

A 5th year Neuroscience PhD student applying powerful methods from statistics and machine learning to systems in molecular biophysics. I am looking for positions in data science and predictive analytics.

## Education

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### University of Texas at Austin

PhD in Neuroscience, 2014 (Aug anticipated)

Doctoral Advisor: Richard W. Aldrich

### Washington and Lee University

BS in Physics, *magna cum laude*, 2009

## Experience

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### Associate - Texas Venture Labs - Current

- Working with a team to build detailed financial model and analysis of value chain in the automotive industry for Austin startup *nCarbon*.
- Working with a team to conduct market validation and competitive analysis for *Transmetrics*.

### 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.

### 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.
- Pioneering the use of nonparametric Bayesian methods for the analysis of single molecule time series.

## Skills

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- Bootstrap, Bayesian inference, MCMC, Nonparametric Bayes, time series, HMM, clustering/segmentation, Dirichlet process mixture models, SVM, ANNs, PCA, genetic algorithms.
- R, Python, Matlab, SQL, HTML, CSS, Linux/UNIX, AWS, MapReduce framework, git.
- Electrophysiology, fluorescence spectroscopy, protein purification, molecular biology, cell culture.

## Honors and Awards

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- 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

## Publications

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**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.

**Hines, K.** Inferring Subunit Stoichiometry from Single Molecule Photobleaching. *Journal of General Physiology*. 141(6):737-746.