Welcome!

NSF BRIDGE Conference

Open sessions for the broader community

Date **Tuesday, October 27, 2026**

Time **1:00 – 5:00 pm**

Location **ISEB Auditorium 1010, UC Irvine**

PUBLIC PROGRAM THEME

Cyberinfrastructure for Collaborative Data Science and AI

We look forward to talks, demos, and discussions on how BRIDGE can support research communities.

Hosted by UC Irvine • In partnership with UCLA and the University of Michigan

Bridge

NSF

Overview of NSF BRIDGE

A national cyberinfrastructure for scientific communities



Chen Li | Professor of Computer Science, UC Irvine

NSF BRIDGE Conference • October 27, 2026 • UC Irvine



Motivation: data and AI are transforming science



Science is data-intensive

Diverse data and sophisticated analytics



AI transforms research

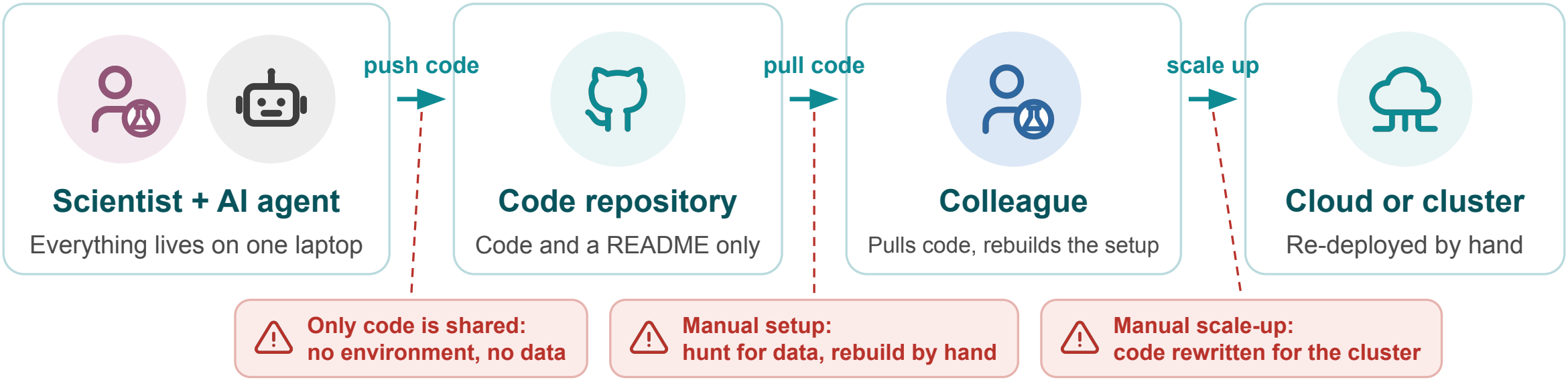
New ways to analyze data and gain insights



Collaboration is essential

Labs share data, models, workflows, and expertise

Limitations of today's data science collaboration



Poor reusability and reproducibility

Results are hard to rerun and reuse

Difficult collaboration and sharing

Work stays siloed in each lab

Limited scalability

Hard to scale beyond one machine

Code as the collaboration medium

Hard for scientists to understand

Why now?

Recent surge in AI technologies

- Claude / Claude Code
- ChatGPT / Codex
- Open-source LLMs
  e.g., DeepSeek, Qwen

Latest technological advances

- Browser-based tools (CRDT)
- Parallel engines (Akka/Pekko)
- Faster networks, mature clouds

Higher demand on collaboration

- Google Docs
- Overleaf
- Figma

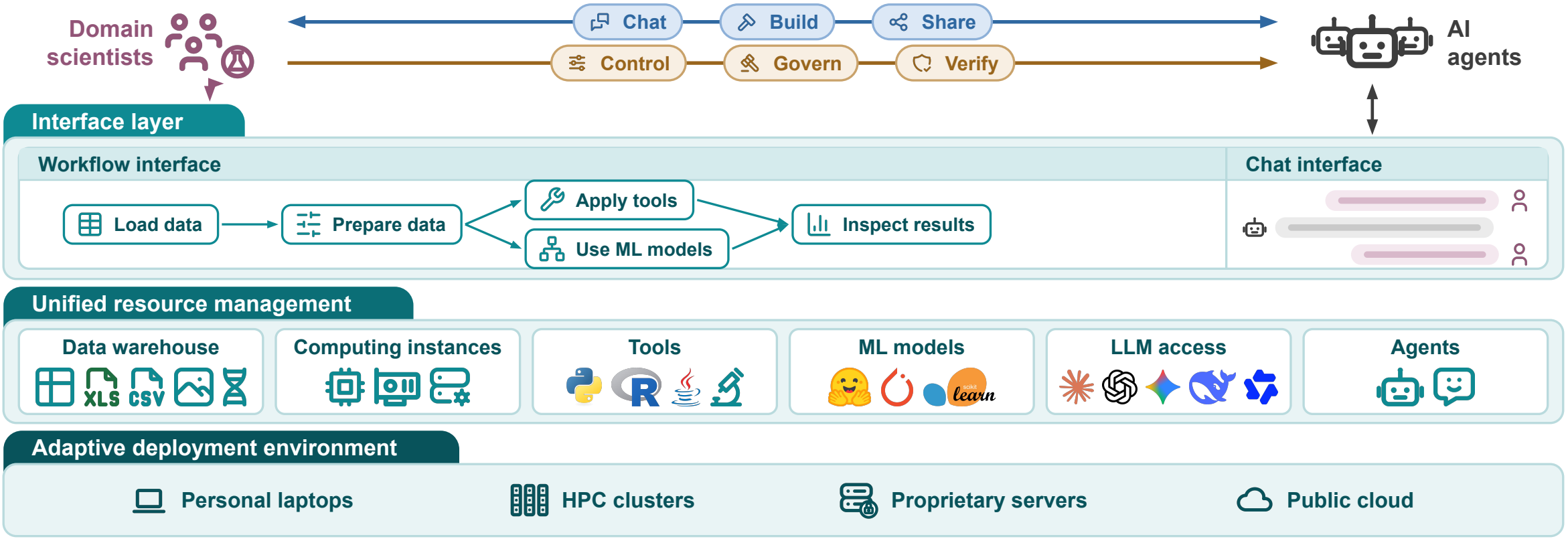
NSF BRIDGE: a national cyberinfrastructure for scientific communities

About $9M
NSF funding, 2026–2029

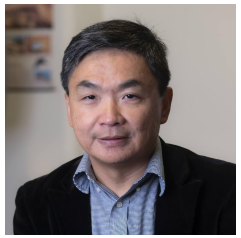
Community-owned
Labs run their own platforms

Apache Texera
The open-source core

Five domains
To start, then many more



Team members



Chen Li
Lead PI | UCI
Data systems • AI/ML



Ardalan Amiri Sani
Co-PI | UCI
Privacy • Security



Rui Chen
Co-PI | UCI
Single-cell genomics



Kristin Turney
Co-PI | UCI
Social science



Wei Wang
Co-PI | UCLA
AI • Machine learning



Xiangmin Xu
Sr. Personnel | UCI
Neurobiology



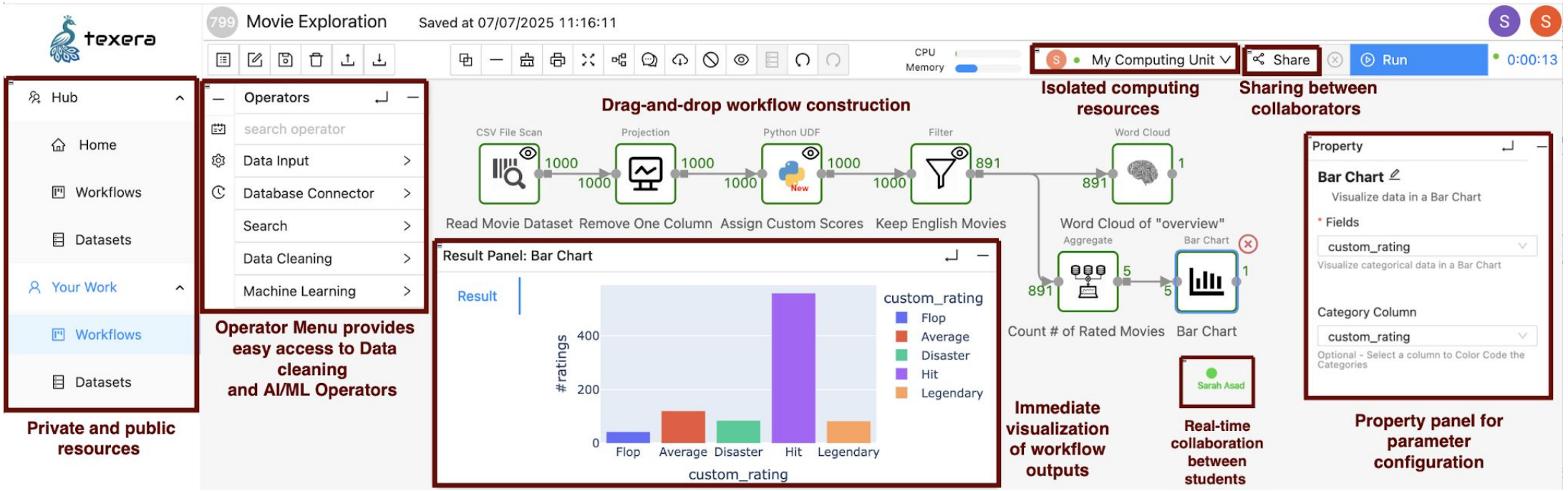
Naomi Sugie
Sr. Personnel | UCLA
Sociology



Stephen Parker
Sr. Personnel | UMich
Bioinformatics

Partner: Research Cyberinfrastructure Center (RCIC) at UCI

Our solution: Apache Texera (Incubating)



Started in 2016

GUI workflows

Real-time collaboration

Python, R, Java, Scala, …

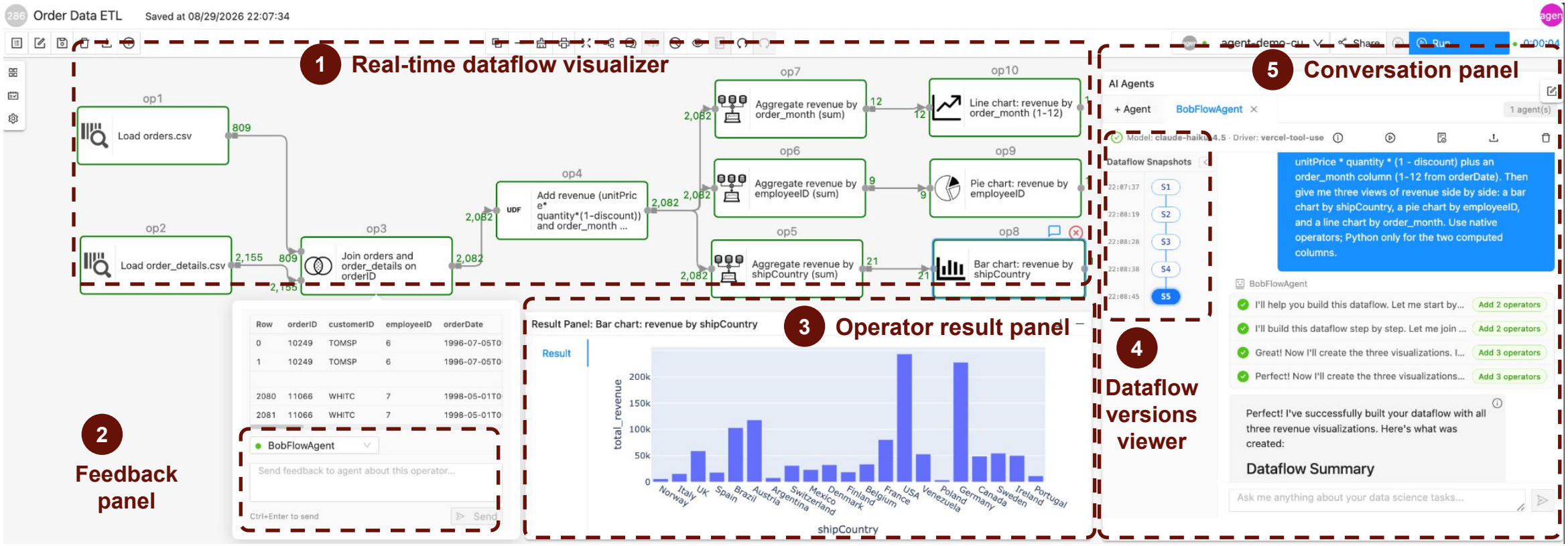
Share data, workflows, and computing

Cloud friendly

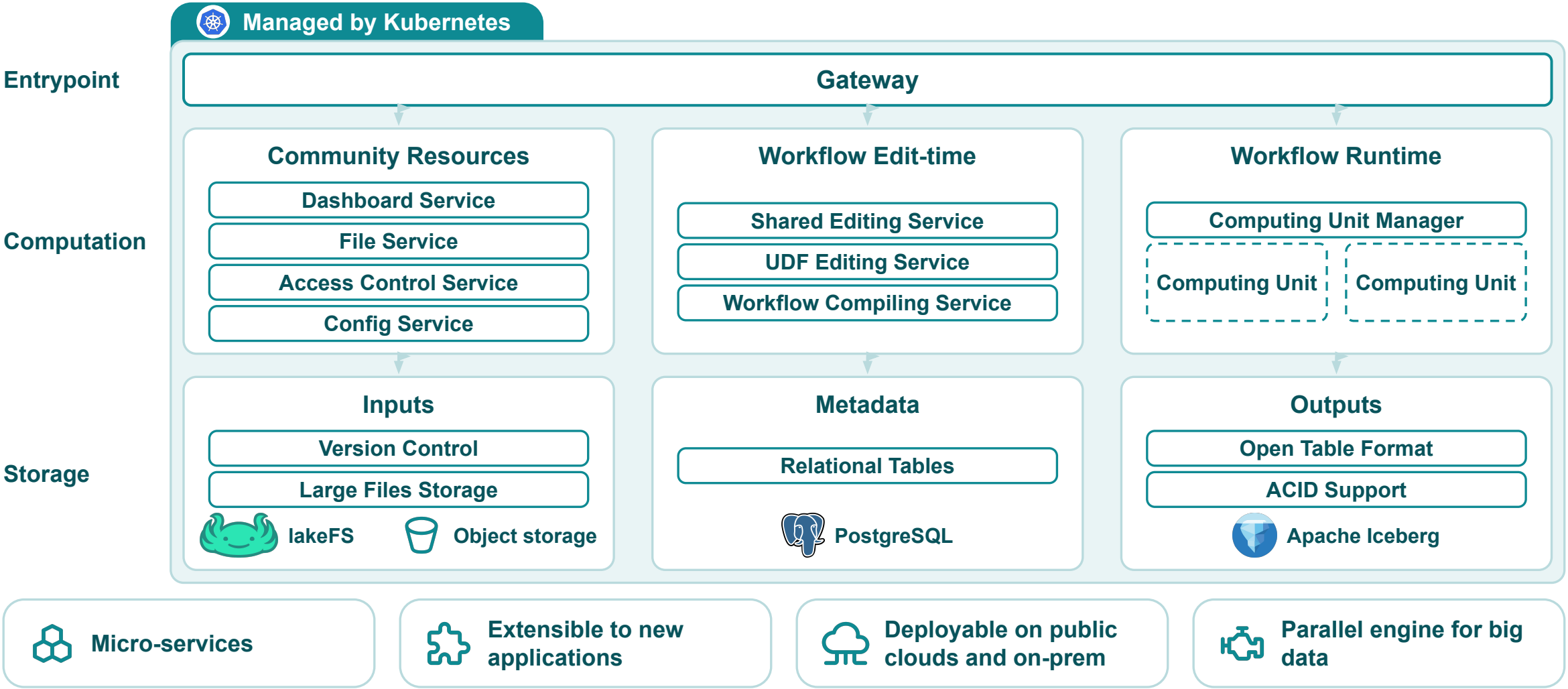
Example: an analysis pipeline, step by step



Human-agent collaboration



Texera system architecture



Evidence of adoption and maturity

800+
users

4,000+
workflows

300,000+
workflow versions

62,000+
executions



20 interdisciplinary projects

Examples span public health, neuroscience, criminology, and more



Education and open source

Used in 10 courses, with an active community of developers and contributors

Active open-source community

16

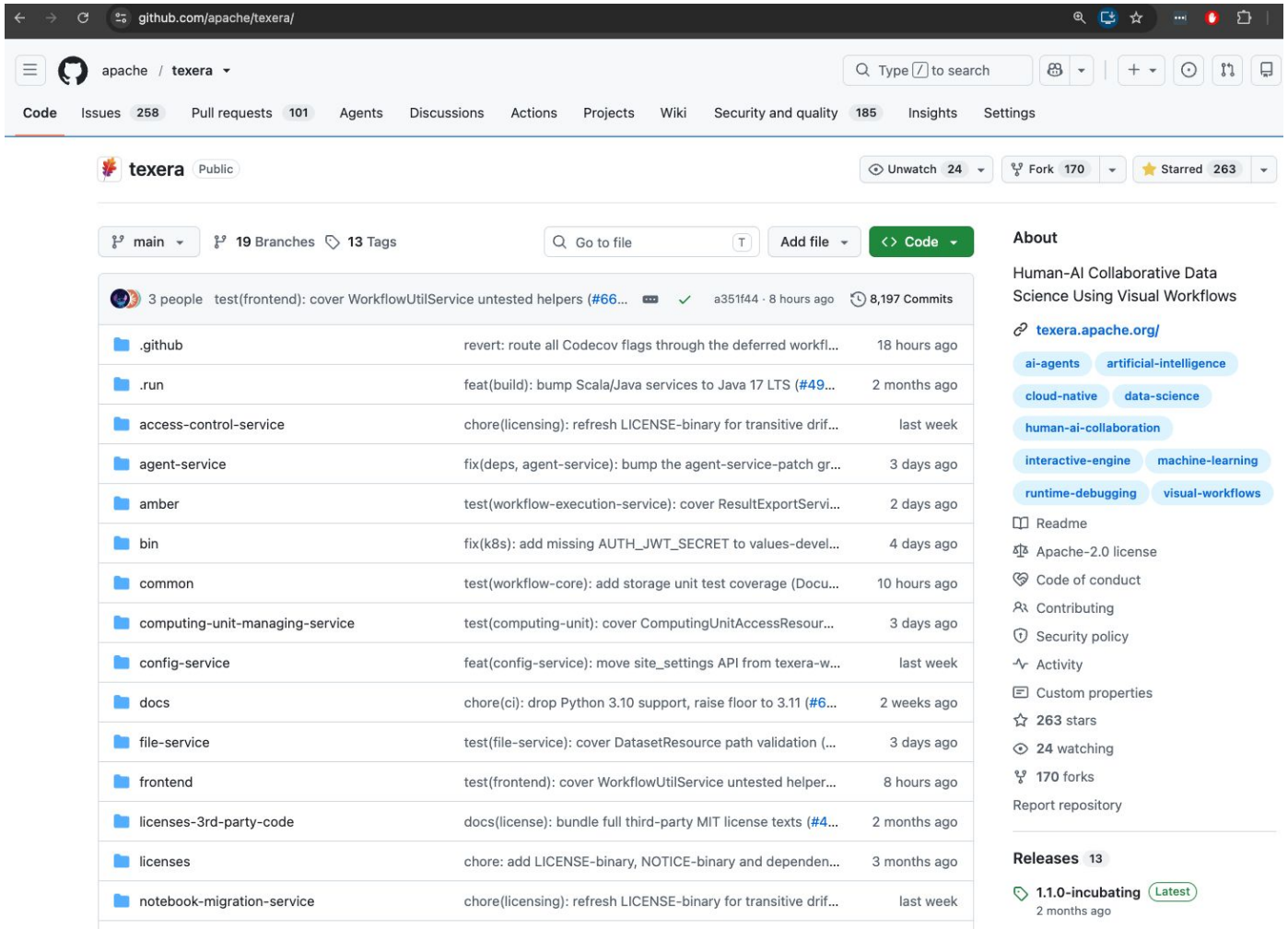
PPMC members & committers

226

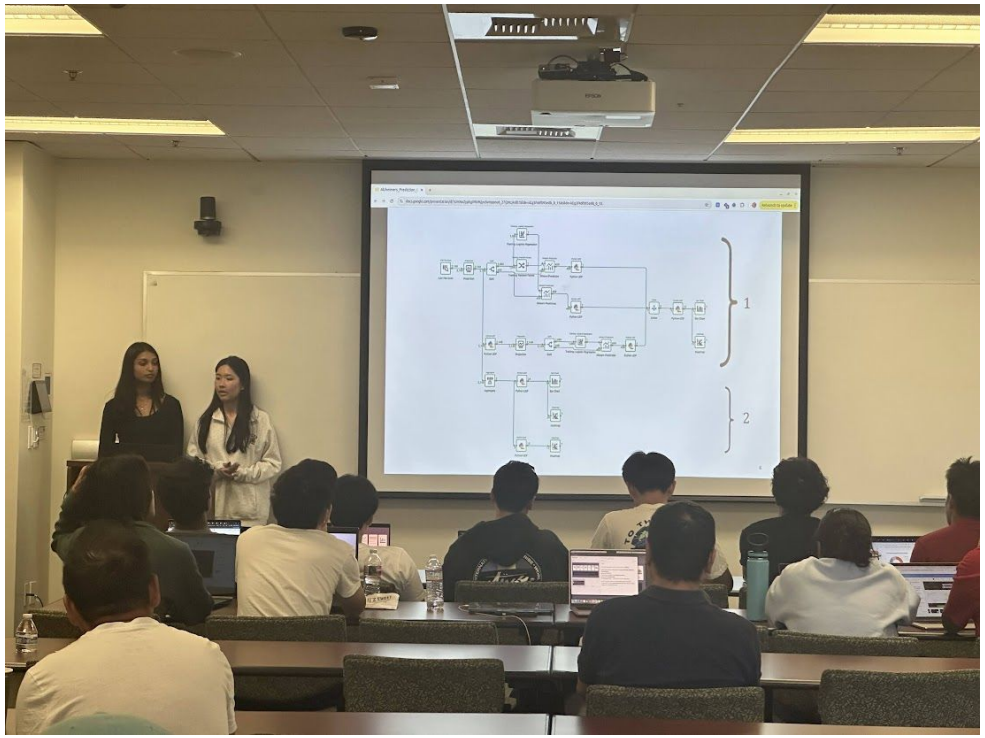
GitHub contributors

9,000+

pull requests



Deployment for education



A hands-on course session with Texera workflows



Data Science for ALL summer program

Five community deployments

Apache Texera (Incubating)
shared open-source core



Social Sciences



Vision Research



Brain Mapping



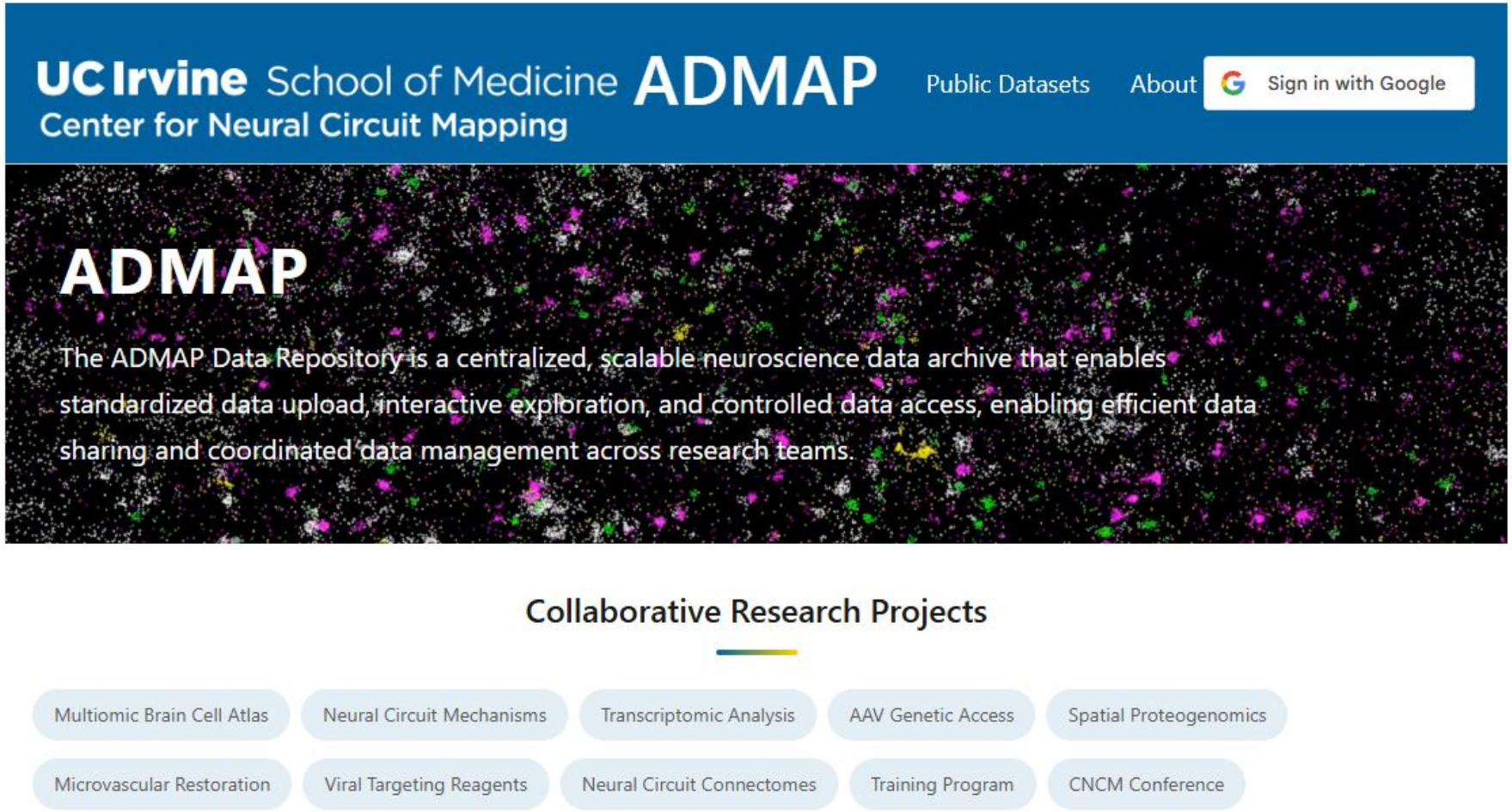
Metabolic Traits



HPC Users

BRIDGE provides Deployment · Maintenance · Training · Support · Cloud or on-prem

Example: ADMAP for brain imaging (CNCM)



Year 1 goal: make BRIDGE fully operational

Deployments

Dedicated instances for communities

Observability

Monitor activity, stability, and usage

5

community platforms

fully operational

User support

Tickets, office hours, and help channels

Managed releases

Upgrades with minimal disruption

The mission of Year 1 is not just to launch software, but to run reliable services for real communities.

How other research communities could use BRIDGE

1



Onboard

Define needs and deployment choices

2



Deploy

Set up a community instance

3



Create & share

Datasets, workflows, and models

4



Run & collaborate

Execute, review, adapt, and reuse

BRIDGE services

Deployment

Local clusters or public clouds

Support

Issues, releases, and community needs

Documentation

Guides and templates

Outreach

User feedback and partnerships

Training

Workshops and office hours

Research

Usability, security, AI, and performance

We invite you to participate and collaborate

1



Labs and scientific domains

2



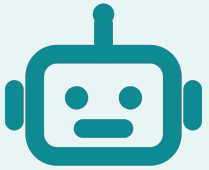
System developers

3



CS researchers

4



AI/ML developers

5



National cyberinfrastructure platforms

Let’s build BRIDGE together.

Bring your scientific questions, workflows, community needs, and ideas for collaboration.

bridge4science.org

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Connect with NSF BRIDGE

Scan to join our community

1. **Open your phone camera**
2. **Point it at the QR code**
3. **Tap the link to open the form**



forms.gle/7ia7zsxTxabPvqQF9