WEIWEI (WILLIAM) KONG

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Education

PhD Candidate in Operations Research   Aug. 2016 – Present
Georgia Institute of Technology, Atlanta GA, USA

Relevant Courses: Linear Optimization, Discrete Optimization, Advanced Nonlinear Optimization, Stochastic Processes, Convex Analysis, Simulation Theory, Algorithms for Continuous Optimization

Master of Computational Science and Engineering   May 2018 – May 2019
Georgia Institute of Technology, Atlanta GA, USA

Relevant Courses: Algorithms & Computability, High Performance Computing, Numerical Linear Algebra, Iterative Methods for Systems of Equations, Computational Data Analysis

Bachelor of Mathematics   Sept. 2010 – Dec. 2014
University of Waterloo, Waterloo ON, Canada

Relevant Courses: Statistical Forecasting, Ordinary & Partial Differential Equations, Real Analysis, Measure Theory, Advanced Optimization, Databases, Numerical Methods for Partial Differential Equations

Work Experience

Graduate Research Assistant   Sept. 2016 – Present
Georgia Institute of Technology, Atlanta GA, USA

- » Published two journal papers (SIOPT & COAP) and one conference paper (ICLR), presented in one conference as an invited speaker (INFORMS), and submitted two additional research papers.
- » Investigating and implementing *MATLAB* code for several classes of nonconvex optimization problems.

Research Intern @ Google AI   May 2019 – July 2019
Google LLC, Mountain View CA, USA

- » Received a Google Peer Bonus for significant improvements to the Google codebase, the development of several new programming tools, and detailed code documentations and guides.
- » Submitted a paper for NEURIPS 2020 on optimization theory and multilabel classification.

Software Engineering Intern @ Google AI   May 2018 – July 2018
Google LLC, Mountain View CA, USA

- » Published and presented a paper in ICLR 2019 on using reinforcement learning to solve difficult online optimization problems.
- » Developed an efficient reinforcement learning framework in *C++*, *Python*, and *Tensorflow* that was accepted into Google's codebase.

Senior Risk Modeling Analyst   Jan. 2015 – Aug. 2017
TD Bank Financial Group, Toronto ON, Canada

- » Pioneered a new logistic regression variable selection method based on mutual information and variable effect maximization.
- » Optimized several existing production macros and user-designed functions in SAS resulting in many processes to decrease from 1 day of runtime to 1 hour of runtime.

Risk Modeling Analyst   Sept. 2013 – Aug. 2014
TD Bank Financial Group, Toronto ON, Canada
  » Created 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.
  » 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*.

Enterprise Risk Management Analyst   Jan. 2013 – Apr. 2013
TD Bank Financial Group, Toronto ON, Canada
  » Created *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.

Defined Benefits Pension Analyst   Apr. 2012 – Aug. 2012
Morneau Shepell, Toronto ON
  » Improved existing spreadsheets using *VBA* by up to 40% in time efficiency.
  » Calculated and analyzed actuarial valuations of pension figures for 4 teams spanning 8 companies.

Projects

Project Euler Competitor   2013 – 2020
  » Ranked in the top 5% using the programming language *Haskell*.
Vertex Cover Algorithms   2017
  » Won first place for a C++ algorithms class competition in the Branch-and-Bound category.
UW Course Evaluation API   2015
  » Created a web API in *R* to view course evaluations from the University of Waterloo.
Data Mining Algorithm   2012
  » Programmed a data miner in *VBA* to mine pension valuation rates from the Bank of Canada.
Vanilla Options Simulator   2011
  » Programmed an options simulator in Python using Monte Carlo methods.

Programming Experience

  » Proficient in *Python, C++, MATLAB,* and *Gurobi*.
  » Experience with *R, SAS, Haskell, Git, UNIX, Condor, SQL,* and *LaTeX*.
  » Dabbled in *Julia, IBM OPL, CPLEX,* and *Scheme/Lisp*.

Awards

  » NSERC Postgraduate Scholarship (Doctoral Level)   2018 – 2021
  » Georgia Tech ISyE Travel Award (Doctoral Level)   2019
  » Thomas Johnson Fellowship   2016 – 2018
  » Queen Elizabeth II Aiming for the Top Scholarship   2010 – 2014
  » Waterloo President's Scholarship   2010

Activities & Interests

  » *Senior Member*, Georgia Tech Hapkido Club   2016 – 2020
  » *President*, UW Mathematical Finance Student Association   2014
  » *Vice-President of Finance*, UW Mathematical Finance Student Association 2013 – 2014