Dustin Tran

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Research interests

Stochastic approximations, Monte Carlo methods, variational inference. I am interested in statistically efficient and stable estimation techniques for Bayesian analysis.

Education

2015–2019 (expected) **Ph.D. Engineering (Machine Learning)**, *University of Cambridge*, Cambridge, UK.
Co-advisors: Zoubin Ghahramani, Bernhard Schölkopf.

2014–2015 (expected) **S.M. Computational Science and Engineering**, *Harvard University*, Cambridge, MA.
Advisor: Edoardo Airoldi.

2010–2014 **B.A. Mathematics, Statistics**, *University of California, Berkeley*, Berkeley, CA.
Graduated with *Highest Honors*. Advisor: Jim Pitman.

Awards and honors

2015 Cambridge-Tübingen Ph.D. Fellowship

2014 Dorothea Klumpke Roberts Prize in Mathematics

2010–2014 Regents' and Chancellor's Scholarship (Top 0.5% of Applicants)

2013 Rose Hills Foundation Science & Engineering Grant

Research

9/2014–present **Stochastic Optimization**, *Harvard University*.
Currently studying stochastic gradient methods under a statistical framework with Professor Edoardo Airoldi. Paper under review for ICML 2015.

1/2014–5/2014 **Convex Optimization**, *University of California, Berkeley*.
Explored different algorithms to automate model selection in machine learning, reformulated as a constrained optimization problem, with Professor Ben Recht. Led to a research paper with theoretical results and simulations indicating that the proposed method achieves comparable performance to standard estimates which use cross validation.

8/2013–12/2013 **Numerical Linear Algebra**, *University of California, Berkeley*.
Examined randomized algorithms for low rank approximations under Professor John Strain. Analyzed their error, robustness, and speed compared to classical techniques such as SVD, QR, and Krylov subspace methods.

Publications

2. **Dustin Tran**, Panos Toulis, and Edoardo Airoldi. Stable and optimal: Implicit stochast gradient descent with averaging. Submitted, 2015.
1. **Dustin Tran**. Convex Techniques for Model Selection. Preprint arXiv:1411.7596 [math.OC], 2014.

Selected talks

- *Facebook: Tree-like Structure in Social and Information Networks*, Institute for Applied Computational Science Seminars, Cambridge, MA. November 2014.
- *Data Analysis in R*, CS 50 Seminars, Cambridge, MA. October 2014.
- *Detecting contagion in financial networks*, Spatial Networks Seminar, Berkeley, CA. December 2013.

Industry

5/2014–present **Data Scientist**, *Earnest*, San Francisco, CA.
Currently working part-time at startup, applying tools for feature learning in transactions data. Built the primary algorithm for loan decision-making, which predicts the risk of default for a loan applicant using ensemble methods. Developed the infrastructure for web reporting, which would be used for internal operations, business development, and marketing.

Teaching

Fall 2014 Teaching Fellow, **Numerical Methods** (Applied Math 205), *Harvard University*.

Spring 2013 Teaching Assistant, **Methods in Calculus, Statistics, Combinatorics** (Math 10B), *University of California, Berkeley*.

Summer 2011 Teaching Assistant, **Numerical Analysis** (Math 128A), *University of California, Berkeley*.

Programming

- Languages: Python (+numpy, +pandas, +sklearn), R, C++, JavaScript (+D3.js), {Ba,z}sh
- Software: Vim, Git, Hadoop, SQL
- Operating Systems: GNU/Linux, BSD