Chris Salahub

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Summary

Technical Skills: Simulation, Data Visualization, Dimension Reduction, Regression, Prediction, Inference, Text Mining

Programming Languages: R, Python, SQL, Bash, MATLAB, C++

Domain Knowledge: Classification and Regression Trees, Measuring Association, Data Science, Exploratory Data Analysis

Education

Ph.D. in Statistics, University of Waterloo — Waterloo, ON, Canada

Scholarship: Alexander Graham Bell Doctoral Scholarship ($105,000 over 36 months) — May 2019 – Present

Thesis: *Explorations in Pairwise Measures of Association and Pooled Significance*

Supervisor: Dr. Wayne Oldford

M.Sc. in Statistics, ETH Zürich — Zürich, Switzerland

Scholarship: ESOP Scholar ($48,000 for being in the top 2-3% of incoming ETH Masters Students) — Sept. 2017 – Mar. 2019

Thesis: *Seen to Be Done: A Graphical Analysis of Peremptory Challenge*

Supervisor: Prof. Dr. Marloes Maathuis

B.Math. in Statistics (Dean's Honours List), University of Waterloo — Waterloo, ON, Canada

Thesis: *About "her emails"* — Sept. 2013 – June 2017

Professional Experience

Measurement Data Scientist — Toronto, ON, Canada

Vividata — Aug. 2020 – Jan. 2022

Clustering: Pioneered a new segmentation of demographic data using multiple correspondence analysis

Data pipelines: Integrated SQL and R seamlessly to produce daily survey and click stream data reports

Survival analysis: Used Cox regression to predict panel attrition and virtually eliminate over-recruitment

Lecturer (Data Visualization) — Waterloo, ON, Canada

University of Waterloo — Sept. 2021 – Jan. 2022

Organization: Taught 80+ students and directed a team of 4+ teaching assistants

Data visualization: Presented topics including dimension reduction, spatial statistics, interactive graphics, and programming in R

Data Development Intern — Toronto, ON, Canada

Environics Analytics — May 2017 – Aug. 2017

Algorithm development: Reduced convergence time of a demographic microsimulation by more than 90% using a Markov Chain model

Research and Development Intern — Toronto, ON, Canada

Environics Analytics — May 2016 – Aug. 2016

Modelling: Conceived a stochastic model to solve a network flow problem which improved the fit of simulated data to observed data by 50% when implemented in R and MATLAB

Select Publications and Presentations

Chris Salahub and Jeffrey Uhlmann. *Optimal Structured Matrix Approximation for Robustness to Incomplete Biosequence Data*. Submitted to IEEE Transactions on Computational Biology and Bioinformatics March 2023 (under review)

Chris Salahub. *Racial bias in jury selection*. Significance, 20(2):16-20. April 2023.

Christopher Salahub. *A Statistician's Introduction to Genomics*. SSC Annual Meeting. June 2021

Christopher Salahub. *String Manipulation in R*. Guest lecture for University of Waterloo STAT 847: Exploratory Data Analysis. Virtual. April 2021.

David Castells-Graells, Christopher Salahub, and Evangelos Pournaras. *On cycling risk and discomfort: urban safety mapping and bike route recommendations*. Computing. December 2019

Chris Salahub. *Another AI Prediction Piece*. DataDrivenInvestor. October 2018.

Christopher Salahub and R. Wayne Oldford. *About "her emails"*. Significance, 15(3):34-37. June 2018.

Honours and Awards

- 2020: NSERC Canada Alexander Graham Bell Graduate Doctoral Scholarship (CGS-D) recipient
- 2019: Presentation award for *Seen to be Done* at the Waterloo Student Conference in Statistics, Actuarial Science, and Finance
- 2019: Ontario Graduate Scholarship recipient
- 2019: Correlation One Data Science Scholarship at the University of Waterloo for Ph.D. in Statistics
- 2017–2019: Excellence Scholarship and Opportunity Programme Scholar at ETH Zürich for M.Sc. in Statistics
- 2017: Graduated with Distinction (Dean's Honours List) – University of Waterloo – cumulative average of 93%
- 2016–2017: Five-time recipient of the Cherry Statistics Award (received in Statistical Methods for Process Improvements, Data Visualization, Experimental Design, Forecasting, Function Estimation) – University of Waterloo
- 2015: Contributing member of the award-winning Waterloo 2015 iGEM team, which was given the Best Overgrad Software Tool Award, the Best Overgrad Poster Award, and was nominated for the Best Foundational Advance Award
- 2015: NSERC Undergraduate Student Research Award recipient
- 2013: Canadian National AP Scholar for attaining highest possible scores of 5 on five AP examinations - Statistics, Physics, Chemistry, Calculus, and European History

Projects

My Dad's Peaks (Waterloo, 2021) Extracted data from HTML web pages using web scraping and regular expressions and matched it to a reference set to create a custom map visualization of mountains around the world

Predicting Fracture Displacement (Zürich, 2018) Applied data visualization and classification methods to six years of data from Kinderspital Zürich to safely reduce follow-up X-rays of healing finger fractures by 90%

CRISPier (Waterloo, 2015) Modelled the CRISPR-Cas9 system using stochastic and differential equation models for the award-winning 2015 Waterloo iGEM team in both R and Python; developed statistical tests to monitor and compare results

Administrative and Volunteer Experience

SAS Student Seminar Co-Chair
Waterloo, ON, Canada

Department of Statistics and Actuarial Science
Sept. 2021 – Dec. 2021

Organization Coordinated and hosted weekly virtual seminars by students and professors for 4 semesters

Statistics and Actuarial Science Graduate Student Representative
Waterloo, ON, Canada

Department of Statistics and Actuarial Science
Sept. 2020 – Sept. 2021

Communication Disseminated key information from department meetings to student constituents

Advocacy Represented the interests of statistics and actuarial science graduate students in departmental discussions

Statistics and Actuarial Science Councillor
Waterloo, ON, Canada

University of Waterloo Graduate Student Association
Jan. 2020 – Mar. 2021

Interviewing: Member of the Council Executive Committee responsible for vetting new executive applications

Survey design and analysis: Main analyst of GSA Vital Signs 2020 and designer of GSA COVID-19 Survey

Communication: Updated consitutents on GSA meetings, surveyed for feedback, and organized events with regular emails

Off Campus Community Coordinator
Waterloo, ON, Canada

Federation of Students
May 2016 – Apr. 2017

Leadership: Selected and directed a team of 33 volunteers assisting students with the transition to university

Organization: Planned a volunteer training weekend and the orientation programming for several hundred first year students, administered budgets, and delegated tasks

Off Campus Community Don
Waterloo, ON, Canada

Federation of Students
May 2015 – Apr. 2016

Leadership: Supported and guided first year students in the transition from high school to university studies

Teamwork: Maintained social connections with first year students and cooperated with a team of other dons