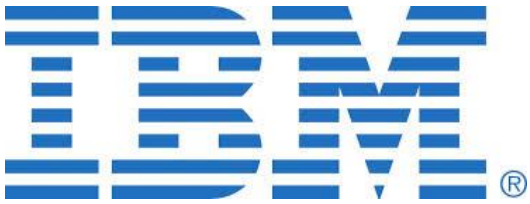

Come to IBM Computer Technology Workshops!

Wednesday July 31 CC Room 407

Extra fee ($75 at registration)

1 hour 45 min interactive workshops

10 am Introduction to deep learning with Watson Studio, *by Svetlana Levitan and David Nichols*

Recent advances in computer hardware and algorithms have enabled proliferation of the use of deep learning models in many practical applications. Popular open source frameworks for deep learning include Keras, TensorFlow, Caffe and PyTorch. IBM Watson Studio provides several ways to build deep learning models using those frameworks, from Python Jupyter notebooks and RStudio to the graphical interface of the Neural Network Modeler. The latter allows graphical construction of deep learning models with automatic Python code creation. This workshop will first provide an introduction to the theory of traditional neural networks, then discuss convolutional and recurrent networks and their applications. Deep learning examples using the Keras library will be shown in Jupyter notebooks, RStudio, and the Neural network modeler. Attendees can get some hands-on experience with those tools. Model deployment strategies and the model interchange format ONNX will be discussed. Finally, we will examine open source packages AIFairness360 and Adversarial Robustness Toolkit developed in collaboration with IBM Research. Participants should be familiar with fundamentals of statistical modeling, and will gain a basic understanding of some popular deep learning methods including possible applications and available tools.

To participate in the interactive part please sign up for a free IBM Cloud account before the workshop using: **`https://ibm.biz/Bd2whP`**

1 pm Teaching and exploring analyses of non-IID and/or non-normally distributed data with IBM SPSS Statistics, *by Vladimir Shklover and Yingda Jiang*

Most data in practical applications of statistics and machine learning are not independently and identically distributed (IID) according to normal distributions, as many basic linear models assume. This workshop aims to present theory and share hands-on experiences with IBM SPSS Statistics to perform appropriate statistical analyses on data with errors that exhibit unequal variances, correlations and/or non-normal distributions. We will handle these data using several approaches, including Bayesian analyses, quantile regression, and mixed models. The Bayesian features in SPSS Statistics include various models for binomial, Poisson and multinomial data. In some scenarios, the desired posterior distributions are simulated by Monte Carlo methods. In regression algorithms, we are modeling data, possibly correlated, with various distributions and estimation methods. Mixed models include various target distributions and link functions, random effects and repeated measures, and various types of covariance structures, including spatial and Kronecker product structures. Tips for teaching the approaches to students will be provided. Some familiarity with statistics is expected. The attendees will get better understanding of several statistical techniques for non-IID and/or non-normally distributed data and learn how to apply and teach the techniques using IBM SPSS Statistics.

Also, on Tuesday please come to the panel discussion:

Changing the Statistics Community: Effective Strategies for Promoting an Inclusive and Equitable Culture for Women — Topic Contributed Panel

Committee on Women in Statistics, Committee on Professional Ethics, ENAR

Organizer(s): Stephanie Hicks, Johns Hopkins Bloomberg School of Public Health

Chair(s): Stephanie Hicks, Johns Hopkins Bloomberg School of Public Health

2:05 PM Changing the Statistics Community: Effective Strategies for Promoting an Inclusive and Equitable Culture for Women

Panelists: Debashis Ghosh, University of Colorado Anschutz Medical Campus
Gabriela de Queiroz, IBM
Jen Hecht, R Studio
Karthik Ram, Berkeley Institute for Data Science at UC Berkeley
Suzanne Thornton, Rutgers University
Wendy L Martinez, Bureau of Labor Statistics

3:40 PM Floor Discussion