Keegan E. Hines

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Education

University of Texas at Austin
PhD in Neuroscience, 2014
Doctoral Advisor: Richard W. Aldrich

Washington and Lee University
BS in Physics, *magna cum laude*, 2009

Experience

Data Scientist - L3 Data Tactics Corp - 2014 to present

- Working on DARPA project NetDefense to build large-scale machine learning applications for cyber defense and detection.
- Developed data science and predictive analytics for government customers.

Research Assistant - laboratory of Richard W. Aldrich - 2010 to present

- Established a rigorous statistical basis for analysis of emerging biophysical experimentation.
- Developed Bayesian framework for parameter inference in common biophysical settings.
- Pioneered the use of nonparametric Bayesian methods for the analysis of single molecule time series.

Data Science Intern - Civitas Learning - Summer 2013

- Built predictive models of student success in higher education.
- Designed and built an automated data science framework for analysis of large numbers of population segments.

Skills

- Bootstrap, Bayesian inference, MCMC, Nonparametric Bayes, time series, HMM, clustering/segmentation, Dirichlet process mixture models, SVM, ANNs, PCA, genetic algorithms.

- R, Python,Spark, Hive, Impala Matlab, SQL, HTML, CSS, Linux/UNIX, AWS, MapReduce framework, git.

- Electrophysiology, fluorescence spectroscopy, protein purification, molecular biology, cell culture.

Honors and Awards

- Predoctoral Fellowship, American Heart Association, 2012- 2014
- Student Research Award Finalist, Biophysical Society, 2012
- Complex Systems Summer School, Santa Fe Institute for Complex Systems, 2012
- APS Student Leadership Award, American Physics Society, 2008
- NSF REU Research Scholarship, National Science Foundation, 2007

Recent Publications

Hines, K., J. Bankston, R. Aldrich. Analyzing Single Molecule Time Series Via Nonparameteric Bayesian Inference. *Biophysical Journal. 108(3) 540-556.*

Hines, K., T. Middendorf, R. Aldrich. Determination of Parameter Identifiability in Nonlinear Biophysical Models: A Bayesian Approach. *Journal of General Physiology. 143(3):401-416.*