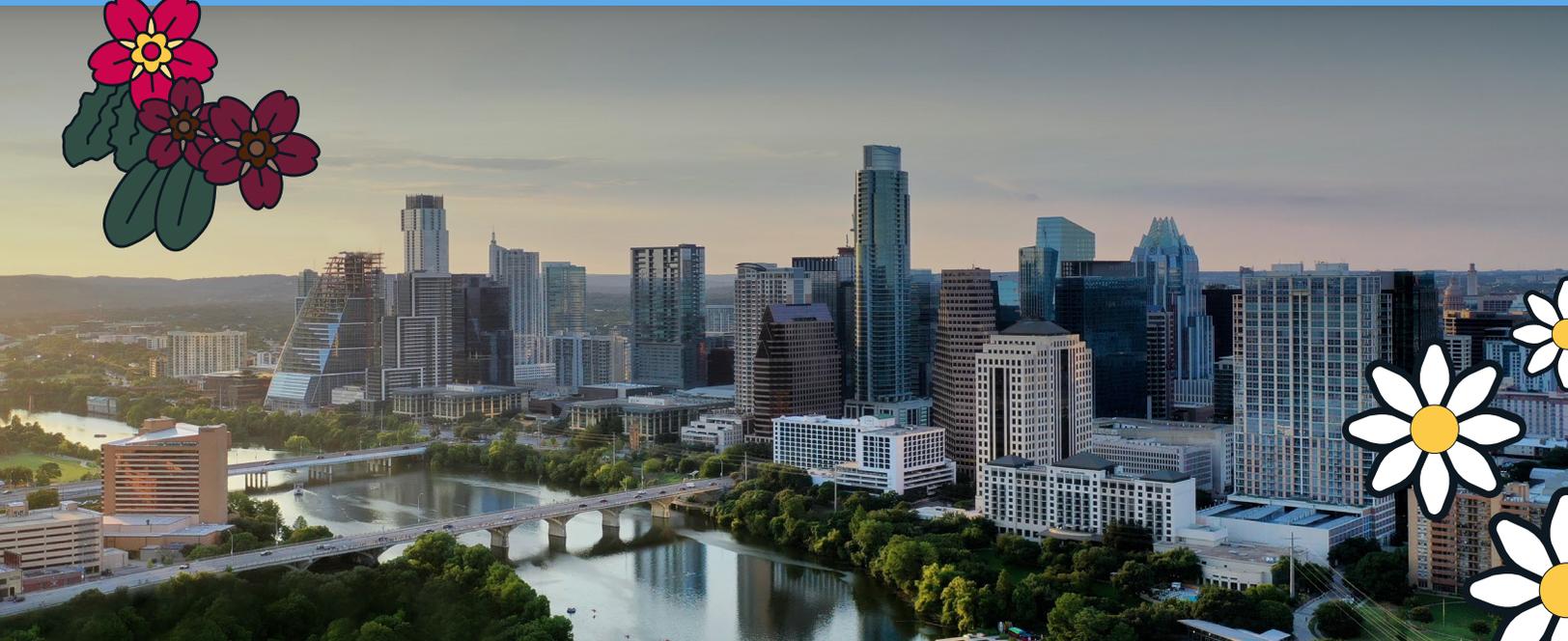




SciPy 2023

Scientific Computing with Python | July 10-16, Austin, TX



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SciPy 2023 Program Welcome Message

Welcome to SciPy 2023.

This year marks the 22nd annual meeting of the Scientific Computing Conference with Python. It brings together over 700 participants from academia, industry, and government to showcase their latest research, demonstrate their software projects, learn from the tutorials, and collaborate on code development.

Last year, we were excited to be back in person. We also wanted to enable community members worldwide to continue participating in SciPy, so we held our first hybrid meeting based on the lessons from earlier virtual conferences. We did ok, but we wanted to do better this year. To that end, we established the first-ever Hybrid committee dedicated to figuring out the logistics of building a more welcoming, accessible, and flexible SciPy conference for everyone, regardless of physical location. We aim to ensure that everyone, regardless of physical location, feels connected and genuinely a part of SciPy 2023.

SciPy is a community effort. This year, over 100 people contributed their time, expertise, and energy to review submissions for talks, posters, and tutorials, edit and publish our proceedings, select scholarship recipients, organize social activities, select and organize Birds of Feather sessions, work towards a more diverse and inclusive conference, and communicate about what's going on. We ask you to join us in thanking them for their efforts, and we invite you to consider joining the team for next year's conference.

So here's to another fantastic SciPy conference, new connections, inspiring conversations, and groundbreaking ideas. May the shared spirit of curiosity, learning, and community bring us closer, even if kilometers apart.

Enjoy the conference!

Julie Hollek and Alexandre Chabot-Leclerc
Conference Co-Chairs

SciPy Welcome Reception hosted by



Tuesday, July 11

6:30 PM to 8:30 PM

Enthought's HQ

(200 W. Cesar Chavez, Austin, TX 78701)

Meet fellow attendees! Food and drinks served!

Walk, get a ride, or take the bus with CapMetro!



SciPy Social Event

Wednesday, July 12

7:00 p.m. to 9:00 p.m.

Scholz Garten

1607 San Jacinto Blvd

(walking distance from AT&T Center)

Reception, including food and drinks
sponsored by OSSci

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Conference Location

- SciPy 2023 will be at the AT&T Hotel and Conference Center, 1900 University Ave, Austin, TX 78705.
- Tutorials on Monday, July 10 and Tuesday, July 11 will be in classrooms located on **Mezzanine 1** and **Mezzanine 2**.
- Talks on Wednesday, July 12, Thursday, July 13, and Friday, July 14 will be located in the **Zlotnik Ballroom**, **Amphitheater 204**, and **Grand Salon C**.

See the flooplans



Keynote Speakers



Angela Pisco

Angela Pisco is the head of computational biology at insitro. I am passionate about extracting meaningful information from biomedical datasets and use that to improve disease understanding and drug development. I have studied Biomedical Engineering as BSc and MSc and have a PhD in Systems Biology. My PhD work became the foundation of a new direction of thinking on why cancer develops resistance to chemotherapy, which is the major reason for treatment failure. In my postdoctoral work, I investigated the mechanisms of cellular differentiation in the skin. I developed a 3D computational model that recapitulated the observed changes in the mouse skin connective tissue and dermis during development. The combination of the mathematical analysis with experimental data led to a new understanding of how distinct fibroblast subpopulations become activated, proliferate, and deposit matrix proteins during wound healing. Before moving to insitro, I led the Data Science platform at CZ Biohub. There I made significant contributions for the whole organism cell atlas projects including the first whole mouse cell atlas, the first aging cell atlas, and Tabula Sapiens, one of the first Human Cell Atlas drafts (The Tabula Sapiens Consortium, Science 2022). I am also a founder and core member of Open Problems in Single Cell (openproblems.bio), a community effort to improve multimodal data analysis by both generating gold standard datasets and benchmarking metrics and infrastructure.



Michael Droettboom

Michael Droettboom is a Principal Software Engineering Manager at Microsoft where he leads the CPython Performance Engineering Team. That team contributes directly to the upstream CPython project, and recently helped make Python 3.11 up to 60% faster than 3.10.

Michael has been contributing to open source for over 25 years: he is the former lead maintainer of matplotlib, a major contributor to astropy, and he is the original author of Pyodide and airspeed velocity. His work has supported such diverse applications as the Hubble and James Webb Space Telescopes, the Firefox web browser, infrared retinal imaging, and optical sheet music recognition.



Dr. Rumman Chowdhury

Dr. Rumman Chowdhury is a trailblazer in the field of applied algorithmic ethics, creating cutting-edge socio-technical solutions for ethical, explainable and transparent AI. She currently runs , Parity Responsible Innovation Fund, and is a Responsible AI Fellow at the Berkman Klein Center for Internet & Society at Harvard University. She is also a Research Affiliate at the Minderoo Center for Democracy and Technology at Cambridge University and a visiting researcher at the NYU Tandon School of Engineering. Previously, she was the director of the ML Ethics, Transparency, and Accountability team at Twitter identifying and mitigating algorithmic harms on the platform. Before that she was CEO and founder of Parity, an enterprise algorithmic audit platform company. She formerly served as Global Lead for Responsible AI at Accenture Applied Intelligence. In her work as Accenture's Responsible AI lead, she led the design of the Fairness Tool, a first-in-industry algorithmic tool to identify and mitigate bias in AI systems. Dr. Chowdhury has been featured in international media, including the Wall Street Journal, Financial Times, Harvard Business Review, NPR, MIT Sloan Magazine among others. She was named one of BBC's 100 Women, recognized as one of the Bay Area's top 40 under 40, and honored to be inducted to the British Royal Society of the Arts (RSA).

Schedule

- Tutorials will be held on Monday, July 10 and Tuesday, July 11.
- Talks, Keynotes, Poster Session, Birds of a Feather (BoFs), Lightning Talks, Sponsor Booths, and Job Fair will be held on Wednesday, July 12, Thursday, July 13, and Friday, July 14.

Monday 10. July

Tuesday 11. July

Wednesday 12. July

Thursday 13. July

Friday 14. July

Community Activities

Tour the Texas Advanced Computing Center Visualization Lab

Wednesday, July 12 – 2:40pm

The Texas Advanced Computing Center (TACC) designs and operates some of the world's most powerful computing resources. SciPy Conference attendees are invited to tour the TACC Visualization Lab. Located on UT Austin's Main Campus in the POB Building, the Vislab is a showcase of the technologies that are used to support researchers as they turn their simulations into visually appealing, scientifically significant images. Engage hands-on with Lasso, a multi-touch screen, and Stallion, the world's highest resolution tiled wall!

Join Aerik Pawson and the rest of the group for a tour on Wednesday July 12th. The group will meet at the east side of the AT&T Conference center, by the University Ave entrance at 2:40pm. (Outside Gabriel's Cafe at the bottom of the stairs.) The group will leave at 2:45 to walk over to the POB Building, a 15 minute walk. The tour will run from 3 to 4pm. **Please [sign up](#) so we can estimate how many will be in attendance!** (If there is enough interest, we may run a second tour.)

Virtual attendees: Please check out the multiple 3D tours available via Matterport on [TACC's website](#):

Free-to-participate 10k for runners

Thursday, July 13 – 6:30am

Join us for a free-to-participate 10k on Thursday morning at 6:30am, starting at the AT&T Conference Center. [View the route map](#). The loop is a counterclockwise 10k around downtown Austin. A "Do Not Start" order will be announced if the temperature at 6:30am exceeds 79 degrees Fahrenheit. Regardless, all participants join this event entirely at their own risk. Meet at the downstairs hotel entrance on the east side of the building by University Ave.

Rain/Heat/AQI Date: Friday morning at 6:30am.

Virtual Attendees: Please share your 10k route and performance with us on Strava & Slack Note: This route mostly matches the Statesman Cap10K route run annually in April. See the [video tour](#) of the route.

See the Austin Bats!

Thursday, July 13 – 7:00pm

Every summer evening at dusk, thousands of Mexican Free-Tailed bats pour out from under the Congress Ave Bridge and cascade east over Lady Bird Lake. Thursday the 13th, join other SciPy attendees for an evening walk to view the event. Sunset will be at 8:34pm, so we'll gather at the downstairs doors to the hotel (by Gabriel's Cafe) on the east side of the building, and start walking south at 7:00pm. We'll walk across the Congress Ave bridge and grab space on the adjacent grassy hill at 305 S Congress Ave.

More info is available [here](#).

Rain/Heat/AQI Date: Friday

Posters

- In-person Poster Session: Wednesday, 6:00 p.m. in the Zlotnik Ballroom
- Virtual Posters: In the #poster-session Slack channel

PROPOSAL TITLE	SPEAKERS
aPhyloGeo-Covid: A Web Interface for Phylogeographic Analysis of SARS-CoV-2 Variation using Neo4j and Snakemake	Nadia Tahiri Wanlin Li
Rozha: Supporting and Simplifying Multilingual Natural Language Processing	Ian Goodale
Matchmaker: A Toolkit for Collocating and Combining Satellite-Based Earth Observations	Greg Quinn
Spatial and Single-Cell Analysis of MERFISH Data using the Python Library Cormerant	Nicolas Fernandez
Quantifying Uncertainty in Time Series Forecasting with Conformal Prediction	Fede Garza Ramirez
Intuitive Statistics in SciPy	Matt Haberland Albert Steppi
RECOIL – Ronchi Evaluator and Classifier of Imperfect Lenses (RECOIL)	Allen S. Harvey Jr. Clare Egan
Anti-Patterns: How not to do things in Python	Gajendra Deshpande
Using MyST Markdown in JupyterLab	Rowan Cockett
Operational Open Science and Software for the Planet’s Largest Climate Observatory	Zachary Sherman
pomegranate v1.0.0: now with PyTorch	Jacob Schreiber
Data engineering and analytics for photolithography manufacturing process at DuPont – a practical approach from lab to fab	Avishek Panigrahi Sumanth S Abhishek Shrivastava stefan caporale
PLAMS - a Python Library for Automating Molecular Simulation	Robert Rürger
Stochastic Unitary Constraints	Victoria Schneider Sara Logsdon Delaney Ott
Hamilton: Scalable, Portable, and Self-Documenting Dataflows in Python	Elijah ben izzy Stefan Krawczyk

Teaching machine learning in professional education	Nadia Udler
Cross-language Data Grammar for Single-cell Feature Engineering	Dave Bunten
Planetary Defense Using Python: Measuring Deflection of the Didymos Binary Asteroid System by the NASA DART Mission	Arushi Nath
Python meta packages	Jorge Martinez Roberto Pastor
Biomolecular crystallographic computing with Jupyter	Blaine Mooers
Xarray with GPUs	Deepak Cherian Negin Sobhani Max Jones
Moving the Earth with thermodynamics and python	Cian Wilson
Bringing automated data analysis and machine learning pipelines directly to end users using Unidata tools	Thomas Martin Hailey Johnson Drew Camron
Magic Data Abstractions (for Magic™ data)	Valerio Maggio
quartodoc: a tool for quick and easy package documentation	Michael Chow
Yori: A New, Highly Customizable Tool for Level-3 Data Production	Paolo Veglio
Open Classification of Regimes in the Southeast USA	Bobby Jackson Zachary Sherman
TUG-RSE: Pulling Students into Research Software Engineering	Aman Goel
pyro: a python hydrodynamics code for teaching and prototyping	Michael Zingale
Self-Supervised Cilia Segmentation	Meekail Zain Shannon Quinn
Data-centric ML pipeline for resolving data drift and optimizing data preprocessing	Hongsup Shin
Spatial Microsimulation & Activity Allocation in Python: An Update on the Likeness Toolkit	James Gaboardi Joe Tuccillo
PyVista: A Python Library for Interactive 3D Data Visualization and Analysis	Tetsuo Koyama
MDAKits: A Framework for FAIR-Compliant Molecular Simulation Analysis	Ian Kenney
conda-lock: fully reproducible scientific python environments	Marius
CI/CD pipelines for scientists	Jorge Martinez

Obtain quantitative insights through image registration in python	Matt McCormick Konstantinos Ntatsis
First steps toward supercharging remote development with Spyder	Carlos Cordoba
Avoiding the complexity trap with data centric web applications	Gordon Shotwell
SOSA: The Scalable Open-Source Analysis Stack	James A. Bednar Martin Durant
BlindAI: open-source AI serving framework with privacy guarantees for users' data	Daniel Huynh
"Clockwork" detection in categorical telemetry data	Benoit Hamelin
Chalk'it : dataflow and drag-and-drop Python dashboarding	Mongi Ben Gaid
Accelerating Drug Discovery on the Cloud with Open Source Python	Nathan Knapp
Modeling Multiphase Multicomponent Precipitate Growth with Phase-Field and Python	Trevor Keller (they/them)
An Accessible Python based Disputed Author Identification Process	Anthony F Breitzman
Accessible documentation for everyone	Jorge Martinez Revathy Venugopal
A Modified Strassen Algorithm to Accelerate Numpy Large Matrix Multiplication with Integer Entries	Anthony F Breitzman
EEG-to-fMRI: Neuroimaging Cross Modal Synthesis in Python	David Calhas
Patterns and Anti-Patterns when Measuring Diversity in Open Source	amanda casari
Data Reduction Network	Haoyin Xu
Accessing astronomical data with Python	Brigitta Sipőcz
Intro to Quantum Computing for Drug Design	Maurice Benson
Materials Project: building an open-source, data-driven platform for materials science	Ruoxi Yang
Sensitivity Analysis in Python: `scipy.stats.sobol_indices`	Pamphile Roy
PyQtGraph - High Performance Visualization for All Platforms	Nathan Jessurun
Improving the SciPy-CuPy compatibility for interpolation and signal processing	Edgar Andrés Margffoy Tuay
Modern Portfolio Theory in Action	Kalyan Prasad

Birds-of-a-Feather Sessions

	CLASSROOM 103	CLASSROOM 104	CLASSROOM 105
THURSDAY JULY 13 1:15-2:10PM	PyArrow in pandas and Dask	Where on Earth is my Pixel?	Scientific Python Ecosystem Coordination
THURSDAY JULY 13 6:30-7:25PM	Python Visualization and App Tools	Funding Open Source Software	Scientific Python Packaging Summit
FRIDAY JULY 14 4:40-5:35PM	SciPy Sprint prep	Future of Python Programming Language in the Artificial Intelligence Era	Open Source Project Code of Conduct Management and DEI Support
FRIDAY JULY 14 5:45-6:40PM	CPython performance	Beyond Notebooks: From reproducible to reusable research	Scipy 2024

Sprints

Registration and breakfast in Amphitheater 204 at 8:00am on Saturday July 15

SPRINT NAME OR THEME (+ more time come)	MINIMUM REQUIRED PYTHON EXPERIENCE
fastplotlib - fast scientific plotting	Intermediate
Story Diffusion (From Text to Stories)	Beginner
Conda, conda-forge, and friends	Beginner
Flyte	Intermediate
Array API	Advanced
Zarr	Beginner
Improving scikit-build to support modern binary packaging of python extensions	Intermediate
PyVista	Beginner
Lets contribute to pandas	Intermediate
pyOpenSci Sprint!	Beginner
Scientific Python	Beginner

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Julie Krugler Hollek

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Brigitta Sipocz
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Paul Anzel
Ed Rogers

Tutorials

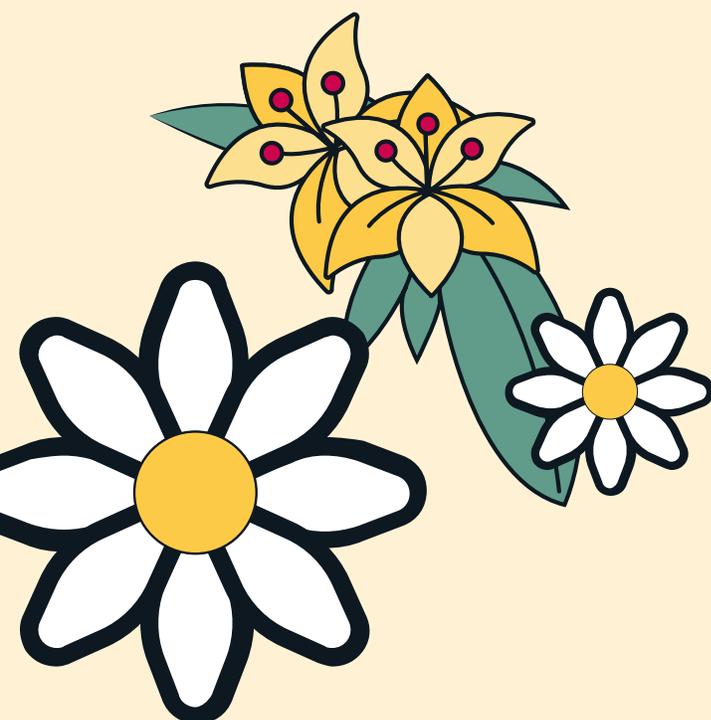
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Logan Thomas
Tetsuo Koyama

Hybrid

David Nicholson
Neelima Pulagam

Birds of a Feather

Andrew Reid
Mike Hearne



2023 Track Chairs

Tending Your Open Source Garden: Maintenance and Community

Inessa Pawson
Matt Craig
Mridiul Seth
Brigitta Sipőcz

Machine Learning, Data Science, and Ethics in AI

Fatma Tarlaci
Leland McInnes
Benoit Hamelin

SciPy Tools

Tom Caswell
Kira Evans
Madicken Munk

Earth, Ocean, Geo and Atmospheric Science

Maxwell Grover
Hillary Scannell

Social Sciences / Computational Social Science / Digital Humanities

Folgert Karsdorp
Anna Haensch
Steph Buongiorno
Emilien Schultz

Astronomy, Astrophysics, and Physics

Mike Zingale
Matthew Feickert

Materials & Chemistry

Leopold Tarlitz
Chaya Stern
Daniel Wheeler

Bioinformatics, Computational Biology & Neuroscience

Sambit Panda



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