Harris Quach

Statistics · PhD Student

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A curious statistician looking to tackle challenging statistical problems by developing collaborative data-driven solutions. Proficient in generalized linear models, sufficient dimension reduction, likelihood and simulation-based inference. Working knowledge of hypothesis testing, mixed linear models, non-parametrics, Bayesian statistics, statistical computing. Rudimentary knowledge of machine learning methods, penalization for high-dimensional data, graphical models, functional data, empirical processes, learning theory, and time series models.

Education

PhD in Statistics, The Pennsylvania State University, 3.88/4.0 GPA — *2016 - Present*

Advisor: Dr. Bing Li, Verne M. Willaman Professor of Statistics

M.Sc. in Statistics, University of Toronto, 3.93/4.0 GPA — *2015 - 2016*

Research Assistant: Worked with Dr. Nancy Reid, Canada Research Chair, on Indirect Inference and Approximate Bayesian Computation

M.A. in Economics, University of Toronto, 3.66/4.0 GPA — *2014 - 2015*

B.Sc.in Mathematics, University of Toronto, 3.72/4.0 GPA — *2009 - 2014*

Research Assistant: Worked with Dr. Nancy Reid, Canada Research Chair, on Conditional Inference for air particulate matter

Research & Projects

Sufficient Dimension Reduction for Multinomial Response — *Ongoing*

R, Classification, GLM, Bootstrapping, Parallel Computing, HPC

- Developing a method for sufficient dimension reduction with a focus on multinomial response; applications focus on classification of ordinal and categorical response

Sufficient Dimension Reduction for Approximate Bayesian Computation — *Fall 2018*

R, MCMC, Approximate Likelihoods, Simulation Inference, Parallel Computing, HPC

- Explored using sufficient dimension reduction to construct informative summary statistics, in parallel, for simulated inference and Approximate Bayesian Computation via MCMC

Optimal Transport for Sufficient Dimension Reduction — *Fall 2017*

MATLAB, Copulas

- Explored applying optimal transport methods for remedying distributional violations in applications of inverse regression for sufficient dimension reduction

Presentations

Accurate Confidence Intervals for Clustered Data and Small Samples — *2017*

The Annual Statistical Society of Canada Conference. Meeting (Winnipeg, Canada). (Oral Presentation accepted; Masters Work)

An Investigation of Composite Likelihood and Indirect Inference — *2016*

The 4th Annual Statistical Society of Canada Student Conference. Meeting (St. Catherines, Canada). (Poster Presentation; Masters Work)

Professional & Related Experience

Instructor, The Pennsylvania State University — *May 2018 - Ongoing*

- Instructor of record for Introductory Probability (STAT414 World Campus), Elementary Statistics (STAT200), Elementary Probability (STAT318); develop materials for conducting inverted and conventional lectures

Graduate Student Consultant, The Pennsylvania State University — *Spring 2019, Fall 2017*

- Advised undergraduate, graduate and faculty researchers at the statistical consulting center;
- Advised projects include: *posterior predictive models for personalized athlete training; variable selection for protein folding; nonlinear regression for errors in chemical processes*

Programming Skills

Proficient: R, LaTeX

Basic: MATLAB, Python, C++ (via Rcpp), Linux, MS Office