Dustin V. Tran

CONTACT Information Child Hall, RM 110

26 Everett Street, Cambridge, MA 02138

RESEARCH INTERESTS

Machine learning, Bayesian nonparametrics, convex optimization, Monte Carlo methods, stochastic processes, statistical inference

EDUCATION

Harvard University

2014 - 2015 (Expected)

E-mail: dtran@g.harvard.edu

Website: dustinvtran.com

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

Earnest, San Francisco, CA

Data Science Intern

May 2014 - August 2014

- Built an algorithm which predicts the risk of default for a loan applicant using statistical learning techniques
- Applied data/text mining tools in order to discover useful features in transactions data
- Built the entire infrastructure for web reporting, which would be used for internal operations, business development, and marketing

University of California, Berkeley, Berkeley, CA

Convex Optimization

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"

Statistical Computing

${\bf August~2013-December~2013}$

- Built an adaptive-rejection sampler which minimizes the number of function evaluations in order to approximate any log-concave probability density function
- Optimized runtime using Rcpp, plyr, reshape2, and other R subroutines
- Implemented unit testing in R along with revision control and following CRAN policies

Numerical Linear Algebra

${\bf August~2013-December~2013}$

- Examined randomized algorithms for performing 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

Talks & Presentations

- [1] Network structure and systemic risk in banking systems, Stat 206A (Spatial Networks), Berkeley, CA, December 11, 2013.
- [2] Holonomy, Math 240 (Riemannian Geometry), Berkeley, CA, May 7, 2013.
- [3] Products in cohomology and related examples, Math 215A (Algebraic Topology), Berkeley, CA, November 16, 2011.

TEACHING EXPERIENCE

Harvard University, Cambridge, MA

Teaching Fellow

September 2014 – Present

- Applied Math 205 (Advanced Scientific Computing: Numerical Methods)
 - Currently grading, holding office hours, and organizing course material

University of California, Berkeley, Berkeley, CA

Teaching Assistant

- Math 10B (Methods: Calculus, Statistics, Combinatorics)
 Developed the course material with Prof. Craig Evans
- Math 128A (Numerical Analysis)
 Graded and taught supplementary sections

Programming Skills

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