

# William Zijie Zhang

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## EDUCATION

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### Concordia University

*Bachelor of Computer Science Honours, Minor in Mathematics and Statistics*

Montreal, Canada

*Sept. 2020 – May. 2024*

### University of Manchester

*Student Exchange Program*

Manchester, United Kingdom

*Jan. 2023 – June. 2023*

## EXPERIENCE

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### Open Source Developer @ CVXPY

June 2023 – Present

*Google Summer of Code - NumFOCUS*

*Remote*

- Mentor: [Philipp Schiele](#), Final Report: [Link](#)
- Improved compilation time of convex optimization parametrized problems by **up to 100x**. These performance benefits affect almost all of CVXPY's users.
- Implemented canonicalization backends in **NumPy** and **SciPy** by replacing the original sparse tensor representation. Designing new backends in **python-graphBLAS** and **Rust**.
- Benchmarked and analyzed issues raised by the community in domains such as: Plasticity Modelling, Quantum Computing and Portfolio Optimization.

### Solution Associate

May 2022 – Aug. 2022

*Deloitte - Omnia AI - Data Modernization and Analytics*

*Montreal, Canada*

- Analyzed papers on Cosine Similarity, Job Searching and Resume Parsing to provide meaningful insights
- Defined use cases for the client: Migration from on-premise to cloud and improvement of a job matching pipeline
- Produced summary of reports from Gartner Magic Quadrant and Critical Capabilities
- Evaluated pros and cons of competing software in the market

### Junior Software Developer

Sept. 2021 – Dec. 2021

*SunLife Financial*

*Montreal, Canada*

- Developed features and fixed bugs of an internal software using Visual Studio and *C#*
- Implemented Automated Unit Tests to increase efficiency, reduce mistakes and improve readability of our software
- Documented the major steps of the software and mapped them to their respective log entries

## PROJECTS

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### Broadcasting in NetworkX | *Graph Theory, Algorithms and Heuristics*

Aug. 2023 – Present

- Undergraduate Project, Supervisor: [Hovhannes Harutyunyan](#)
- Expanding on NetworkX's [graph algorithms](#) suite by introducing discrete broadcasting and related heuristics
- Exploring applications of broadcasting in the design of efficient networks and replicated databases

### YADLL | *Deep Learning, Python, NumPy, PyCUDA*

Aug. 2023 – Present

- Implemented Stochastic Gradient Descent with momentum and matched unit-tests with PyTorch
- Introduced intermediate representation layer to seamlessly introduce new backends
- Mentoring three students on contributing to Open Source Libraries and adopting good software practices

### MoreGlean | *React, Next.js, Typescript, Firebase*

Nov. 2022 – Nov. 2022

- Implemented Google OAuth using Firebase SDK and the Google Cloud suite
- Developed login and food bank pages along with capturing requests into the database
- Presented the project during a Morgan Stanley and Earth Day Canada hackaton

## PRESENTATIONS

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### Convex Programming with CVXPY

Manchester, United Kingdom

*Manchester Interdisciplinary Mathematics Undergraduate Conference*

*Mar. 2023*

## TECHNICAL SKILLS

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**Frameworks:** CVXPY, graphBLAS, SciPy, NumPy

**Languages:** Python, Rust, SQL, C/C++, JavaScript, Java

**Developer Tools:** Git, Docker, MongoDB, Microsoft Azure, Databricks

**Certifications:** Databricks Data Engineering Associate, Microsoft Azure Fundamentals