Dustin Tran

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Research interests

Stochastic approximations, Monte Carlo methods, variational inference, Bayesian statistics, network data.

Education

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

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

2010 Cal Alumni Leadership Scholarship

Research

9/2014–present **Stochastic Optimization**, *Harvard University*.
Currently studying stochastic gradient methods under a statistical framework with Professor Edoardo Airoldi. Examining principled estimation with large data sets, and information theoretic results. Paper in progress to be submitted to ICML (2015).

1/2014–5/2014 **Convex Optimization**, *Harvard University*.
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 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. Averaged implicit stochastic gradient descent (in progress).
1. **Dustin Tran**. Convex Techniques for Model Selection. Preprint `arXiv:1234.1234` [math.OC]. 2014.

Selected talks

- *Facebook: Tree-like Structure in Social and Information Networks*, Institute for Applied Computational Science Seminars, Cambridge, MA. November 2014.
- *Detecting contagion in financial networks*, Spatial Networks Seminar, Berkeley, CA. December 2013.
- *A Riemannian manifold setting for Hamiltonian Monte Carlo*, Riemannian Geometry course, Berkeley, CA. May 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, **Advanced Scientific Computing: 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