

DEPARTMENT OF STATISTICS

Jonathan BradleyDepartment of Statistics
Florida State University*For a Given Model What's the best Predictor
that You can Compute in Five Minutes?***November 20, 2019****11:45am – 12:45pm**

Light refreshments will be served

**110 Frelinghuysen Road
Hill Center, Room 552**

Abstract: The goal of this talk is to provide a way for statisticians to answer the question posed in the title using any Bayesian hierarchical model of their choosing. We are partially motivated by the fact that the rise of “big data” has created difficulties for statisticians to directly apply their methods to realistic modern datasets. To do this, we introduce a “data subset model” to the popular “data model, process model, and parameter model” framework used to summarize Bayesian hierarchical models. The hyperparameters of the data subset model are specified constructively in that they are chosen such that the implied size of the subset satisfies pre-defined computational constraints (i.e., the constraint given in the title). Thus, these hyperparameters effectively calibrates the statistical model to the computer itself to obtain predictions/estimations in a pre-specified amount of time. We illustrate the use of a data subset model for latent Gaussian process (LGP) models and for the recently introduced latent conjugate multivariate (LCM) distribution models. Results from a simulation dataset will be presented across different computers, to show the effect of the computer on the statistical analysis. Additionally, we provide a joint spatial analysis of two different environmental datasets.

Bio: Jonathan Bradley received his Ph.D. from The Ohio State University's Department of Statistics in 2013 under the advisement of Drs. Tao Shi and Noel Cressie. He was a postdoctoral fellow at the University of Missouri's Department of Statistics, where he was mentored by Drs. Scott Holan and Christopher Wikle. In 2016, Jonathan Bradley was hired as an Assistant Professor at Florida State University's Department of Statistics. His research interests are in Bayesian analysis, statistics for high-dimensional datasets, multiscale spatial statistics, spatio-temporal statistics, official statistics, and multivariate analysis.

