Welcome: Dr. Janet Nelson, UI Vice President of Research

Keynote Speaker: Josh Hartung

Break

Lightning Talk: Dr. Larry Forney, UI Biological Sciences
Causes and consequences of spatial structure in the microbial world

Lightning Talk: Dr. Jason Kelley, UI Soil & Water Systems
Use of neural networks for data assimilation and analysis

Lightning Talk: Dr. Katherine Hegewisch, UI Geography
Visualizing Climate and Remote Sensing Datasets on the Web

Lightning Talk: Brian Jemes, UI ITS
Network Monitoring, Troubleshooting and Planning Tools for UI, IRON, and Internet 2

IBEST Computational Resources Core (CRC) Key Speaker: Dr. Benji Oswald
CRC: Your partner in high-performance computing

Lunch

Lightning Talk: Amanda Stahlke, BCB PHD Student
Novel range expansion in Diorhabda carinulata: The northern tamarisk leaf beetle gone south

Lightning Talk: Dr. Michael Overton, UI Politics & Philosophy
Public sector data literacy

Lightning Talk: Dr. Audrey Fu, UI Statistical Sciences
Imputation of single-cell gene expression with deep learning

Lightning Talk: Tanner Varrelman, BCB PHD Student
Forecasting Lassa Fever Epidemics

Northwest Knowledge Network (NKN) Key Speaker: Dr. Luke Sheneman
NKN: Enabling Science With an Interactive Data Observatory

Lightning Talk: Dr. Jason Karl, UI Forestry, Rangeland, and Fire Sciences
Remote sensing, times series, drone sensing

Lightning Talk: Shad Staples, Idaho National Laboratory
Idaho National Laboratory and Data Analytics

Lightning Talk: Dr. Marek Borowiec, UI Entomology, Plant Pathology, and Nematology
Manipulation/trimming large sequence alignments/deep learning for automated species identification from images

Lightning Talk: Dr. James Alves-Foss, UI Computer Science
Security and Privacy in the world of Big Data

IBEST Genomics Resources Core (GRC) Key Speaker: Dr. Sam Hunter
GRC: Putting Genomics to Work for Idaho

Poster Session and Reception

Closing Remarks: Dr. Barrie Robison, IBEST Director
Machine Learning / TensorFlow
Dr. Benji Oswald, Erich Seamon

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 bring 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

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.

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