

# JEFFREY CARROLL REGIER

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## ACADEMIC POSITIONS

UNIVERSITY OF CALIFORNIA, BERKELEY  
Department of Electrical Engineering and Computer Sciences  
Postdoctoral Researcher  
Advised by Michael I. Jordan  
Aug 2016 – present

## EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY  
Ph.D. Statistics, 2016  
Designated Emphasis in Communication, Computation and Statistics  
Advised by Jon McAuliffe  
M.A. Statistics, 2013  
M.A. Mathematics, 2013

COLUMBIA UNIVERSITY  
M.S. Computer Science, 2004

SWARTHMORE COLLEGE  
B.A. Computer Science & Economics (double major), 2003

## AWARDS AND FELLOWSHIPS

Google Ph.D. Fellowship in Machine Learning, awarded annually to 3 students worldwide, including 1 student from North America, 2013.

Citadel Ph.D. Fellowship (declined), awarded annually to 1 statistics Ph.D. student at UC Berkeley, 2013.

Elizabeth Scott Memorial Award, awarded at most annually to the statistics M.A. recipient at UC Berkeley showing the greatest promise in statistical research, 2013.

## TEACHING EXPERIENCE

STATISTICS 154, UNIV. OF CALIFORNIA, BERKELEY. Advanced undergraduate course in modern statistical prediction and machine learning. Primary Instructor, Summer 2015 (10 weeks).  
Evaluation average: 6.41 out of 7 (department average: 5.07)

STATISTICS 215B, UNIV. OF CALIFORNIA, BERKELEY. Second core graduate course in applied statistics. Graduate Student Instructor, Spring 2013, 2014.

STATISTICS 154, UNIV. OF CALIFORNIA, BERKELEY. Advanced undergraduate course in modern statistical prediction and machine learning. Graduate Student Instructor, Spring 2012.

## **INDUSTRY EXPERIENCE**

GOOGLE RESEARCH. Intern. May 2014–Aug 2014.

Hosted by Yoram Singer and Amar Subramanya. Developed a mathematical model for entity linking, derived an optimization procedure for it, and implemented the procedure first in Lua and then in C++ within a map-reduce framework.

METAGLOSSARY.COM. Co-Founder & Lead Developer. May 2004–Jun 2007.

Invented and implemented a machine-learning-based system for extracting terms and definitions from web pages containing glossaries (US Patent 7,747,555). Invented and implemented a program to cluster definitions with a common semantic meaning using Python and C++. Raised seed funding. Developed and administered a web site using Linux, Apache, MySQL, Python, and Django that served hundreds of thousands of unique visitors.

GOOGLE. Software Engineer, Contractor, Aug 2006–Mar 2007.

Developed C++ code to parse web server logs on a computing farm and output models of latency distributions. Created a JavaScript-intensive web application in Python and C++ that allows users to explore these web server latency distributions.

RUBICONSFT. Software Engineer, Contractor, May 2006–Aug 2006.

Developed an extensible, multithreaded web-crawler in Java for extracting product data from e-commerce web sites.

GOLDMAN, SACHS & CO. Analyst, Software Engineer, May 2005–May 2006.

Develop a distributed system in Perl, C++, and a proprietary programming language for computing the firm's exposure to various types of financial risk.

SKY SOLUTIONS. Business Intelligence Consultant, Dec 2004–May 2005.

Built business analytics web applications for clients using Java, SQL, and Cognos reporting software.

**OPEN  
SOURCE  
SOFTWARE**

CELESTE.JL. Statistical software in Julia for finding and characterizing stars and galaxies in astronomical images. <https://github.com/jeff-regier/Celeste.jl>

MINIMINIMAXUQ. Statistical software in R and C++ for assessing the feasibility of approximating a numerical simulator with an emulator. <https://github.com/jeff-regier/MiniMiniMaxUQ>

AUTHOR TOOLKIT. Software in Python for automatically determining the identities of authors in collections of publications. <https://github.com/jeff-regier/authortoolkit>

**JOURNAL  
PUBLICATIONS**

[1] **Jeffrey Regier** and Philip B. Stark. “Mini-minimax uncertainty quantification for emulators”. In: *SIAM/ASA Journal on Uncertainty Quantification* 3.1 (2015), pp. 686–708.

**REFEREED  
PROCEEDINGS**

[2] **Jeffrey Regier**, Michael I. Jordan, and Jon McAuliffe. “Fast Black-box Variational Inference through Stochastic Trust-Region Optimization”. In: *Neural Information Processing Systems (NIPS)*. 2017.

[3] **Jeffrey Regier** and Jon McAuliffe. “Second-Order Stochastic Variational Inference”. In: *BayLearn: Bay Area Machine Learning Symposium*. 2016.

[4] **Jeffrey Regier**, Jon McAuliffe, and Prabhat. “A deep generative model for astronomical images of galaxies”. In: *Neural Information Processing Systems (NIPS) Workshop: Advances in Approximate Bayesian Inference*. 2015.

[5] **Jeffrey Regier**, Andrew Miller, Jon McAuliffe, Ryan Adams, Matt Hoffman, Dustin Lang, David Schlegel, and Prabhat. “Celeste: Variational inference for a generative model of astronomical images”. In: *Proceedings of the 32nd International Conference on Machine Learning (ICML)*. 2015.

[6] Andrew Miller, Albert Wu, **Jeffrey Regier**, Jon McAuliffe, Dustin Lang, Prabhat, David Schlegel, and Ryan Adams. “A Gaussian process model of quasar spectral energy distributions”. In: *Advances in Neural Information Processing Systems (NIPS)*. 2015.

[7] **Jeffrey Regier**, Brenton Partridge, Jon McAuliffe, Ryan Adams, Matt Hoffman, Dustin Lang, David Schlegel, and Prabhat. “Celeste: Scalable variational inference for a generative model of astronomical images”. In: *Neural Information Processing Systems (NIPS) Workshop: Advances in Variational Inference*. 2014.

**UNREFEREED  
PUBLICATIONS**

- [8] **Jeffrey Regier** and Jon McAuliffe. “Galaxy shape modeling with probabilistic auto-encoders”. In: *A look at deep learning for science*. Ed. by Prabhat. O’Reilly, 2017.

**PATENTS**

- [9] **Jeffrey Regier** and Uri Avissar. *System and method for retrieving and intelligently grouping definitions found in a repository of documents*. US Patent 7,747,555. June 2010.

**INVITED  
TALKS**

UCSF, Department of Radiology & Biomedical Imaging	Jul 2017
JuliaCon 2017, keynote address	Jun 2017
Dark Energy Spectroscopic Instrument collaboration meeting	Jun 2017
NIPS Workshop on Advances in Approximate Bayesian Inference	Dec 2016
SAMSI ASTRO Opening Workshop	Aug 2016
UC Berkeley, Bin Yu’s research group	Apr 2016
UC Berkeley, Pieter Abbeel’s research group	Apr 2016
Ohio State University, Statistics Department	Mar 2016
MANTISSA Day at Lawrence Berkeley National Laboratory	Aug 2015
International Conference on Machine Learning (ICML)	Jul 2015
Berkeley Statistics Annual Research Symposium	Feb 2015
NIPS Workshop on Advances in Variational Inference	Dec 2014
Berkeley Statistics Annual Research Symposium	Feb 2013

**JOURNAL AND  
CONFERENCE  
REVIEWING**

Neural Information Processing Systems (NIPS), 2017  
International Conference on Machine Learning (ICML), 2013, 2014, 2015, 2016  
IEEE Transactions on Knowledge and Data Engineering (TKDE), 2014  
International Joint Conferences on Artificial Intelligence (IJCAI), 2013  
Artificial Intelligence and Statistics (AISTATS), 2013