

Preface

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SciPy 2020, the 19th annual Python in Science Conference, was held July 6-12, virtually via the conference platform Crowdcast. Due to the COVID-19 pandemic, the SciPy conference was held online. The SciPy Conference brings together a community of researchers, engineers, and programmers dedicated to the advancement of scientific computing through open source Python software.

The two main conference themes for 2020 were high performance computing; and, machine learning and data science. Discipline-specific symposia included astronomy and astrophysics; biology and bioinformatics; materials science; earth, ocean, geology, and atmospheric science; and a new symposium dedicated to fostering conversations among maintainers of the open source infrastructure that help power the worlds of scientific discovery and engineering. As was the case in 2019, there were plenary sessions for updates about key scientific software libraries, and three sessions of the ever-popular lightning talks, which this year included SciPy's youngest speaker, Artash Nath, discussing machine learning approaches in exoplanet research.

The first conference keynote lecture was delivered by Anne Carpenter, who discussed the history of CellProfiler in the context of developing academic software, current application of the scientific software stack to problems in biology, and future directions for tasks like drug discovery, powered by machine learning. Andrew Chael delivered the second keynote, about the large, inter-organizational effort to take the first photograph of black hole M87, and the role of scientific software in that project. This year's diversity plenary was given by Bonny McClain, who delivered an interactive lecture about bias in data, and how to think about measuring what people haven't thought about measuring before.

The online format permitted a larger-than-usual number of participants, ultimately attracting 1412 participants from a record-breaking 57 countries, making this the largest SciPy Conference yet. Participants reported that they enjoyed the broader access to beginner tutorials for popular libraries like PyTorch and xarray -- something that would not be possible without having the conference at least partially online. Birds of a Feather (BoF) sessions were organized around the topics of packaging, diversity, Python in education, hardware, and SciPy 2021 with great attendance due to the online format. Sprints that usually gather around tables in conference rooms took the conversation to virtual tables using a

variety of technologies for text and voice chat. The online format did come with its own set of challenges, in particular, promoting serendipitous conversations that are typical in the "hallway track" at the event along with the typical audience interaction seen in BoF sessions and groups of participants trekking in the Austin heat to enjoy tacos or other fine Austin fare and each others' company.

Of this year's conference attendees, 22% identify as women, continuing SciPy's trend in increasing participation of people from minoritized communities. The organizers identified LGBTQ, African American, Native American, Middle Eastern, and Hispanic/Latinx scientists as still underrepresented at the conference, and targets for future equity and inclusion efforts. With this in mind, SciPy announced a new initiative to provide additional scholarship funding for Black, Indigenous, and People of Color (BIPOC) to attend the conference, starting in 2021.¹

While the global circumstances have been disruptive to all facets of life, their effect on the conference was greatly mitigated, largely due to the superhuman efforts of Jill Cowan and Kristen Leiser. In particular, Jill started organizing for SciPy in 2014, and over time has become the heart of the conference. Attendees regularly remark that SciPy is the most open and friendly conference that they attend, and typically add that they recall that the first moment they felt this way was upon meeting Jill at the registration desk. To add an editorial note, the SciPy Conference would not be where it is today without Jill's leadership over the last six years; and, our own efforts as committee chairs have been made significantly lighter due to her hard work. Jill is leaving the conference this year for a well-deserved retirement, but she will always be remembered in the community that she helped build.

We dedicate this work, the 19th Python in Science Conference Proceedings, to Jill Cowan.

On behalf of the SciPy 2020 organizers,

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1. The full statement is available at <https://www.scipy2020.scipy.org/support-of-black-communities>