



Welcome to the SciPy 2024 Teen Track

Jim Pivarski

Princeton University – IRIS-HEP

July 8, 2024





What this session is about

The SciPy Teen Track is an introduction to scientific problem-solving with Python.



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I decided to focus on machine learning.



Monday, July 8, 2024

9:30am – 12pm:

- ▶ Python review: just enough Python knowledge for the rest of the session
- ▶ Mathematical background: just the concepts
- ▶ Project: fitting a theoretical model to experimental measurements

1pm – 3:30pm:

- ▶ Scikit-Learn, a machine learning library
- ▶ From linear fitting to neural networks

Tuesday, July 9, 2024

1pm – 3:30pm:

- ▶ Big data: the complete works of Shakespeare
- ▶ Project: building a language model
- ▶ Large language models (e.g. ChatGPT)



We'll be using JupyterLite, a variant of Jupyter that runs in your web browser, so there's nothing to install.



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I'll provide URLs and guide you through using Jupyter as needed.



Jim Pivarski, a computational physicist at Princeton University.

I studied particle physics at CMU and Cornell and helped prepare the Large Hadron Collider at CERN for the Higgs boson discovery.

I started using Python (version 2.1!) in 2002 and wrote my first package in 2005—for fitting, which is what we'll be doing today. I spent some years as a data scientist in the private sector, but now I'm developing scientific software for particle physicists.