

# Sourav Biswas

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## Experience

**Uber Advanced Technologies Group** – *Research Intern* Toronto, Ontario · Jan 2020 – Jun 2020

- Researched novel machine learning algorithms for self-driving vehicles (Advisor: Prof. Raquel Urtasun)
- Improved LiDAR stream compression 15 - 35% by creating a state-of-the-art deep learning algorithm
- Developed deep learning models with Pytorch / C++ and created visualizations with Open3D

**University of Waterloo** – *Research Assistant* Waterloo, Ontario · Sep 2019 – Present

- Built practical differential privacy algorithms for statistical estimation (Advisor: Prof. Gautam Kamath)
- Researched methods for effective data poisoning on machine learning models

**Wilfrid Laurier University** – *Research Assistant* Waterloo, Ontario · Sep 2019 – Dec 2019

- Created R scripts analyzing fixed income securities for a graduate level financial analytics course

**Wish** – *Software Engineer Intern* San Francisco, California · Jan 2019 – Apr 2019

- Saved ~\$2 million/year by enhancing order refund tools to prevent incorrect refunds
- Lowered repeat customer support cases 27% by improving server logic, cutting support costs
- Reduced audit times over 67% by enhancing web based internal tools to support hotkeys

**BMO Capital Markets** – *Quantitative Analyst* Toronto, Ontario · Apr 2018 – Aug 2018

- Generated a Moody's credit positive for BMO by developing infrastructure for the first blockchain bond issuance in Canada – featured on Bloomberg, CoinDesk & Financial Post
- Built machine learning models to predict demand for US treasury bonds with Python & Scikit-Learn
- Created VueJS data visualization models for institutional clients to analyze the Canadian bond market
- Reduced GUI loading times 97% by improving web socket infrastructure & simplifying network calls

## Research Publications

**MuSCLE: Multi Sweep Compression of LiDAR using Deep Entropy Models** (NeurIPS 2020)

*Sourav Biswas, Jerry Liu, Kelvin Wong, Shenlong Wang, Raquel Urtasun*

**CoinPress: Practical Private Mean and Covariance Estimation** (NeurIPS 2020)

*Sourav Biswas, Yihe Dong, Gautam Kamath, Jonathan Ullman*

## Projects

- **Computer Vision Weightlifting Coach** – Created a tool to detect unsafe posture with OpenCV
- **SumNotes** – Won Hack the North 2017 (Best Use of Cockroach DB) – turns audio to summarized notes
- **NBA Predictive Analytics** – Developed a tool for coaches to detect court areas to prioritize defense

## Education

**University of Waterloo** Sep 2017 – Aug 2022

*Bachelor of Computer Science (Combinatorics & Optimization Minor) – GPA: 92/100*

**Wilfrid Laurier University** Sep 2017 – Aug 2022

*Bachelor of Business Administration (Finance Major) – GPA: 92/100*

## Skills

Python, Java, C, C++, C#, HTML/CSS, JavaScript (Node, jQuery, Vue, React), Git, Linux, SQL, MongoDB, Numpy, Scikit-Learn, Pytorch, Pandas, Open3D, OpenCV, Matplotlib, R, Jupyter

## Awards

**Schulich Leader Scholarship** – \$80 000 value from Western University (top science applicant) - declined offer

**René Descartes National Scholarship** – \$25 000 value from University of Waterloo (top 10 in Canada)

**Governor General's Academic Medal** – Ranked 1<sup>st</sup> out of 250 students in high school graduating class

**ECOO Programming Provincial Finalist** – Placed top 10 out of 400+ teams across Ontario (top 2%)

**Galois Math Contest** – Ranked top 30 out of 7000+ contestants (top 0.5% worldwide)