Kevin W. Mickey

kevin@kmickey.com • https://www.kmickey.com/

Summary of Qualifications

- Data scientist, Stanford PhD, with expertise in statistics and machine learning using Python, R, and SQL.
- Led development and analysis of online educational platform, awarded $1.5M grant. Designed and collected measures of student behavior, wrangled data from different sources, explored relationships visually, built predictive models, tested hypotheses, and enjoyed communicating with diverse stakeholders.
- Built recurrent neural network to model how students receive biased training in math textbooks.

Education

Stanford University — Stanford, CA
Ph.D., Cognitive Psychology — *Sept. 2011 – Jan. 2019*

University of Notre Dame — Notre Dame, IN
B.A. summa cum laude, Cognitive Science (Self-Designed Major) and Philosophy — *Aug. 2007 – May 2011*

Experience

TrigAcademy.org Project — Stanford, CA & Richmond, VA
Data Scientist, Research Consultant — Independent Contractor: *Jan. 2019 – Present*
Co-Creator, Lead Platform Developer — Ph.D. Student: *July 2015 – Dec. 2018*

- Created online educational platform to strengthen trigonometry concepts for high school and community college students. Developed interactive lesson materials, designed assessments, and wrangled data from external sources.
- Evaluated impact of lesson on student behavior and successful problem-solving, and explored potential prerequisites, moderators and correlations using assessment data from ∼2,000 students.
- Deployed and managed Django/Python app on Dokku/Docker cloud-based server with SQLite database.
- Trained team to use git and reproducible workflow. Created administrative dashboard and designed API.

Parallel Distributed Processing Lab, Stanford University — Stanford, CA
Graduate Student Researcher — *Sept. 2011 – Jan. 2019*

- Introduced trigonometry as a domain to investigate role of rules and visualization in math reasoning, designed behavioral experiments, and predicted responses with logistic and ordinal mixed-effects models, in dissertation.
- Built recurrent neural network to model arithmetic development in children biased by frequencies of equations in textbooks, presented at *CogSci* conference, originally using MATLAB, re-writing in TensorFlow.
- Processed unstructured natural language, organized into exploratory dashboard, and clustered participants.

Psychology Department, Stanford University — Stanford, CA
Statistical Consultant and Teaching Assistant — *Sept. 2012 – Aug. 2016*

- Advised graduate students with analysis questions as statistics consultant in psychology department.
- Helped to design and lead bootcamp for incoming graduate students to learn R and ggplot.
- Led weekly sections as TA for undergraduate, first-year graduate, and advanced graduate statistics courses.

Grants, Awards and Accomplishments

- TrigAcademy: $1.5 million grant, Institute for Education Sciences, U.S. Dept. of Education (PI: Jay McClelland)
- National Science Foundation Graduate Research Fellowship
- Notre Dame Glynn Family Honors Program
- John A. Oesterle Award in Philosophy, Notre Dame
- Department Dissertation Research Grant
- Glenna R. Joyce Scholarship, Notre Dame
- Eagle Scout

Skills and Side Projects

- **Programming**: Python (pandas, scikit-learn, tensorflow, django), R (dplyr, lme4, ggplot2, shiny), SQL (Postgres, SQLite, various ORMs), JavaScript, MATLAB/Octave, Git, Jupyter notebooks, cloud services (AWS, DigitalOcean)
- **Statistics**: Generalized linear regression, ANOVA, multilevel/mixed models, bootstrapping, power analyses
- **Machine Learning**: Deep learning, Bayesian inference, feature engineering, regularization, cross-validation
- **Side Projects**: Mutual fund analysis, college football visualization, name diversity tool, open-source app directory