XIAOYU (Summer) LIU

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Core Qualification

- Hands-on programming languages: Excel VBA, R, SAS, SQL, Matlab, Python and Maple
- Machine Learning algorithms: Neural Network, SVM and K-means algorithm, Random Forest
- Regression techniques: Generalized Linear Model, logistic regression, polynomial regression, stepwise regression etc.
- Analytical and problem solving skills demonstrated through many projects done well in statistical courses
- Interpersonal communication skills achieved through 8 months Teaching Assistant at University of Waterloo
- Capacity to quickly self-learning new concepts proven by assisting a friend working in one of the largest banks in Canada to convert data from wide format to long format by using macro and Excel VBA code

Experience

Centre for Computational Mathematics in Industry and Commerce, UW — *May. 2017 - Aug. 2017*
Research Assistant — *(Waterloo, ON)*

- Optimized the algorithm for computing Hermite form of integer matrix under supervision, and derived cost to prove the algorithm to be competitive with currently prevailing algorithms both in requirements of time and in requirements of space.
- Implemented our developed algorithms in Maple code and test the cost and storage requirements for fairly large integer matrices, and our algorithm preforms far better than the algorithm in the package for computing Hermite Form in Maple 16.
- Constituted report paper on the structure of optimized algorithm, presented main idea and primary. (https://uwaterloo.ca/computational-mathematics/sites/ca.computational-mathematics/files/uploads/files/xiaoyu_liu_0.pdf)
- Received outstanding performance evaluation, commended for clear structure and well prepared materials of presentation.

Department of Statistical and Actuarial Science, UWO — *May. 2015 - Aug. 2015*
Research Assistant — *(London, ON)*

- Used Generalized Addictive Models and cross-validation to build predictive model with appropriate number of predictors.
- Conducted research on the correlations between water quality (per millimetre) of White Lake (Ontario) and various factors.
- Composed a comprehensive report on the models, achieved 93.3% accuracy on testing group.
- Received outstanding performance evaluation, commended for self-study and research abilities.

Chinanx Financial Services (*http://www.chinanx.com.cn/*) — *May. 2014 - Aug. 2014*
Assistant to Department of Training — *(Tianjin, China)*

- Assisted HR Manager to train new sales staff, independently prepared training session notes, arranged course schedules, and participated in building the test system, enhance the efficiency by saving 1-2 hours/training session.
- Trained new employees on financial mathematics, i.e. calculations of products return and margin, the core concepts of risk management, and the regulations on diversification of credit risk, enhanced test performance by increasing trainee score 10%.
- Conducted a competitor analysis comparing products of P2P lending companies including LendingClub and CreditEase.
- Received outstanding performance evaluation, was offered full time position upon graduation.

Education

University of Waterloo — *Sep. 2016 - Aug. 2017*

- Master of Computational Mathematics — *(Waterloo, ON)*
- Core courses: Data visualization, Function Estimation, Computational Inference, Fundamentals of Optimization
- 8-month Teaching Assistant, including classes of Calculus I, Calculus II and Data visualization

Western University — *Sep. 2013 - Jun. 2016*

- Honors Specialization in Financial Modelling and Major in Applied Mathematical Methods — *(London, ON)*
- Core courses: Intermediate Probability, Mathematical Statistics, Linear Regression, Markov Chain and Queueing Theory, Time Series, Data Analysis in SAS, Statistical Programming in R, Advanced Financial Modelling, Mathematics of Financial Modelling, Financial Markets and Investment, Corporate Finance, Mathematics of Finance, Numerical Analysis in Matlab.

Relevant Projects

- Portfolio Optimization with R: *Compared the changes in stock weights using the real and estimated parameters (returns and volatilities of stocks in portfolio).*
- Regression analysis with SAS: *Conducted regression analysis to predict missing data in an incomplete dataset from 2007 World Health Organization.*
- Numerical Analysis with Python : *Compared the analytical and numerical solutions, and used Monte Carlo Simulation to solve ODE and integration problems*