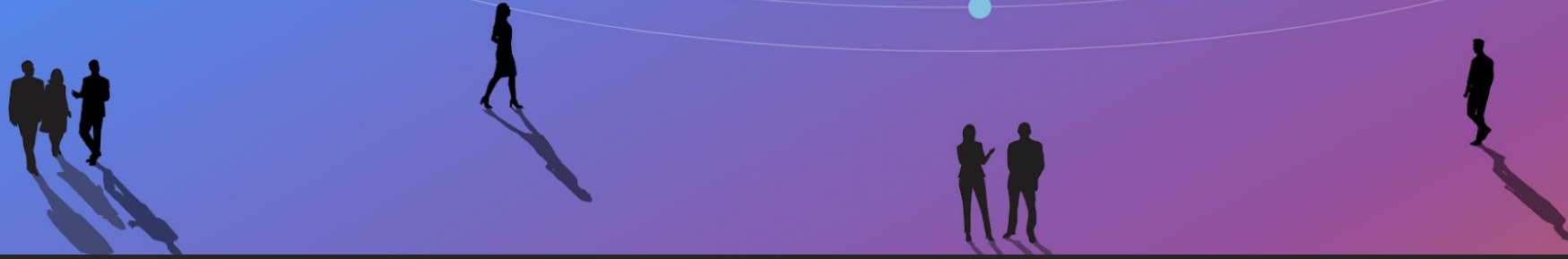


Extend. Expand. Exemplify.

The SGCI team continues to offer its services AND brings you a new Center of Excellence to Extend Access, Expand the Community, and Exemplify Good Practices for CI through Science Gateways.



CI CoE: SGX3 - A Center of Excellence to Extend Access, Expand the Community, and Exemplify Good Practices for CI Through Science Gateways

Sandra Gesing, Maytal Dahan, Linda Hayden, Claire Stirm,
Sean Cleveland, Janae Baker

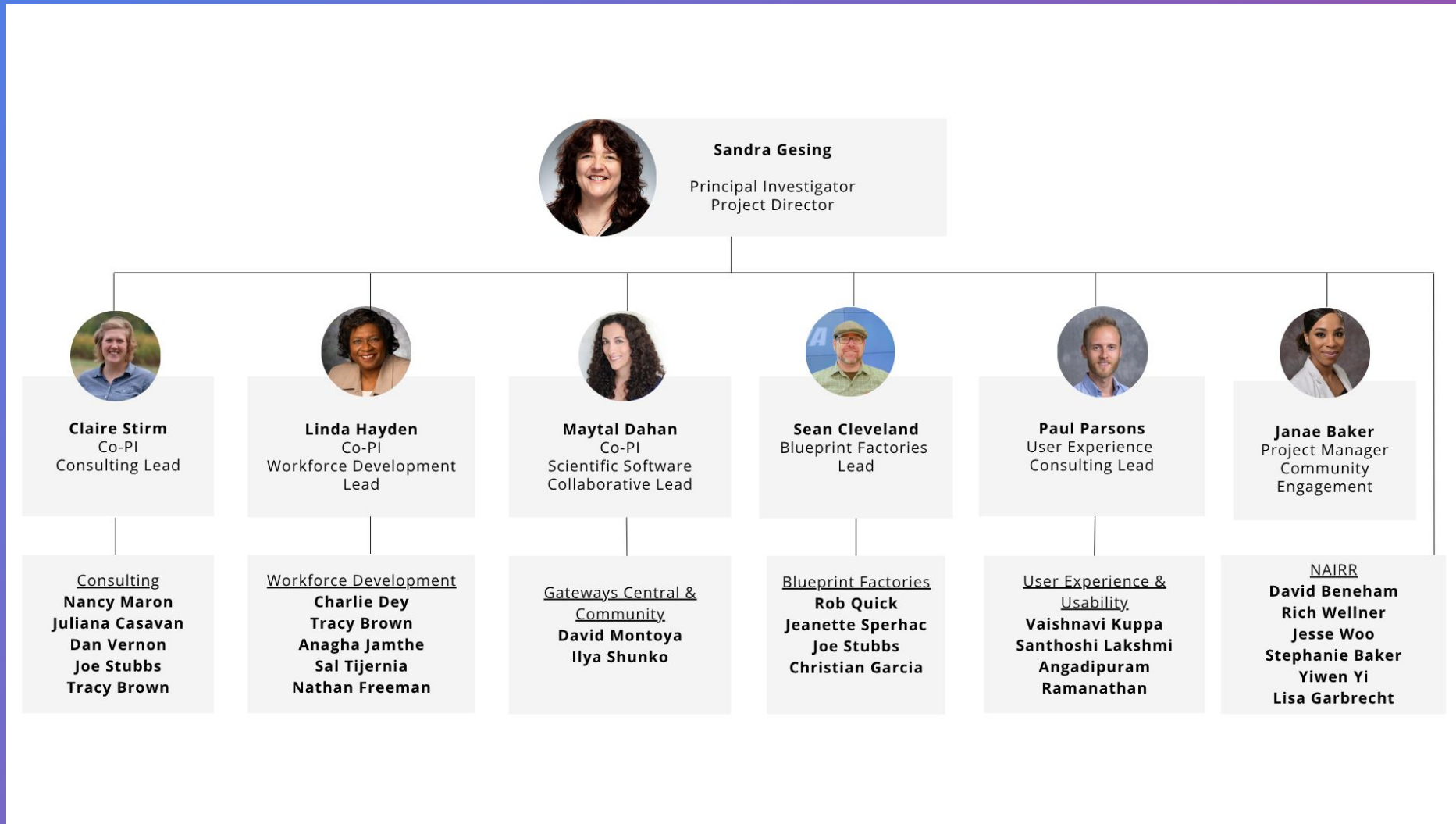
2025 FACULTY CURRICULUM HACKATHON



NSF Award
2231406

SGX3

Our Team



What are Science Gateways?

Science gateways are full-stack solutions that provide streamlined access to complex research infrastructures for researchers, educators, and students. By integrating community-specific tools and services into web portals or apps, they enable broad research communities to collaborate, share resources, and accelerate scientific discovery efficiently.

Science Gateways Act as Bridges

Researchers
and
Educators



Students



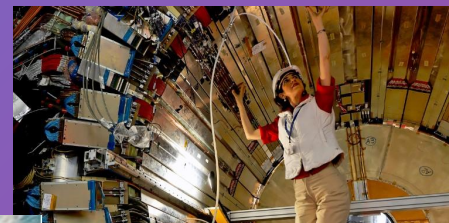
Research
Software
Engineers



Security – Authentication
Tools and APIs
Data Integration
Visualization



Lab
Instruments



HPC and
Cloud



Data
Repositories



Computational
Methods



AI/ML



SGX3

Why Science Gateways?

Broadening	Broadening access and lowering barriers
Driving	Driving discovery - AI, healthcare, energy, national security, advanced manufacturing
Boosting	Boosting economic impact - national impact
Maximizing	Maximizing federal investments
Enhancing	Enhancing education, workforce development and national competitiveness

SGX3



ECONOMIC GROWTH
Through Professional
Development



PARTNERSHIPS
to transformation &
discovery



INNOVATION
to opportunity



Adoption
Through Community
Engagement



Focus Areas
to increase national
competativeness

**Workforce
Development**

**Usability
Engagement**

**AI
Blueprint Factory**

**Annual
Conference**

**NAIRR Pilot
Portal**

**Student
Internships**

**Sustainability
Consulting**

**Sustainability Blueprint
Factory**

**Monthly
Webinars**

AI

**Faculty
Engagements**

Technical Engagements

**Material Science
Blueprint Factory**

SGX3 on the Road

Quantum

**Rising
Stars**

**Proposal
Support**

**ACCESS & Quantum
Blueprint Factory**

**Gateways
Central**

**FAIR & Impact
Consulting**

SGX3 - Our story



Experienced Team

Decades of experience in science gateways, research, and project management



Workforce Development

Training the next generation of gateway developers and RSEs



Consulting & Guidance

Enabling usability, sustainability, and wide adoption



Good Practices

Promoting robust, maintainable, and scalable software ecosystems



Community Building

Linking users, RSEs, and providers across disciplines

SGX3 Core Values

Mentor

Community
Builder

Growth Mindset
and
Knowledgeable

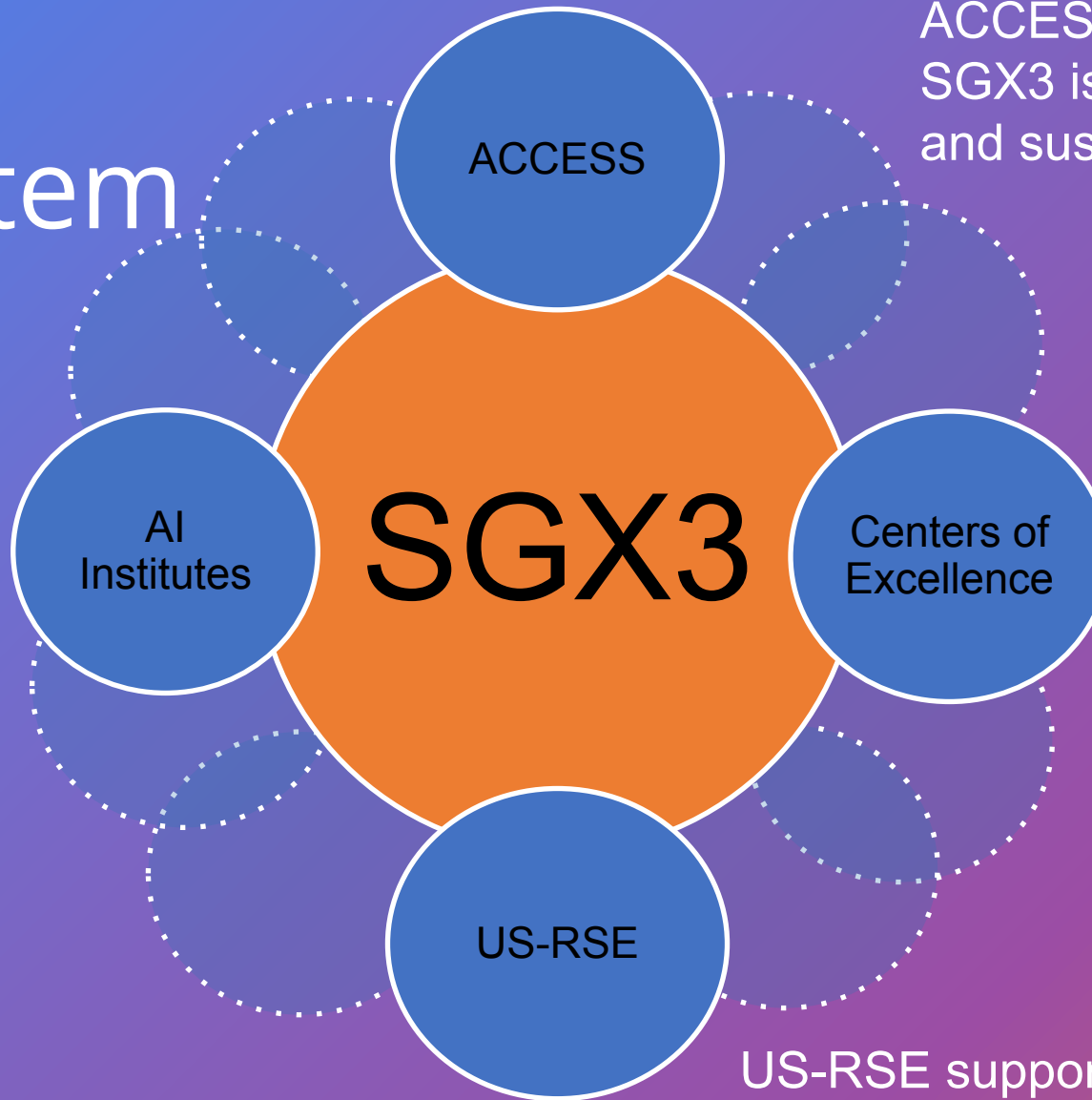
Team Player

Inspirational

Adds Unique
Quality

SGX3 – Our Ecosystem

Where AI Institutes generate innovation for their specific topic, SGX3 helps disseminate and sustain it across communities contributing to innovation.



ACCESS is about operations; SGX3 is about usability, adoption, and sustainability.

SGX3 helps other Centers of Excellence turn their tools into community-facing platforms that persist and grow.

US-RSE supports RSEs and research software, SGX3 supports gateway creators and gateways - together strengthening research software.

Community Impact: Community Engagements

Janae Baker, Project Manager

Gateways Annual Conference Series

A yearly opportunity to expand knowledge & connections

- Offers gateway developers, users, and domain experts an opportunity to connect with and learn from colleagues
- Robust program: Key notes, short papers, panels, posters, hand-on tutorials, demos
- Open access proceedings and a special journal publication opportunity for accepted papers
- Committees consist of community members



Newsletter

- Monthly email updates to connect with community and keep them informed
- Community news, events, webinars, opportunities, gateway highlights and more
- 1,730 recipients

SGX3 | **SGCI**

Newsletter preview:

- Gateways 2025 Submission Deadlines Extended
- Register for SGX3's Monthly Webinar
- Attend Focus Week @ PEARC25
- Apply to the FacultyHack @ Gateways2025
- Rising Star of the Year Award: Apply or Nominate Someone You Know
- Check out our recent Community News
- Get involved: participate in upcoming events and view open job positions

**[Gateways 2025 Call for Participation](#) -
Deadline Extension!**

Paper (presentations), demo, and panel, Tutorials, and Co-Located event requests are now due Wednesday, July 9, 2025



GATEWAYS 2025
Green Bay, WI
October 28-30, 2025

Gateways 2025 is an opportunity for users, developers, and providers to showcase their science gateways accommodating teaching, empowering and engaging research, and providing technologies to various communities. It will also offer diverse options for sharing and publishing work and networking in the community. The format includes tutorial sessions, presentations, panels, posters, demos, and a BYOP: Bring Your Own Portal.

What's New

Apply for the Summer 2024 SGX3 Internship Experience at TACC - Application closes January 31, 2024

Eligible applicants include graduate students majoring in computer science or computer engineering (or related fields). The student will be funded by SGX3 to join the TACC science gateway team for the summer, working on live, impactful gateways.

Interested? Learn more about how to apply at: <https://sciencegateways.org/internships>

Join us at the next sustainability training - Focus Week - in Austin, TX on April 15-19, 2024

Gateway Focus Week is an intensive week-long workshop designed for innovative research teams to work together on producing a strong sustainability plan. You'll leave Focus Week with a clearer definition of your project's value, its audience, and its positioning in the competitive landscape along with tools you can use to continue as your project continues to mature. Take the time to step away from your desk and invest in your future!

Focus Week 2024 will take place:

When: April 15-19, 2024

Where: Texas Advanced Computing Center (TACC), 10100 Burnet Rd, Austin, TX 78758

Apply: [Focus Week Workshop Application](#)

The Focus Week application will close March 15, 2024.

Embracing AI in the Realm of Science Gateways

At PEARC23 in Portland, OR, the SGX3 team led a Birds of a Feather (BOF) session called "The Impact of AI Computing Paradigms on Science Gateways and National Compute Resources." With forty expert and enthusiastic community members in attendance representing diverse scientific backgrounds, we delved into the intersections of artificial intelligence (AI) and computational science.

Monthly Webinars

- Highlight examples of gateways, tools, and best practices
- Feature a rotating selection of topics including tool and technology demos, best practices, and gateway showcases
- Recorded for future viewing on our YouTube channel

The screenshot shows the YouTube channel page for the Science Gateways Community. The channel name is "Science Gateways Community" with a handle of @sciencegateways, 395 subscribers, and 248 videos. The channel description asks if the viewer is building websites that serve their science discipline and offers more content. The channel URL is sciencegateways.org, and there is a "Subscribe" button. The navigation bar includes links to Home, Videos, Live, and Playlists, along with a search icon. The "Videos" tab is selected, showing a list of videos. The first section is "Gateways 2024" with a "Play all" button. The description for this section states that the Gateways conference series is hosted each year at a location in the US and that Gateways 2024 is excited to be coming to Bozeman, MT. Below this are six video thumbnails, each with a title, view count, and upload time. The second section is "Webinars" with a "Play all" button. Below this are six video thumbnails, each with a title, view count, and upload time. The thumbnails for the Gateways 2024 section include: "Choosing a Foundational Framework", "Networked.org Play for Science 18", "Networked.org Play for Science 18", "A Data Repository is...", "FABRIC Introduction and...", and "The Topic Project". The thumbnails for the Webinars section include: "SGX3 Faculty Hackathon", "Open OnDemand Update", "Open Education Ecosystems Research Coordination Network (OEE-RCN)", "What is Globus?", "Faculty Hackathon Recap", and "Blueprint Factory Updates".

Science Gateways Community
@sciencegateways · 395 subscribers · 248 videos
Are you building websites that serve your science discipline? Do you wish you could connect...more
sciencegateways.org
Subscribe

Home Videos Live Playlists 🔍

Gateways 2024 ▶ Play all
The Gateways conference series is hosted each year at a location in the US. Gateways 2024 is excited to be coming to Bozeman, MT! Join us as we continue to bridge the connection between...

Choosing a Foundational Framework 1:22:24
Gateways 2024 Tutorial: Creating Science Gateway o... 209 views · 9 months ago

Networked.org Play for Science 18 1:05:21
Gateways 2024 Tutorial: How to Spin Up a Short-term... 83 views · 9 months ago

Networked.org Play for Science 18 57:17
Gateways 2024 Tutorial: Open OnDemand Overview... 271 views · 9 months ago

A Data Repository is... 2:52:37
Gateways 2024 Tutorial: Cheap and FAIR: Building a... 129 views · 8 months ago

FABRIC Introduction and... 2:47:36
Gateways 2024 Tutorial: FABRIC Introduction and... 164 views · 8 months ago

The Topic Project 2:47:17
Gateways 2024 Tutorial: Reproducible ML Workflows... 163 views · 8 months ago

Webinars ▶ Play all

SGX3 Faculty Hackathon 43:57
SGX3 Webinar: Faculty-Focused Hackathons for... 18 views · 4 days ago

Open OnDemand Update 43:12
SGX3 Webinar: Open OnDemand 7 views · 4 days ago

Open Education Ecosystems Research Coordination Network (OEE-RCN) 55:15
SGX3 Webinar: Open Education Ecosystems... 3 views · 4 days ago

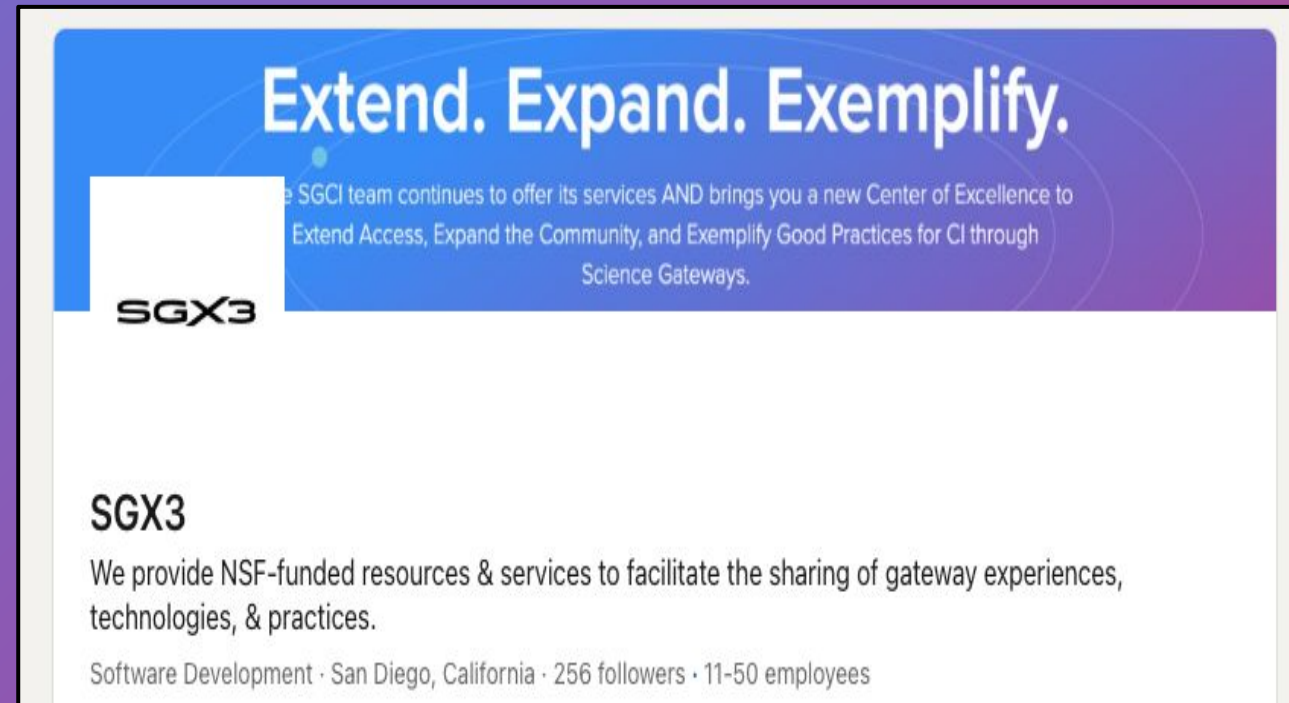
What is Globus? 48:21
SGX3 Webinar: Using Globus to Build Science Gateways 4 views · 4 days ago

Faculty Hackathon Recap 43:59
SGX3 Webinar: Faculty Hackathon Recap 9 views · 4 days ago

Blueprint Factory Updates 56:39
SGX3 Webinar: Blueprint Factory Updates 75 views · 9 months ago

Website & Social Presence

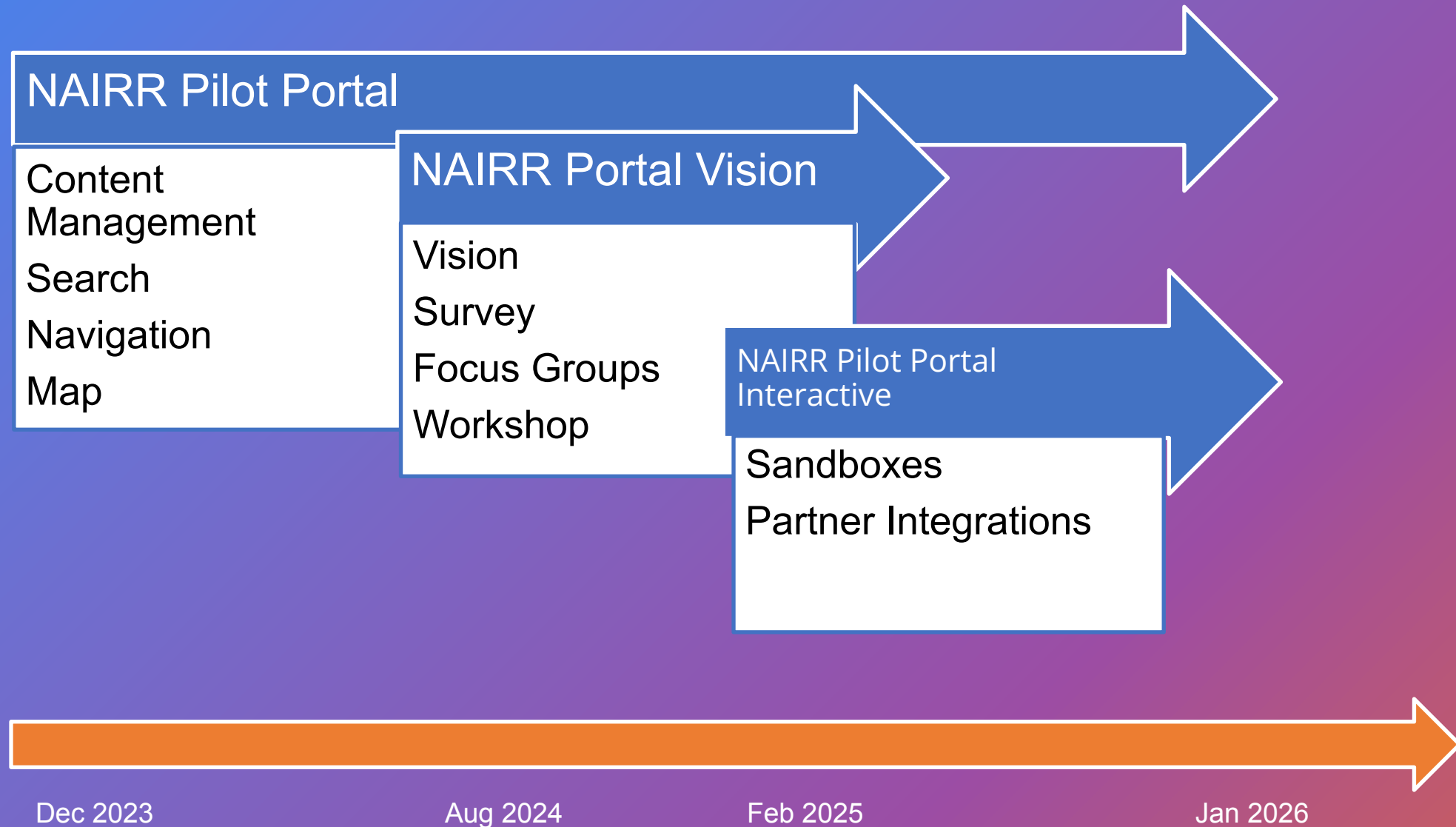
- <https://sciencegateways.org/>
- Explore our online presence to stay informed
- Visibility, community building, trust, impact
- Community focused content
- Social media
 - Campaigns on active platforms: X, LinkedIn, Mastodon
 - Maintain a regular posting cadence



NAIRR Pilot Portal

Sandra Gesing, SGX3 Director

SGX3 - NAIRR Supplement



SGX3 On the Road



2025 Data Science Leadership Summit

Session 2: Optimizing the Pursuit of Data Science: Infrastructure

Chair: Penny Atkins (University of Utah)

Description: This session will focus on the computing and cyberinfrastructure required to support data science and will ask how partnerships and funding can be leveraged to enable data science research and teaching. In the absence of existing partnerships, what first steps can any school take to improve access to computer infrastructure? How could or should industry provide infrastructure support?

Speakers:

Penny Atkins (Chair)

UNIVERSITY OF UTAH

Associate Director, One Utah Data Science Hub

Sandra Gesing

UNIVERSITY OF CALIFORNIA, SAN DIEGO

Director of The Center of Excellence for Science Gateways, Senior Researcher, San Diego Supercomputer Center

Daniel Katz

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Chief Scientist, NCSA; Engagement and Strategy Advisor, Office of Data Science Research

Sarah Stone

UNIVERSITY OF WASHINGTON

Executive Director, eScience Institute

Talitha Washington

HOWARD UNIVERSITY

Executive Director, Center for Applied Data Science & Analytics

Our First 3 Years by the Numbers

3,370

Attendees at SGX3
Events

294

Letters of
Collaboration

354

Faculty and Students Receiving
Support

35%

Letters of Collaboration
Success Rate

59

Consultations

636

Gateway Catalog
Entries

Does our community care?

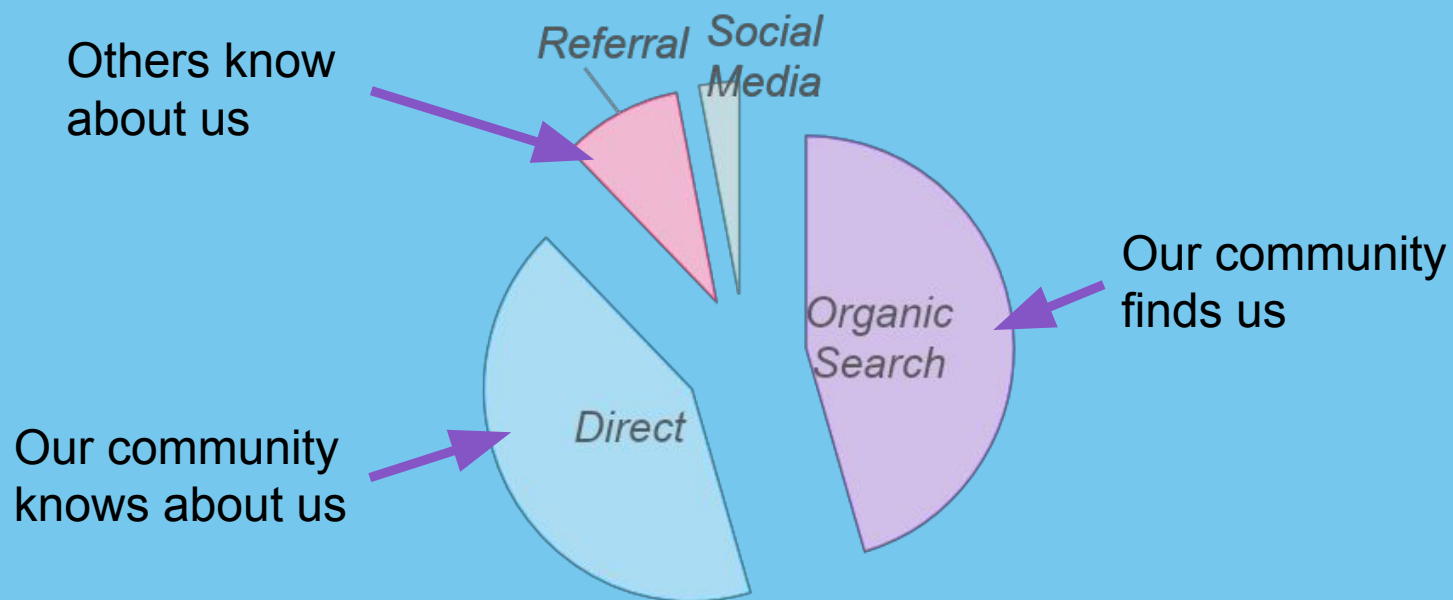
sciencegateways.org

2,385,928 page views,
2,286,282 users

They care.

2,365,099 sessions

They spend time with us.



Our Impact through our Clients

Our clients' gateways have been cited more than 60,500 times.

Our clients collectively have over 20,500 publications, over 5,800 since our engagement.

Our clients' publications have over 1,422,000 citations, with over 685,900 since engagement.

Demonstrated Value

Recognized Value of Services

\$41,761,790

Funding Awarded to Projects with SGX3 LoC

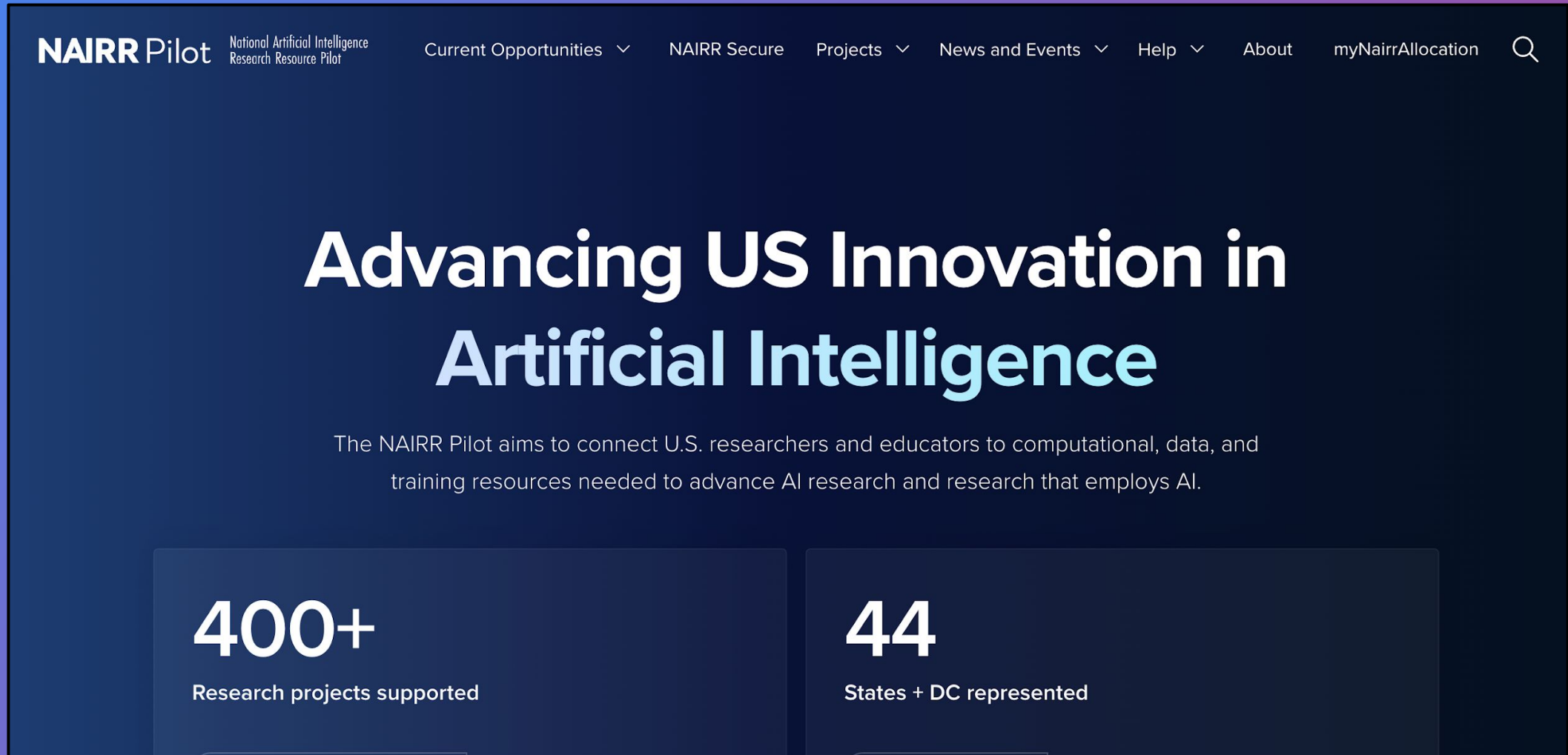
\$3,655,914

Additional Funding from Collaborating Projects

\$6,182,480

Funding for SGX3 Personnel Written Into Proposals in PY1-3

NAIRR Pilot Portal

A screenshot of the NAIRR Pilot Portal website. The header features the NAIRR Pilot logo, a navigation menu with links like 'Current Opportunities', 'NAIRR Secure', 'Projects', 'News and Events', 'Help', 'About', and 'myNairrAllocation', and a search icon. The main content area has a large heading 'Advancing US Innovation in Artificial Intelligence' and a descriptive paragraph. Below this are two statistics: '400+ Research projects supported' and '44 States + DC represented'.

NAIRR Pilot National Artificial Intelligence
Research Resource Pilot

Current Opportunities ▾

NAIRR Secure

Projects ▾

News and Events ▾

Help ▾

About

myNairrAllocation



Advancing US Innovation in Artificial Intelligence

The NAIRR Pilot aims to connect U.S. researchers and educators to computational, data, and training resources needed to advance AI research and research that employs AI.

400+

Research projects supported

44

States + DC represented

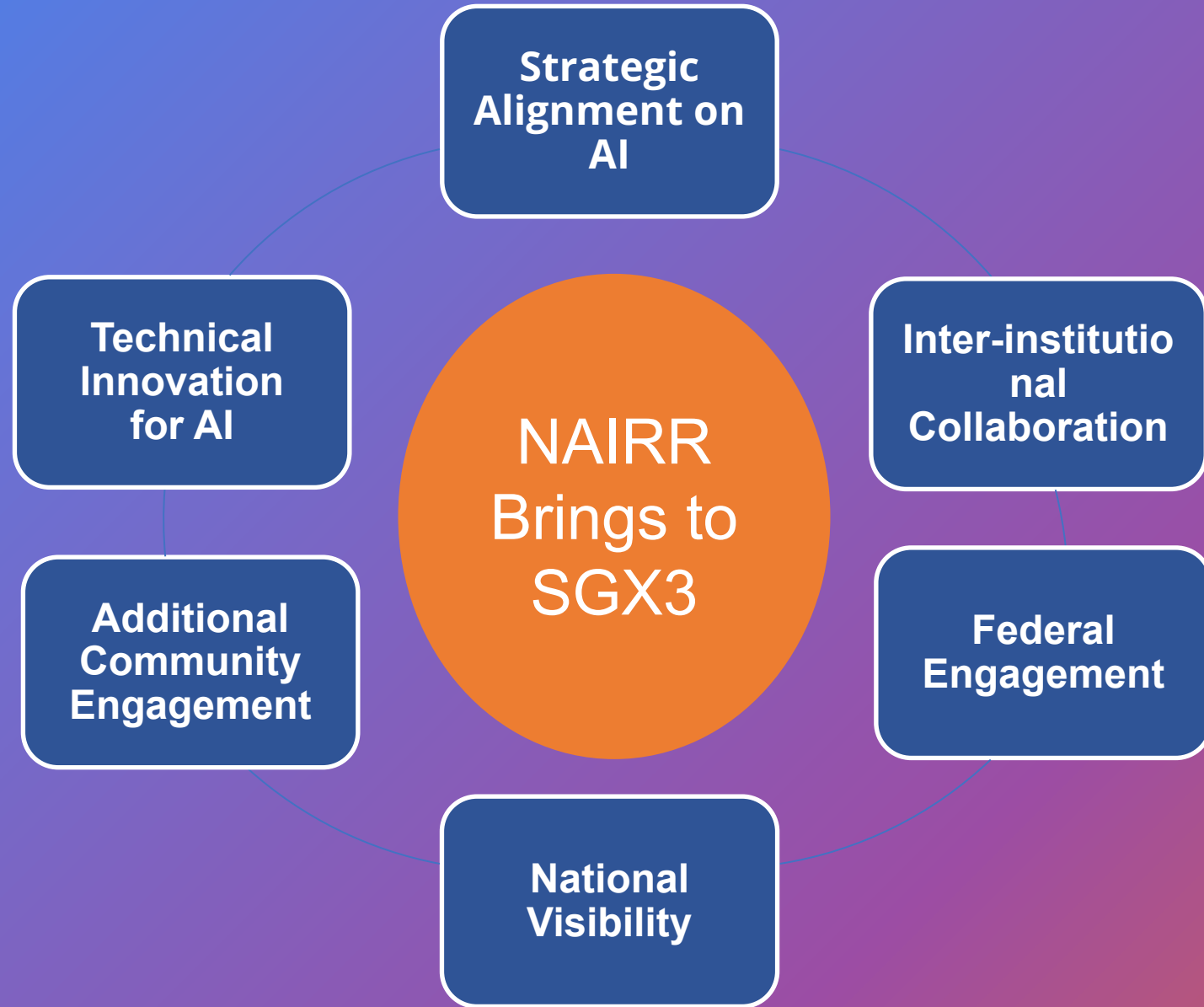
SGX3 - NAIRR Supplement – Vision for the NAIRR Portal



Purpose: Gather Insights on user experience, needs, and expectations for the future NAIRR Portal







In 3 years, SGX3 has become the central backbone for the science gateway ecosystem



Professional Development Impact

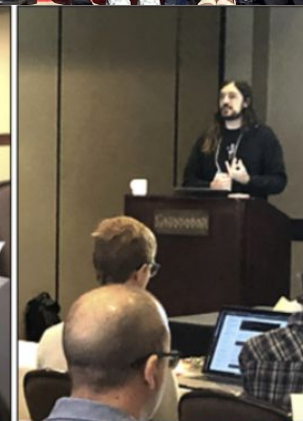
Linda Hayden, Co-PI and Workforce Development Lead



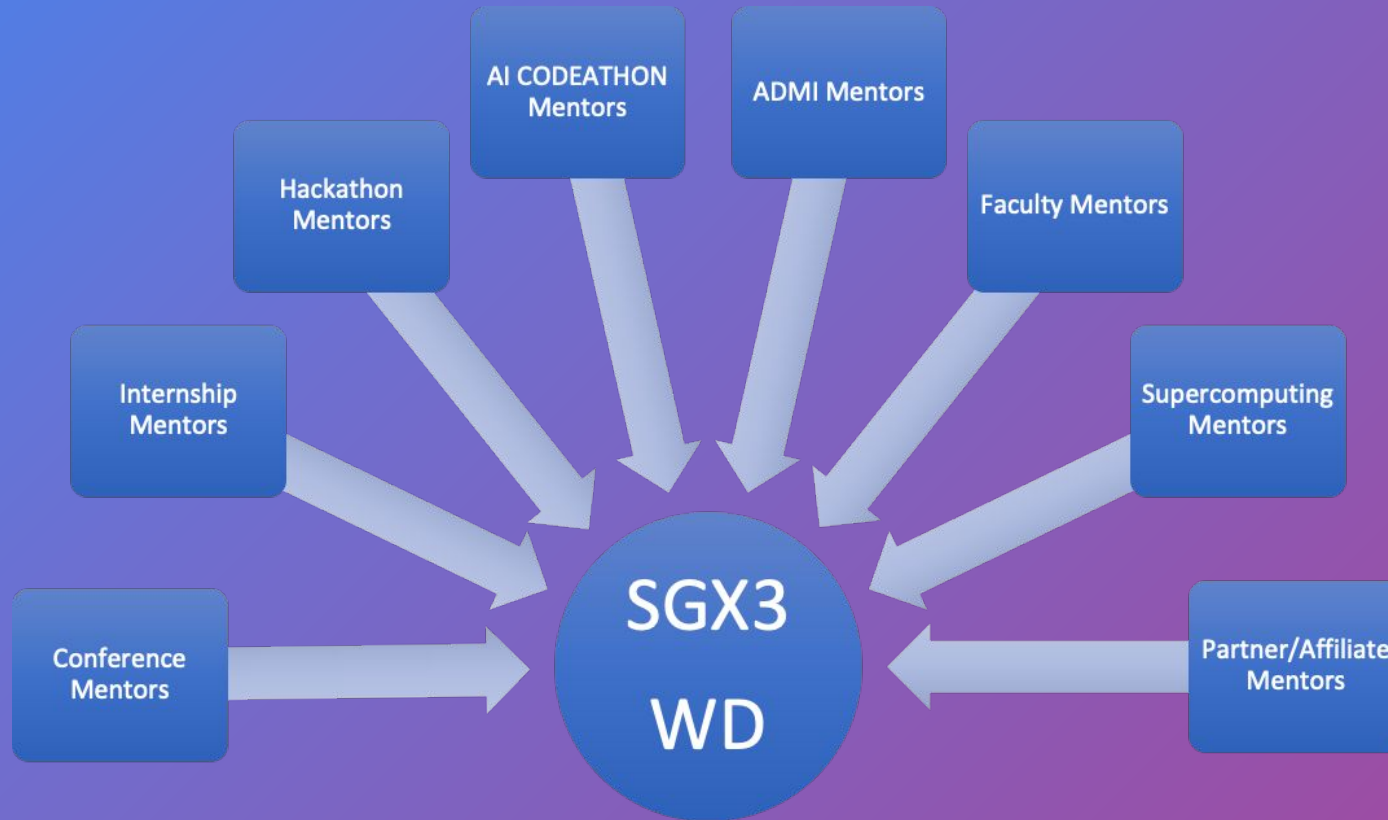
Linda Hayden
Workforce Development Lead

The SGX3 Workforce Development Story would certainly have chapters devoted to:

- SGX3's escalating involvement of Gateway community member and partners;
- SGX3's continued focus on student professional development;
- SGX3's aggressive involvement of faculty in curriculum enhancement.



Community Mentors and Partners



Workforce Development Partners

- Oak Ridge National Laboratory (ORNL)
- NSF National Center for Atmospheric Research (NCAR)
- Omnibond
- ACCESS Allocations Service

Student Programs

- Coding Institutes
- Professional Development Seminars
- ADML Symposium seminars
- Hackathons
- Mentoring by >150 Gateway Community Members
- Rising Stars Awards
- Internships at TACC
- ORNL Winter Crash Course



Rising Star Awards

This award acknowledges students or professionals for notable achievement in the advancement of science gateways. The award includes a certificate plus an honorarium and website highlight. Award recipients are recognized at the annual Gateways conference. Rising Star Award recipients serve as ambassadors for Workforce Development and serve as mentors, judges, and seminar speakers during WD events.

2024 Awardees (recognized at the Gateways 2024 conference)

Brandon Budnicki
Ph.D Candidate, Department of Ecosystem Science and Sustainability, CSU

Shayan Khan
Software Engineer, TACC

Sophia Massie-Perez
Junior Research Software Engineer (RSE), TACC

Noah Oller Smith
Research Software Engineer, RCAC, Purdue

Lena Seymour
Collaborative Support Specialist TACC

2023 Awardees (recognized at the Gateways 2023 conference)

Agbeli Ameko
Associate Scientist, NCAR

Colleen Marciel Rosales
Strategic Partnerships Director, OpenAQ

Chen Wang
Senior Research Software Engineer (RSE), National Center for Atmospheric Research

I Luk Kim
Senior Computational Scientist, RCAC, Purdue

Ahmed Sharaf
Software Developer/Comp. Neuroscience Researcher, Univ of Oklahoma

Sushobhon Charlie Dey
Training and Professional Development Director with User Services, TACC

2022 Awardees (recognized at the Gateways 2022 conference)

Josselyn Salgado
Marketing Administrator, Greater Chicago Area

Marquita Watkins
Chemistry Professor, University of South Carolina

Hector Santiago III
Software Engineer, Nationwide

Jake Rosenberg
Engineering Scientist Associate, TACC

Christian Garcia
Intern, TACC



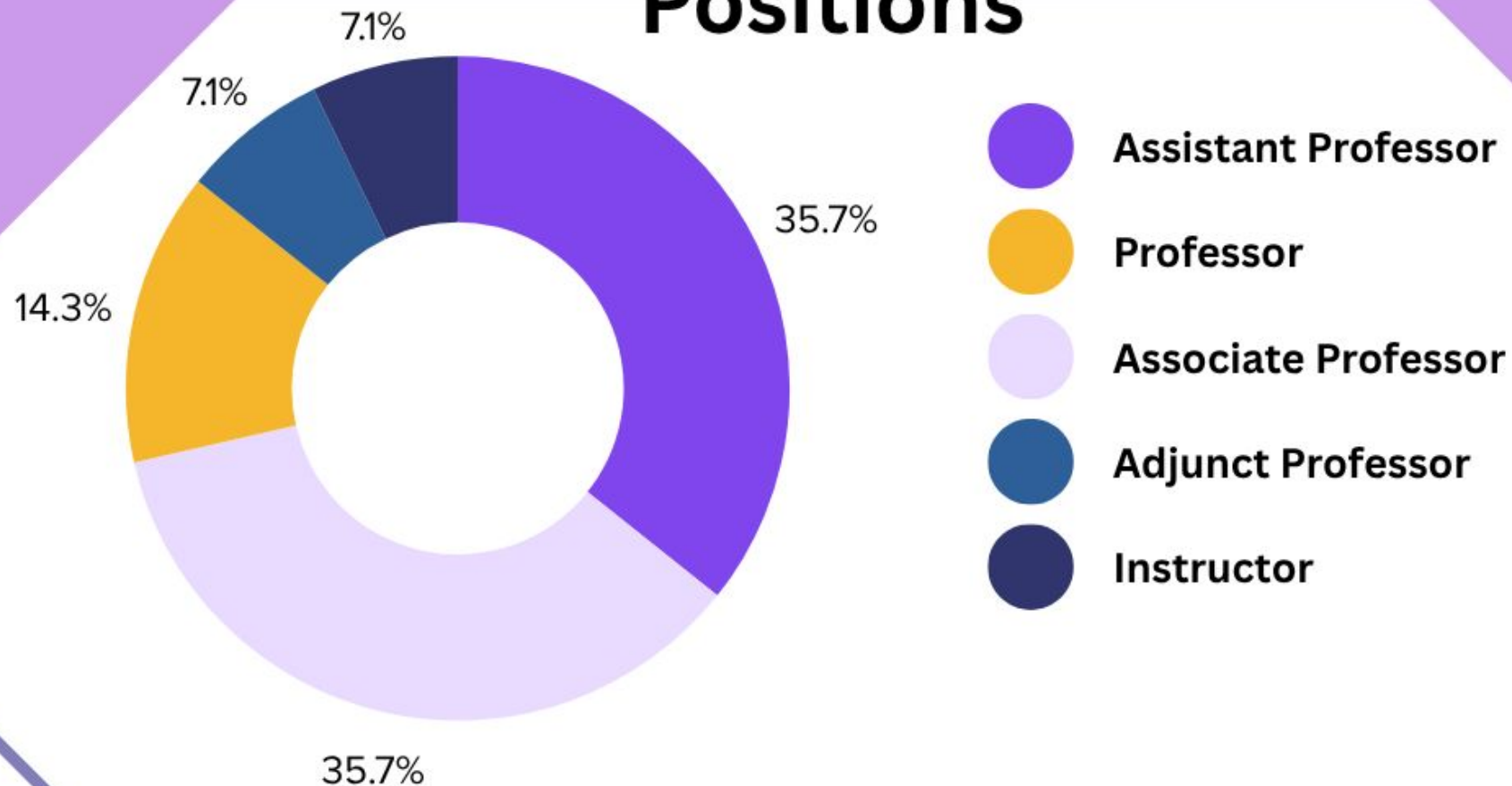
Training Sessions for Faculty

Dr. Marlon Pierce, NSF Program Manager delivered the Keynote Address.

Dr. Elijah Maccarthy, WD HPC ENGINEER OAK RIDGE NATIONAL LABORATORY led a faculty session.
(SGX3 WD partner)

Extend. Expand. Exemplify.

Faculty Curriculum Hackathons 2025: Faculty Positions



Curriculum Enhancement Program: Outcomes

Target Course Curricula

- ✓CS425 Parallel Programming and Algorithms
- ✓CS457 Wireless and Mobile Security
- ✓CS423 Survey of Computer Science
- ✓CSC551 Parallel and Distributed Computing
- ✓BTEC620 Data Science
- ✓BIOL3506 Bioinformatics
- ✓PHS410 Terrorism, Disasters, and Epidemics
- ✓Introduction to Computational Fluid Dynamics
- ✓CSC3055 Operating Systems with Linux
- ✓CSCI-2300 Computational Informatics I
- ✓CISS 3342 Computer Forensics
- ✓MATH 3390: Computational and Mathematical Biology
- ✓ECE 101 - Introduction to Electrical & Computer Engineering
- ✓CSCI 5306 Computer Networks



“

The mentor-provided resources and next-step recommendations proved invaluable during the hackathon in 2024, as they enabled me to effectively bridge theoretical bioinformatics concepts with HPC competencies, for instruction, offering, HPC workflow, and machine learning use cases that directly supported the course objectives.

Moving forward, **students would benefit from expanded access to annotated genomic datasets, benchmarking results, and targeted tutorials on deploying machine learning models on HPC platforms**, as well as mentorship in building reproducible analysis pipelines using industry-standard tools.

To further leverage the mentor's expertise, plans are underway to involve them as a **virtual lecturer for advanced AI-driven genomics sessions, feature them as a Research Week speaker** to highlight student projects, and possibly explore a co-teaching arrangement for hands-on modules, thereby formalizing an ongoing partnership that will enrich the curriculum and deepen students' exposure to real-world bioinformatics challenges.

- **Ojo Olabisi (Albany State University)**

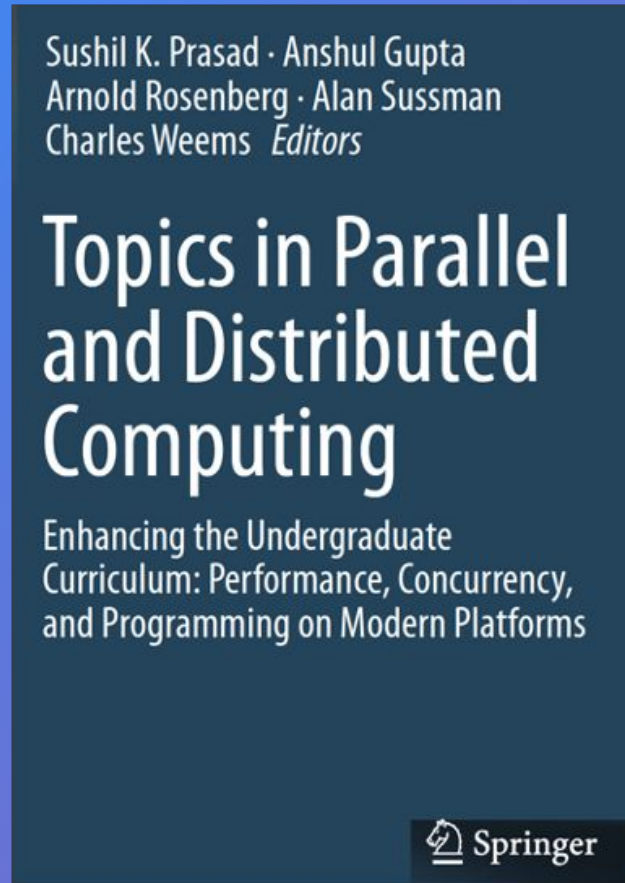
”

Extend. Expand. Exemplify.

Faculty Curriculum Model Impact by Course Enrollment

- **16/24 (67%) faculty** from the hackathons responded to the survey
- **245 students** were impacted by Faculty Curriculum Hackathons

Publications and Awards



TITLE: From FacultyHack to the Classroom: Use of Hackathons to Accelerate Course Design

AUTHORS: John Holmen, Linda Hayden, Charlie Dey, Mohamed Elbakary, Rui Zhu, Widodo Samyono, Elijah MacCarthy, Je'Aime Powell and Alexander Nolte



Title: Faculty-Focused Hackathons for High-Performance Computing Curriculum Development" won Best EVENT REPORT at ICGJ 2024. **AUTHORS:** John Holmen, Je'Aime Powell, Alexander Nolte, Elijah MacCarthy, Charlie Dey, Verónica Vergara Larrea, Suzanne Parete-Koon and Linda Hayden

PEARC'25 Eighth Workshop on Strategies for Enhancing HPC Education and Training (SEHET25)

FacultyHack@Gateways 2025

When:

Virtual: September 15-26,
2025

In-Person: October 28-30,
2025

Where:

Green Bay, Wisconsin
Gateways 2025 Conference

Who:

10 disciplinary area faculty

<https://sciencegateways.org/faculty-hackathon>



The graphic features a group photo of diverse faculty members standing in front of a backdrop. The backdrop includes the SGX3 logo with the tagline 'Extend. Expand. Exemplify.', the SGCI logo, and the NSF logo. Text on the backdrop mentions 'A Center of Excellence and a Software Institute Serving the Science Gateways Community' and 'Funded by the National Science Foundation under award number 2231406'.

**FacultyHack@
Gateways 2025**

**EMPOWER YOUR
STUDENTS WITH HPC**

Challenges

- Attend all HPC training sessions ☒
- Attend the Gateways 2025 Conference (Travel support provided) ☒
- Make a poster presentation of revised courses at Gateways 2025 ☒
- Produce a Blog post on your SGX3 Curriculum project that will be featured on sciencegateways.org ☒

Overview

The event involves 10 disciplinary area faculty teams adapting high-performance computing (HPC) tools for course use, with "ready-to-go" course outlines, data, resources, and a technical mentor assigned to each team. Teams completing all challenges receive a \$500 honorarium.

Virtual: September 15 - 26, 2025,
In-Person: October 28-30, 2025
(Green Bay, Wisconsin)

 sciencegateways.org/faculty-hackathon

JOIN US ▼

Extend. Expand. Exemplify.

2022-2025 Trained Faculty Positions

