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– Tianyi "Tai" Cai, PhD –

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Summary

Profile · Experienced Data Scientist and Statistician working at the intersection of applied statistics, machine learning, research science, software engineering, and product management

Areas of Expertise
· Data-driven software products and features put in production through cross-functional collaboration
· Applied machine learning (data preparation, classification, regression, clustering, visualizations)
· Bayesian statistics (causal inference, hierarchical models, model selection, nonparametric methods)
· Classical statistics (experimentation, statistical learning, mixed models, time series)

Current interests · Statistical properties of machine learning methods, causal inference, ProjectEuler+

Frequently used · Python, R, SQL, Spark, Jupyter Notebook, Amazon S3, Amazon EC2, Vim, LaTeX

Used as necessary · Tensorflow, Keras, Java, C++, HTML, CSS, Javascript

Experience

Senior Data Scientist, BitSight *Boston MA* 10/2017–Present

· Oversee all data science projects for third-party cybersecurity risk management through designing metrics, researching methods, building prototypes, writing and reviewing production code, and communicating results to stakeholders
· Shipped multiple new software products and features (including 1 patent pending), working as the sole data scientist in collaboration with engineering, product, customer success, marketing, and sales teams
· Designed observational studies to evaluate the association and causality of relationships pertaining to efficacy of products, impact of extraneous events, and influence of internal interventions
· Supervised Master's-level intern working on 1. validation of external financial data and 2. sales and marketing analytics
· Led reading groups covering advanced topics in forecasting methods, prediction intervals, and model evaluation metrics
· Promoted from Data Scientist on 02/2019 for exceeding expectations across all major projects

Technical Advisor, Alumni Mentor, Data Science Fellow, Insight Data Science *Boston MA* 05/2017–09/2019

· (As Technical Advisor) Mentored data science projects for 4 PhD graduates and postdoctoral fellows by providing weekly 1-on-1 feedback on project ideation/viability, data considerations, modeling techniques, and communication skills
· (As Alumni Mentor) Conducted mock interviews covering computer science, machine learning, statistics, and case studies
· (As Data Science Fellow) Consolidated and cleaned multiple data sources to tally millions of labeled data points to predict and visualize real-time supply and demand for Hubway bikes at 200 bike-sharing stations

PhD Student, Research Assistant, Harvard University *Cambridge MA* 08/2012–09/2017

· Conducted original statistical research on applied problems in genetics, health care policy, and end-of-life care
· Developed novel R code for handling datasets with complexities such as sampling bias, misclassified outcomes, correlated outcomes, hierarchical structures, and confounding
· Taught graduate-level classes with topics ranging from introductory statistics to seminar topics in Bayesian nonparametrics, decision theory, and sequential methods
· Selected to tutor fellow PhD students for the biostatistics written qualifying exam

Full-time Co-op Work Semesters, University of Waterloo *Waterloo ON* 05/2008–12/2011

· Completed six semesters (two years) of full-time work at Munich Re, Manulife, Hewitt Associates, and Logitech
· Applied statistical and actuarial methods to problems in biometric research, enterprise risk management, segregated fund valuation, group benefits pricing, pension administration, and database analysis

Education

PhD, Biostatistics, Harvard University *Cambridge MA* 2017

· Thesis: Statistical Methods for the Analysis of Observational Data with Multiple Correlated Outcomes

Bachelor of Mathematics, University of Waterloo *Waterloo ON* 2012

· Honours Actuarial Science/Finance Option, Honours Statistics
· Graduated with Distinction - Dean's Honours List

Deep Learning Specialization, deeplearning.ai *Coursera* 2018

Associate of the Society of Actuaries, Society of Actuaries *Schaumburg IL* 2012