Dustin V. Tran

Contact Information

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Research Interests

Convex optimization, Monte Carlo methods, Bayesian nonparametrics, stochastic processes, network analysis

Education

Harvard University — 2014 – 2015 (Expected)

S.M., Computational Science and Engineering

- Graduate Coursework:
  Statistical Learning, Bayesian Data Analysis, Systems Development

University of California, Berkeley — 2010 – 2014

B.A. (Highest Honors), Mathematics, Statistics

- Graduate Coursework:
  Convex Optimization, Stochastic Processes, Numerical Analysis, Linear Models, Spatial Networks, Distributed Computing

Awards and Honors

- 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 Experience

Stochastic Optimization, Cambridge, MA — September 2014 – Present

- Currently studying stochastic gradient methods under a statistical framework with Prof. Edoardo Airoldi
- Examining principled estimation with large data sets, and information theoretic results

Convex Optimization, Berkeley, CA — January 2014 – May 2014

- Explored different algorithms to automate model selection in machine learning, particularly via solving the convex relaxation of the conditions, with Prof. Ben Recht
- Wrote a research paper entitled, "Convex Techniques for Model Selection"

Numerical Linear Algebra, Berkeley, CA — August 2013 – December 2013

- Examined randomized algorithms for low rank approximations under Prof. John Strain
- Analyzed their error, robustness, and speed compared to classical techniques such as SVD, QR, and Krylov subspace methods
- Explored parallel variants for distributed computing which would apply divide and conquer

Industry Experience

Data Scientist, **Earnest**, San Francisco, CA — May 2014 – Present

- Currently working part-time, 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

Talks & Presentations

[1] *Facebook: Tree-like Structure in Social and Information Networks*, Institute for Applied Computational Science Seminars, Cambridge, MA, November 21, 2014.

[2] *Data Analysis in R*, CS 50 Seminars, Cambridge, MA, November 13, 2014.

[3] *Detecting systemic risk in financial networks*, Stat 206A (Spatial Networks), Berkeley, CA, December 11, 2013.

Teaching Experience

Teaching Fellow, **Harvard University**, Cambridge, MA

- Applied Math 205 (Advanced Scientific Computing: Numerical Methods) — Fall 2014

Teaching Assistant, **University of California, Berkeley**, Berkeley, CA

- Math 10B (Methods: Calculus, Statistics, Combinatorics) — Spring 2013
- Math 128A (Numerical Analysis) — Summer 2011

Programming Skills

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