Jasper Zhu

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Education

University of Waterloo — Waterloo, ON
Candidate for Bachelor of Mathematics — Sept 2016 – Present

- **Majors:** Statistics, Combinatorics & Optimization; **Minor**: Pure Mathematics
- **Cumulative Average:** 94.32%
- **Awards:** President's Scholarship with Distinction, Faculty of Mathematics Scholarship, NSERC Undergraduate Student Research Awards

Professional Experience

SAP Canada — Waterloo, ON
Database Researcher and Developer | SAP IQ — Sept 2020 – Present

- Developed SQL queries to incrementally maintain materialized views given changes in multiple base tables, without recomputing the entire view
- Currently adding a feature to SAP IQ using C++, which, given any materialized view definition, will generate SQL triggers that automatically support incremental maintenance

University of Waterloo — Waterloo, ON
Undergraduate Research Assistant | Department of Combinatorics & Optimization — May 2020 – Aug 2020

- Co-Authored a paper titled "An Improved Approximation Algorithm for the Matching Augmentation Problem", which gives an approximation guarantee of 5/3, improving on the previously best-known factor of 7/4

University of Waterloo — Waterloo, ON
Undergraduate Research Assistant | Department of Statistics and Actuarial Science — Sept 2019 – Dec 2019

- Developed a novel Monte Carlo algorithm for American option pricing, using local polynomial regression to estimate optimal early exercise times
- Implemented our pricing procedure in R, and identified assumptions in which the algorithm converges in probability to the true American option price

Munich American Reassurance Company — New York, NY
Actuarial Co-op | Corporate Modeling — Sept 2018 – Dec 2018

- Built an Excel/VBA tool to automatically combine thousands of assumption tables under an hour to match new policy groupings within a consolidated model
- Independently learned Datalink syntax to add an existing GGY Axis Individual Life model into a consolidated model within two weeks, adding measures to not count policies twice despite overlap in reinsurance treaties

Ernst & Young LLP — Toronto, ON
Actuarial Intern | Insurance and Actuarial Advisory Services — May 2017 – Aug 2017 | Jan 2018 – Apr 2018

- Implemented actuarial methods such as the Chain-Ladder and Bornhuetter-Ferguson reserving techniques to estimate liabilities for numerous property and casualty insurers during a fast-paced year-end environment
- Developed macros in VBA with ICRFS scripts to automatically transfer data from Excel into stochastic loss models, reducing the transfer time by approximately 95%

Relevant Projects

glmnet Weighted Random Forest — July 2019 –Aug 2019

- Formulated a novel heuristic for function estimation which combines regression trees of a random forest using LASSO regression rather than the sample mean
- Implemented glmnet weighted random forest in R and conducted various numerical experiments, noting our method often outperformed the traditional random forest

Statistics Canada Business Data Challenge — Jan 2019 – Apr 2019

- Winner of the 2018/2019 competition, among teams across the country
- Applied LASSO regression to select relevant predictors, and cross-validation to tune a general linear model for predicting business metrics such as entries and exits of firms across various Canadian industries
- Scraped additional data from the Canadian Labour Force Survey and Quarterly Survey of Financial Statements

Additional Activities and Interests

- **Skills:** Familiar with C++, Python, R, SQL, VBA
- **Interests:** Competitive ultimate frisbee, basketball, deception board games, cartoon drawing