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– Tai Cai, PhD –

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Summary

Profile
- Quantitative scientist working at the intersection of applied statistics, machine learning, research science, software engineering, and product management

Areas of Expertise
- Cross-functional collaboration to productionize/engineer data-driven products and features
- Bayesian statistics (causal inference, hierarchical models, model selection, nonparametric methods)
- Classical statistics (statistical learning, experimental design, mixed models, time series)
- Deep learning (artificial/recurrent/convolutional neural networks)

Frequently Used
- Python, Tensorflow, Keras, LightGBM, R, SQL, Spark, jupyter, Vim, LaTeX

Sometimes Used
- Java, C++, HTML, CSS, Javascript

Experience

Senior Research Data Scientist, Infrastructure Quantitative Engineering ***Facebook***, *New York, NY* 02/2021–Present
- Onboarding for the artificial intelligence infrastructure team

Data Scientist II, Global Intelligence ***Uber***, *San Francisco, CA* 01/2020–02/2021
- Estimated point and interval values of competitive intelligence metrics used in executive decision-making
- Engineered an ensemble of predictive models using internal and third-party data to identify rare user groups for multi-million dollar experiments; improved legacy model performance by a factor of 2
- Analyzed the aforementioned experiments to identify statistically significant metrics, and dissected the limitations of the existing experimental design to improve future allocation of resources
- Identified and corrected multiple errors and inefficiencies found in the team repository, ranging from production code to deliverables used by stakeholders

Senior Data Scientist, Data and Research ***BitSight***, *Boston, MA* 10/2017–01/2020
- Led all data science projects for third-party cybersecurity risk management, including:
  - Tier Recommender: BitSight's first machine learning based product that leverages unique network data
  - Enterprise Analytics: a product that computes and evaluates hypothetical risk scenarios for corporations
  - Fourth-Party Risk Management: a tool that provides visibility into business ecosystems
- 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/marketing analytics
- Organized reading groups covering advanced topics in forecasting, prediction intervals, and model evaluation

Technical Advisor, Data Science Fellow ***Insight Data Science***, *Boston, MA* 05/2017–09/2019
- As Technical Advisor: mentored data science projects for PhD graduates and postdoctoral fellows by providing weekly 1-on-1 feedback on project ideation/viability, data considerations, modeling techniques, and communication skills
- 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 at 200 bike-sharing stations

Education

PhD, Biostatistics ***Harvard University***, *Cambridge, MA* 08/2012–09/2017
- Conducted and published statistical research on applied problems in genetics, health care policy, and end-of-life care
- Developed novel methods and R code for handling sampling bias, misclassified outcomes, correlated outcomes, intractable cross-validation, hierarchical structures, and confounding
- Taught graduate-level classes in introductory statistics/epidemiology, statistical methods, and Bayesian statistics

BMath, Statistics and Actuarial Science ***University of Waterloo***, *Waterloo, ON, Canada* 09/2007–06/2012
- Graduated with Distinction - Dean's Honours List (Highest Honors)
- Completed six work semesters at Logitech, Hewitt Associates (now Blackstone), Manulife Financial, and Munich Re
- René Descartes National Scholar