

TIN NGUYEN

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WORK EXPERIENCE

Quantbot Technologies, LP

Quantitative Researcher

June 2024 - present
New York, NY

- Develop, deploy, and monitor systematic trading strategies.

Massachusetts Institute of Technology

Research Assistant

August 2018 - May 2024
Cambridge, MA

- Improved the runtime of Markov chain Monte Carlo algorithms for Bayesian clustering models without sacrificing accuracy.
- Derived fast and accurate approximations for Bayesian nonparametric models used in unsupervised learning.
- Detected influential data points whose omission significantly change the posterior distribution of Bayesian parametric models.

INTERNSHIPS

Quantbot Technologies, LP

Intern

May 2023 - August 2023
New York, NY

- Prototyped a reinforcement-learning-based approach to dynamically switch between expert systems.
- Designed machine learning algorithms to measure feature importance and discover feature interactions.
- Showed through backtests that important features and feature interactions add value to existing trading strategies.

IBM Research

Research Intern

June 2019 - August 2019 & June 2022 - August 2022
Cambridge, MA

- Designed approximate leave-one-out cross-validation in hidden Markov models and conditional random fields.
- Reduced the runtime by 2 orders of magnitude, while giving highly accurate estimate of cross-validation error metric.
- Constructed hypothesis test to determine if a parametric specification contains the data-generating process.
- Applied test to features learned from multi-layer perceptron and convolutional neural networks.

EDUCATION

Massachusetts Institute of Technology

Doctor of Philosophy in Electrical Engineering and Computer Science

August 2018 - May 2024
Cambridge, MA

- Thesis: Computational Methods and Sensitivity Detection for Bayesian Nonparametrics and Unsupervised Learning
- Completed en route Master's degree in June 2020
- Coursework: Bayesian Modeling and Inference, Automatic Speech Recognition

Princeton University

Bachelor of Science in Engineering in Operations Research and Financial Engineering

August 2014 - May 2018
Princeton, NJ

- Thesis: Novel results on computational methods for polynomial optimization.
- Coursework: Machine Learning and Pattern Recognition, Neural Networks: Theory and Applications.

SKILLS

Statistics Generalized linear models, Bayesian inference, hypothesis testing, bootstrap, Markov chain Monte Carlo.

Machine Learning Tree-based models, neural networks, Gaussian processes, Bayesian nonparametrics, clustering, factor analysis.

Operations Research Linear programming, convex optimization, queuing theory, stochastic processes, Black-Scholes formula.

Software Python (scikit-learn, pandas, matplotlib, pytorch), R (ggplot2, lme4, stan, dplyr), slurm, sge, bash.

Technical Communication Peer-reviewed publications, technical reports, conference posters, conference presentations.

OTHER

Fellowships MIT EECS Great Educators Fellow (2018).

Presentations Oral presentation at the 25th International Conference on Artificial Intelligence and Statistics (AISTATS) on "Many Processors, Little Time: MCMC for partitions via optimal transport couplings."

Memberships Inducted to Tau Beta Pi (2017).

Theses Proctor and Gamble Prize for best thesis in Operations Research (2018). Calvin Dodd McCracken Senior Thesis Award.