WEIWEI (WILLIAM) KONG

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Education

Doctor of Philosophy Candidate August 2016 – Present
Georgia Institute of Technology, Atlanta GA, USA

Major in Operations Research, *Minor* in Computer Science

Relevant Courses: Linear Optimization, Discrete Optimization, Nonlinear Optimization, Stochastic Processes I & II, Algorithms and Computability, Computational Data Analysis

Bachelor of Mathematics September 2010 – December 2014
University of Waterloo, Waterloo ON, Canada

Majors in Professional Risk Management and Mathematical Finance, *Minor* in Statistics

Relevant Courses: Forecasting, Theoretical ODEs and PDEs, Measure Theory, Advanced Optimization, Databases, Deterministic Operations Research Models, Numerical Methods for PDEs

Work Experience

Graduate Research Assistant January 2017 – Present
Georgia Institute of Technology, Atlanta GA, USA

- Investigating applications of Nesterov's accelerated gradient method and ε-approximate subdifferential algorithms in constructing efficient optimization algorithms for nonconvex L-smooth functions
- Formulating an inexact proximal point method for use in unconstrained nonconvex optimization
- Developing *MATLAB* code for unconstrained and constrained inexact proximal point methods

Graduate Teaching Assistant September 2016 – Present
Georgia Institute of Technology, Atlanta GA, USA

- Teaching assistant for three courses, Fall 2016 Probability with Applications (undergraduate level), Fall 2017 Linear Optimization (PhD level), and Spring 2018 Linear Optimization (PhD level)
- Developed homework answer keys and solution code packages
- Marked bi-weekly assignments and held office hours to review assignments and classroom material

Senior Risk Modeling Analyst January 2015 – August 2017
TD Bank Financial Group, Toronto ON, Canada

- Validated credit risk models using *SAS* and *R* on datasets between 1 to 100 million observations
- Developed a retail credit risk stress testing framework for several regulatory stress tests including OSFI MST and Basel EWST
- Created and programmed a competing-risks multinomial modeling framework with differing risk drivers for each decrement with another analyst for US CCAR retail credit risk quantification
- Pioneered a logistic regression variable selection method based on mutual information and variable effect maximization with another analyst

Risk Modeling Analyst (Co-op) September 2013 – December 2013
TD Bank Financial Group, Toronto ON, Canada May 2014 – August 2014

- Validated and audited internal credit risk models using *SAS* and *R*
- Developed custom benchmark models and numerical algorithms to test the validity of Basel II and Basel III AIRB retail risk-metrics using time series analysis and *R*
- Programmed production-ready code and macroeconomic models in *SAS* and *R* for use in Basel II and Dodd-Frank Act risk reporting as well as internal and regulatory retail credit risk stress tests

Enterprise Risk Management Analyst (Co-op) January 2013 – April 2013
TD Bank Financial Group, Toronto ON, Canada

- Developed an interactive business intelligence dashboard, programmed in *SQL* and Tableau
- Programmed *VBA* macros to optimize several periodic risk reports by up to 61% and 99% in time and memory efficiency respectively
- Programmed *R* scripts to validate and transform monthly data used in TD's front end risk metrics

Programming Languages

- Natively spoken SAS, R, SQL, and Haskell
- Experience with MATLAB, C/C^{++}, Gurobi, Git, UNIX, and LaTeX
- Dabbled in VBA, Python, Julia, IBM OPL, CPLEX, and Scheme / Lisp

Projects

Project Euler Competitor January 2013 – Present
- Competing in an international mathematics and computer science problem repository
- Ranked in the top 5% using the programming language *Haskell*

Vertex Cover Algorithms December 2017
- Developed an efficient Branch-and-Bound method in C^{++} for an algorithms class project and won first place in the project competition for the Branch-and-Bound category

Data Mining Algorithm July 2012
- Programmed a data miner in *VBA* to mine pension valuation rates from the Bank of Canada

Awards

- Thomas Johnson Fellowship 2016 – 2018
- Queen Elizabeth II Aiming for the Top Scholarship 2010 – 2014
- Waterloo President's Scholarship 2010

Activities & Interests

Member, Georgia Tech Hapkido Club 2016 – Present
Grader for Applied Real Analysis, University of Waterloo 2014
President, UW Mathematical Finance Student Association 2014
VP of Finance, UW Mathematical Finance Student Association 2013 – 2014