UI RESEARCH COMPUTING AND DATA SCIENCE SYMPOSIUM

MAY 16
Bruce M. Pitman Center, Vandal Ballroom

8:15	**Registration:** Light breakfast options provided
9:00	**Welcome:** Daniel Ewart, VP UI ITS
9:15	**Keynote Speaker:** Josh Hartung, Founder of PolySync Perspectives on the Use of Deep Learning in Autonomous Cars
10:15	**Break**
10:30	**Lightning Talk:** Dr. Larry Forney, UI Biological Sciences Causes and consequences of spatial structure in the microbial world
10:40	**Lightning Talk:** Dr. Jason Kelley, UI Soil & Water Systems Use of neural networks for data assimilation and analysis
10:50	**Lightning Talk:** Dr. Katherine Hegewisch, UI Geography Visualizing Climate and Remote Sensing Datasets on the Web
11:00	**Lightning Talk:** Brian Jemes, UI ITS Network Monitoring, Troubleshooting and Planning Tools for UI, IRON, and Internet 2
11:10	**IBEST Computational Resources Core (CRC) Key Speaker:** Dr. Benji Oswald CRC: Your partner in high-performance computing
11:25	**Lunch:** Provided
12:30	**Lightning Talk:** Amanda Stahlke, BCB PHD Student Innovation in conservation at the invasion front
12:40	**Lightning Talk:** Dr. Michael Overton, UI Politics & Philosophy Public sector data literacy
12:50	**Lightning Talk:** Dr. Audrey Fu, UI Statistical Sciences Imputation of single-cell gene expression with deep learning
1:00	**Lightning Talk:** Tanner Varrelman, BCB PHD Student Forecasting Lassa Fever Epidemics
1:10	**Northwest Knowledge Network (NKN) Key Speaker:** Dr. Luke Sheneman NKN: Enabling Science With an Interactive Data Observatory
1:25	**Lightning Talk:** Dr. Jason Karl, UI Forestry, Rangeland, and Fire Sciences Remote sensing, times series, drone sensing
1:35	**Lightning Talk:** Dr. Ross Kunz, Idaho National Laboratory Idaho National Laboratory and Data Analytics
1:45	**Lightning Talk:** Dr. Marek Borowiec, UI Entomology, Plant Pathology, and Nematology Manipulation/trimming large sequence alignments/deep learning for automated species identification from images
1:55	**Lightning Talk:** Dr. James Alves-Foss, UI Computer Science Security and Privacy in the world of Big Data
2:05	**IBEST Genomics Resources Core (GRC) Key Speaker:** Dr. Sam Hunter GRC: Putting Genomics to Work for Idaho
2:20	**Poster Session and Reception**
4:00	**Closing Remarks:** Dr. Barrie Robison, IBEST Director

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UI RESEARCH COMPUTING AND DATA SCIENCE SYMPOSIUM
WORKSHOPS

MAY 15
Life Sciences South, Room 277

9:00–12:00

Machine Learning / TensorFlow
Dr. Benji Oswald

This workshop will introduce participants to Machine Learning algorithms and the TensorFlow platform. We will discuss the various options for installing or otherwise accessing TensorFlow, including using containers, cloud providers, and UI resources. Example datasets will be explored in an interactive session using Jupyter Notebooks. Some experience with Python required. **Participants will need to a laptop to the workshop.**

Agenda:

1. Introduction
   - A. Introduction to Machine Learning
   - B. TensorFlow Background
   - C. How to get TensorFlow
   - D. General Data Pre-processing for Machine Learning

2. Example uses of TensorFlow
   - A. Predictive Model
   - B. Continuous Data Modeling
   - C. Classifier Model

3. User projects as time allows

1:00–5:00

Big Data: Web Services and Cloud Computing
Dr. Katherine Hegewisch, Dr. Luke Sheneman

This workshop will introduce universal features and challenges in Big Data, as well as solutions accomplished through web services and cloud computing. Hands-on and instructor-led examples will look at big climate data utilizing THREDDS web services and Google Earth Engine cloud computing. Web service examples will be shown using Jupyter Notebooks and in the creation of web visualization tools. The workshop will also highlight diverse big data research examples across the University of Idaho campus and connect participants to others with similar interests. **Participants will need to bring a laptop to the workshop.**

Agenda:

1. Introduction to Big Data
   - a. Big Data in general
   - b. Big Data at University of Idaho
   - c. Participant Introductions

2. Big Data on Desktop Computers
   - a. Data Wrangling (Formats, Services, Tools)
   - b. Data Analysis (Issues, Parallelization, Software)
   - c. Hands-on activity in Jupyter (Python) Notebook

3. Big Data on the Web
   - a. Hosting Data
   - b. Data Wrangling
   - c. Data Visualization (GUIs, Web Frameworks, Web Programming)
   - d. Instructor-led example in JavaScript

4. Big Data in the Cloud
   - a. Cloud Services (Google, Amazon, Microsoft)
   - b. Instructor-led example with Google Earth Engine

5. Wrap up

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