

Scientific Computing & Data Analytics: A Comprehensive Toolkit for Research

To fully harness the potential in extensive data sets, it is essential to process the raw data using methods like information extraction, data mining, and knowledge discovery. This workshop series aims to equip you with a comprehensive computational toolkit for your research. This toolkit will enable you to effectively manage and analyze the increasing volumes of data in your field, thereby enhancing your research output.

The workshop series will cover:

1. Fundamental concepts of Python, Jupyter notebooks, and GitHub
2. Overview of machine learning and interactive visualization
3. Real-world applications in the field of plant phenotyping

By the end of the workshop series, you'll be able to:

1. Understand the fundamentals of scientific computing, including data preprocessing, statistical analysis, machine learning, and data visualization
2. Incorporate a variety of scientific computing techniques into your research workflow
3. Utilize established software to identify patterns within data sets
4. Perform analyses with common machine learning tools, including neural networks and dimensionality reduction methods

Presenters:

Emmanuel Gonzalez is a PhD candidate in Dr. Duke Pauli's lab at the University of Arizona whose work focuses on leveraging plant phenomics, data science, and machine learning to investigate how crops respond to both abiotic and biotic stress.

Jeffrey Demieville is an interdisciplinary R&D Engineer at the University of Arizona whose work focuses on applying biological, agricultural, and systems engineering practices to the field of phenomics.

Brenda Huppenthal is a computer science graduate student at the University of Arizona whose work focuses on using computer vision and specifically deep learning approaches to obtain underlying structural information from point clouds.

Emily Cawley is an undergraduate Computer Science student at the University of Arizona. As an undergraduate researcher in the Pauli lab, she works on predicting transformations of 3D data with neural networks.

Aditya Kumar is an undergraduate researcher in the Pauli lab. He specializes in software development and data visualization and is currently focusing on refining object detection models for Sorghum Panicle Detection.

Bella Salter is an undergraduate researcher in the Pauli lab whose work focuses on predicting late season lettuce growth based on early metrics of success using machine learning techniques such as long-short term memory.

April 10-12, 2024

11:00 AM - 1:00 PM

(Central Time, UTC-5)

Purpose:

Hands-on training in efficient scientific computing techniques for both small and large data sets.

Register for this **Zoom virtual workshop:**

<https://tinyurl.com/AG2PI-w25>

Upon registration, you will receive a confirmation email with information about joining the meeting.

A recording will be available at a later date at: www.ag2pi.org.

Registration is not required to view the recording.