Tayler A. Blake

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Education

May 2018 **Ph.D. Statistics**, *The Ohio State University*, Columbus, Ohio.
Advisor: Yoonkyung Lee

January 2010 **M.S. Statistics**, *The Ohio State University*, Columbus, Ohio.

May 2007 **B.A. Mathematics, Computer Science**, *Capital University*, Columbus, Ohio.

Experience

Senior Research Scientist

Immuta, *Columbus, OH.*

September 2020-present Member of researcher team driving feature development for data access and governance software. Lead research and product development of a comprehensive policy-agnostic disclosure risk and utility measurement framework for facilitation of automating privacy policy recommendations for maximum data utility for given disclosure risk tolerance levels.

Lead efforts in designing and prototyping performance testing for the Immuta/Databricks native integration.

Data Scientist

Redjack, *Columbus, OH.*

September 2019-September 2020 Consulting data scientist supporting federal government cyber defense efforts. Leveraged supervised machine learning techniques to identify spam email campaigns, specifically exploratory data analysis techniques for random forests to understand the best features for discriminating between spam and non-spam emails.

Data Scientist

Root Insurance, *Columbus, OH.*

April 2019-Septemer 2019 Data scientist supporting teams responsible for customer acquisition and development of pricing plans. Designs and analyzes A/B tests and develops conversion and retention models. Such models serve to forecast the impact of changes in pricing methodologies on KPIs which measure the fundamental health of the business, including loss ratio and total bound premium. Integrates with product teams and actuaries at every stage of the data science life cycle, from problem formulation and data collection to model deployment and communication of insights generated from analysis.

Senior Data Scientist

Information Control Company, *Columbus, OH.*

January 2017-March 2019 Consultant serving as a senior data scientist, leading data science team members alongside delivery team members and data engineers. Responsible for planning, designing, and executing analytical plans to address business questions for a variety of clients across several business verticals.

Internally at ICC, contributes to Advanced Analytics development seminars and heads the Advanced Analytics journal club, curating current literature in statistics, data science, and machine learning and leading discussions about the content and possible application to ICC client problems.

Machine Learning Specialist

Pillar Technology, *Columbus, OH.*

February 2016-December 2016

Machine learning specialist on a team responsible for designing and developing adaptive software for an IoT product to be embedded in a line of luxury vehicles. Responsible for setting expectations given the available resources such as data, available in-device storage space, and computational constraints with both internal team and with the client.

Challenged to design and implement predictive algorithms in the absence of data a priori. Had to outline the risk presented by an imbalance between bias and stability of statistical estimates and predictions, particularly with respect to the impact on user experience. Used techniques for automatic variable and model selection to ensure that algorithms adapted appropriately over time and with additional training data. Followed work from end to end, from writing exploratory analysis to production-level implementation alongside developers using Agile best practices. Implemented methodologies in Scala and Java with a strong emphasis on test-driven development.

Spearheaded components of project planning pertaining to data and the corresponding infrastructure necessary for data collection, storage, and modeling at scale. Lead efforts to establish client trust in data modeling and algorithms, a new operating space for Pillar.

Data Scientist

Store Development, Starbucks Coffee Company, *Seattle, WA.*

May 2014 - November 2015

Data scientist on a team serving the company in market planning and strategy. Utilized a variety of statistical and machine learning methods, both supervised and unsupervised such as penalized regression and classification, generalized linear models, ensemble methods including boosting, bagging, and random forests, with applications of the latter to both classification and clustering.

Estimated causal impact of a variety of interventions, such as competitor store openings, pricing changes, or new product launches on store performance using Bayesian structural time series models and summarizes comparisons between this methodology and prior approaches, including the traditional difference-in-differences estimators.

Cleaned and analyzed heterogeneous data from several different sources having both potential spatial and temporal components which pose challenges in aggregation and summarization.

Adjunct Statistics Instructor

Department of Mathematics, Columbus State Community College, *Columbus, Ohio.*

August 2013 - January 2014

Lecturer for an introductory statistics course for undergraduate students, Statistics 1350. Non-instruction responsibilities included curriculum and assessment development, including lecture presentations and online learning tools and learning assessments.

Graduate Research Assistant

Comprehensive Cancer Center, The Ohio State University, *Columbus, Ohio.*

October 2011 - August 2012 My responsibilities included analysis of large microarray data sets, in particular utilizing data mining and dimension reduction techniques to find genetic markers in leukemic patients, sharing results and collaborating with medical professionals to both direct further laboratory investigation as well as further statistical investigation.

Graduate Research Assistant

Nationwide Center for Advanced Customer Insights, The Ohio State University, Nationwide Insurance, *Columbus, Ohio.*

June 2010 - June 2011 My responsibilities included work on projects modeling agency behavior using high dimensional demographic and marketing data, specifically by modeling survival times using Cox proportional hazards models with both static and time-varying coefficients. Modeling was done with an emphasis on building parsimonious, interpretable models. I was responsible for presenting results in a corporate setting to high level company executives with motive to encourage and motivate business decisions and action.

Graduate Teaching Assistant

Department of Statistics, The Ohio State University, *Columbus, Ohio.*

August 2007 - May 2014 Lecturer for a statistics course for undergraduate engineering students, Statistics 427.

Lecturer for an introductory statistics course, Statistics 145 and a statistics courses for undergraduate engineering students, Statistics 427 and 3470.

Lab instructor for an introductory statistics course, Statistics 145, 245, 133, and 2480.

Research Interests

My research interests include nonparametric function estimation, particularly utilizing reproducing kernel Hilbert space methods; my dissertation work focuses on nonparametric estimation of large covariance matrices through the estimation of covariance functions, specifically in the case of irregularly spaced and sparsely sampled data. We propose an estimation framework with unconstrained optimization through a specific decomposition of a covariance matrix. This parameterization renders covariance estimation as the estimation of a varying coefficient regression model, which allows us access to machinery typically used in the classic function estimation setting for estimating a positive definite covariance matrix.

Computing Skills

Statistical/Analysis Software: R, RMarkdown, R Shiny, SparkR, basic knowledge of Apache Spark

Programming Languages: MySQL, PostgreSQL, basic knowledge of Python and HTML

Proficient in Git and version control, MS Office, LaTeX, project management software including Jira and Confluence

Presentations

August 2018 Joint Statistical Meetings *Smoothing spline ANOVA models for nonparametric covariance estimation for longitudinal data*

August 2017 Joint Statistical Meetings *Nonparametric covariance estimation for longitudinal data via tensor product smoothing*

October 2016 Wards Auto User Experience Conference *The Machines Are Coming: Will Algorithms Replace Designers in the UX World?*

August 2012 Joint Statistical Meetings *Nonparametric Covariance Estimation for Functional Data with Shrinkage Toward Stationary Models*

Honors and Awards

June 2010 Ohio State University Department of Statistics Teaching Assistant of the Year Nominee

June 2009 Ohio State University Department of Statistics Teaching Assistant of the Year

June 2008 Ohio State University Department of Statistics Teaching Assistant of the Year Nominee

Service

2007 - 2014 **Member, Graduate Recruitment Committee**, *Department of Statistics, The Ohio State University*.

2007 - 2012 **Chair, Graduate Recruitment Committee**, *Department of Statistics, The Ohio State University*.

Hobbies and Interests

Competitive distance running, cooking, baking, reading, practicing yoga

References

Available upon Request