage at CHPC by almost three petabytes (3,000 terabytes) and will add more than 175 graphics processing units (GPUs), which are the processors that allow for the simultaneous calculations necessary for AI research.

"These investments in CHPC will drive breakthroughs that benefit the state and beyond," Parashar said.

This first equipment installment at CHPC will significantly increase current "compute," or computing power. It entails adding interactive GPU nodes to support development of new models and real-time interaction with model results, and expanding high-end GPUs by nine times and mid-range GPUs by four times. Sixty lower-end GPUs will also be added for activities such as course support. These improvements will bolster various research and education applications, from predicting 3D molecular structures to detecting abnormalities in medical images to forecasting geological hazard events. The addition of low- to high-range GPUs will allow researchers to optimize their use of computing resources to match their specific needs.

At SCI, the initial investment is expected to triple the current GPU compute, quadruple the storage, increase networking speeds tenfold, and support equipment requests of incoming One-U RAI faculty.

Future equipment investments are projected to add newer generations of GPUs as they are released to continue to expand computing resources by two to four times every two years.

Beyond equipment, the investments will also allow CHPC to hire six staff to support One-U RAI, security and privacy compliance, data backups and archiving, network infrastructure, cloud and hybrid workflows, and more. In addition, four SCI staff members will be added to support research software, IT, and communications.

Together with state leadership, CHPC is working to support Utah's research computing and data infrastructure. This combined investment will create a holistic cyberinfrastructure to serve the needs of academic institutions and industry partners across the Beehive State. It will provide essential capabilities for Utah's researchers and developers to continue to explore new technologies and paradigms of translational AI.

UNIVERSITY OF UTAH
ONE-U RESPONSIBLE AI INITIATIVE

OUR FIRST YEAR *by the* NUMBERS

Est. October 2023

SUPPORT ACROSS CAMPUS & BEYOND

50 U faculty members involved
across all RAI committees and groups

9 external advisors
representing IBM, NVIDIA, Utah Department of Commerce, universities, national institutes & laboratories, & more

12 U colleges represented

LAYING THE GROUNDWORK *for* IMPACTFUL RESEARCH

3 programs launched
to boost novel AI research at the U

39 program applicants
- 28 faculty fellows
- 6 distinguished visitors
- 5 postdoctoral fellows

3 thematic areas & fast-action working groups
that build upon U research strengths

ENVIRONMENT
HEALTHCARE & WELLNESS
TEACHING & LEARNING

COMMUNITY ENGAGEMENT & OUTREACH

4 public events
- *Town Hall*
- *Julia Lane: The Measurement of AI*
- *Industry Partnership Summit*
- *Inaugural Symposium*
- *co-sponsored 5 more events before the end of 2024*

~400 event attendees

75 organizations at our summit & symposium

4 special interest groups

600+ email subscribers

14 stories spreading the word
in the news media or campus-wide publications

1 museum partnership
with The Leonardo

TALKS & PANEL APPEARANCES
BY INITIATIVE LEADERSHIP

Huntsman Cancer Institute Oncological Data Science Symposium
The Leonardo—Launch of *Into the Mind of AI* Exhibit
Natural History Museum of Utah
Rotary Club of Millcreek
Sagewood Senior Living in Daybreak, Utah
Silicon Slopes AI Summit
University of Buffalo IAD Days—The AI and Data Science Symposium
University of Chicago Mind Bytes Research Computing Expo and Symposium
University Economic Development Association Innovation Alliance
Utah State University Institute for Disability Research, Policy and Practice
University of Utah—various boards, councils, and other groups

IN THE NEWS
MEDIA & CAMPUS-WIDE COVERAGE

Responsible AI Initiative Seeks to Solve Societal Problems
@theU, Oct. 13, 2023

Utah's AI Leap: The U Is Investing $100 Million for an Initiative Tackling Societal Challenges with Artificial Intelligence
University of Utah Magazine, Winter 2024

University of Utah Joins AI Alliance
@theU, Feb. 9, 2024

Looking Toward an Election Year Through the Responsible AI Initiative
The Daily Utah Chronicle, Feb. 26, 2024

Discussing Artificial Intelligence on *Access Utah*
Utah Public Radio, April 11, 2024

Opinion: In Utah, We're Using Responsible A.I. to Take On Environmental and Health Crises.
The Salt Lake Tribune, April 13, 2024

Here's How the University of Utah Will Showcase Using AI Responsibly
U Rising podcast, May 5, 2024

Navigating Future Scientific Frontiers: Q&A with Manish Parashar
University of Utah Magazine, Summer 2024

Responsible AI Summit Sets Stage for Public-Private Partnerships
@theU, June 13, 2024

Website about AI Efforts at the U is Live
University of Utah Information Technology & @theU, Aug. 28, 2024

University of Utah Launches Website for AI Resources, Initiatives
KSL.com, Sept. 3, 2024

Symposium Marks 1 Year of Responsible AI Initiative
@theU, Sept. 26, 2024

Here's How and Why Utah Is Positioned to Be a Leader When It Comes to Democratizing AI
KSL.com, Sept. 27, 2024

Promise and Potential Pitfalls of AI in Health Care Come to the Fore at One-U RAI Symposium
University of Utah Health & @theU, Oct. 15, 2024

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