Dustin V. Tran

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RESEARCH INTERESTS Machine learning, algorithms, numerical analysis, convex optimization, nonparametrics, stochastic processes

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., Double Major in Mathematics with Highest Honors, Statistics

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

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, using both Python and R
- Applied data/text mining tools in order to find useful features in financial 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

Nonlinear Programming

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

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

- Designed an adaptive-rejection sampler for any log-concave probability density function, minimizing function calls under a team of three graduate statisticians
- Managed large databases using UNIX shell scripting, SQL, and computer networks
- Implemented formal testing software in R with revision control, following the official CRAN package guidelines with OOP methods

Numerical Linear Algebra

August 2013 - December 2013

- Examined applications to signal processing with fast Fourier transforms under Prof. John Strain
- Analyzed conditioning and stability of iterative solvers, e.g., conjugate gradient and GMRES, and drew comparisons to direct methods
- Explored modern decomposition methods for parallel computing which apply divide and conquer techniques

Talks & Presentations

- [1] Detecting systemic risk in financial networks, 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