Yijun Xie

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Summary of qualifications

- Research experience in functional data analysis, machine learning, time series, and risk management.
- Collaboration experience with researchers in various disciplines from statistics department to law school, as well as practitioners from industry.
- Proficient in Python, including Tensorflow and Pytorch.
- Proficient in statistical software such as R, SQL.

Education

University of Waterloo

Ph.D. in Statistics | Expected May 2021
Department of Statistics and Actuarial Science
Faculty of Mathematics
GPA: 91.3 / 100

University of British Columbia

Master of Science | May 2017
Department of Statistics
Faculty of Science
GPA: 87 / 100

University of Notre Dame

BSc *cum laude* | May 2015
Department of Applied and Computational Mathematics ans Statistics
College of Science
Cumulative GPA: 3.84 / 4

Selected Coursework

- Data Mining
- Bootstrapping
- Mathematical/Computer Modeling
- Bayesian Statistics
- Extreme Value Theory
- Stochastic Analysis
- Time Series Analysis
- Robust Statistics
- Mathematical Finance
- Statistical Consulting

Awards

- SAS Chairs Award 2018
- 2018 Statistical Society of Canada Annual Meeting Best Poster Presentation Award 2018
- UWGS Scholarship 2017, 2018
- University of Waterloo Graduate Entrance Award 2017
- 2016 Statistical Society of Canada Annual Meeting Student Travel Award 2016

Research Projects

Functional Normality Test

- Proposed a new approach to test the normality of functional data.
- Innovated an efficient projection pursuit procedure for high dimensional objects.
- Designed a fast optimization algorithm for flexible choices of objective functions on an unit sphere with arbitrary dimension.
- A research paper is ready for submission.

Change Point Detection

- Developed a clustering framework that only requires pairwise distance for elements in a pseudometric space.
- Proposed an unsupervised clustering algorithm based on a modified self-organizing map (SOM) for the space described above.
- Applied this algorithm to detect change points in time series. Achieved significant improvement in speed with similar accuracy compared with traditional methods.

Seasonal Effect Adjustment

- Collaborated with Statistics Canada, Canada's national statistical agency, to analyze employment data.
- Improved the existing method for adjusting seasonal effect.
- Developed new method for better modeling employment rate and smoothing collected data.

Autoregressive Stochastic Volatility Model Inference

- Proposed an adapted MCMC algorithm for Bayesian inference of parameters in Autoregressive Stochastic Volatility Model.
- Applied this new algorithm to forecast Value-at-Risk and Conditional Value-at-Risk.
- Completed my master thesis in risk management and extreme value theory.