

EDUCATION

McGill University

Montreal, Canada

B.Sc. in Honours Computer Science; GPA: 4.00/4.00

Aug 2021 – Dec 2024

Minor Degree in Mathematics; GPA: 4.00/4.00

Aug 2022 – Dec 2024

- **Awards:** Schulich Leader Scholarship (80 000\$), Emily R Crawford Scholarship (1 000\$), Dean's Honour List
- **Coursework:** Representation Learning, ML in Genomics & Healthcare, Reinforcement Learning, Causal Inference, Honours Discrete Mathematics, Probability, Statistics, Honours Algorithms & Data Structures
- **Exchange Semester at the National University of Singapore (Winter 2023)**

PROFESSIONAL EXPERIENCE

BigHat Biosciences

San Mateo, California

Machine Learning Intern

May 2024 – Aug 2024

- Developed fitness conditional generative models inspired from recent literature to improve antibody variant design
- Improved sample diversity, thermostability, and binding affinity using phage display & CFPS screening data

Hero AI

Toronto, Ontario

Co-Founding Engineer

Jun 2020 – Sep 2022

- Designed a server-side rendering library that produces interactive React components from static JSON schemas, enabling the team to deliver near real-time frontend updates through a low-code platform.
- Hired and onboarded three full-time frontend developers and organized weekly scrum, sprints, and code reviews.
- Deployed dashboards, mobile app, and web app to 80 000+ yearly patient users and 5 000+ hospital staff users.

RESEARCH EXPERIENCE

MILA - Supervised by Prof. Yoshua Bengio & Dr. Michał Koziarski

Montreal, Quebec

Research Intern

Feb 2024 – May 2024

Publication: [Cell Morphology-Guided Small Molecule Generation with GFlowNets](#)

- Trained multimodal embedding models (GMC, CLIP) on transcriptomics, cell morphology, and mol. structures
- Used GMC latent space to guide GFlowNets for diverse molecular candidate generation and scaffold hopping
- Benchmarked methods against soft-RL algorithms (Soft Q-Learning, Soft Actor-Critic)

McGill University - Supervised by Dr. Emmanuel Bengio

Montreal, Quebec

Undergraduate Researcher

Oct 2023 – Feb 2024

Publication: [QGfN: Controllable Greediness with Action Values](#)

- Implemented RL baselines (DDQN, A2C, SAC) on synthetic (hypergrid, bitseq) and real tasks (qm9, fragSEH)
- Ran ablation experiments to validate effect of GFlowNet variant parameters in different environment settings
- Developed **gen** and **vis** libraries to standardize and streamline training runs and plots

McGill University - Supervised by Prof. Rose Bagot

Montreal, Quebec

Undergraduate Researcher

Jun 2022 – Aug 2022

Project: Exploring the transcriptional mediators of stress in the nucleus acumbens

- Clustered single-cell RNA-seq data in Scanpy using KNN, NMF, and Louvain methods.
- Produced heatmap, violin, and dot plot visualizations to identify differentially expressed genes
- Trained multiview pose estimation models on mice videos using DeepLabCut

The Hospital for Sick Children - Supervised by Dr. Devin Singh

Toronto, Ontario

Collegiate Researcher

Oct 2020 – Jul 2021

Publication: [From Clinic to Computer and Back Again \(Curr Treat Options Peds\)](#)

- Explored time-series regression methods to forecast emergency room wait-times and patient inflow.
- Trained multi-modal neural network from triage data (textual, categorical, scalar) to screen for respiratory illnesses.

PROJECTS

Technical Blog | [Website](#)

2023-Present

- A technical blog where I document my learning process on machine learning, math, and software development.
- Some highlight posts include [variational autoencoders](#), [semantic gpt3 embeddings](#), and [network science](#).

Real Estate Portfolio | [GitHub](#) | [Website](#)

2023

- Professional real estate agent portfolio written in Rust and SvelteKit
- The project highlight is a multi-threaded filewatcher service in Rust that updates the agent's listings every day.

React Dynamic Renderer | [GitHub](#) | [npm](#)

2022

- Built and published a public npm package for dynamic rendering of ReactJS components from JSON templates.
- Package has around ~100 weekly downloads on the npm package registry.

McGill Course Map | [GitHub](#) | [Website](#)

2022

- Maintaining a course map platform for McGill University written in the Dash python framework.
- Students can search for a course and see its prerequisites and future coursework in the form of a DAG.

AWARDS & HONOURS

8VC Fellowship (2 500\$)

2024

Schulich Leader Scholarship - Undergrad (80 000\$)

2021-2024

Emily R Crawford Scholarship (1 000\$)

2022

Loran Scholarship Finalist - Undergrad (2 000\$)

2021

Youth Can Innovate Award (8 000\$)

2019

The Actuarial Foundation of Canada Award (1 000\$)

2019

Canada Wide Science Fair - Silver Medal

2019

Expo-Sciences Hydro-Quebec (1 500\$) - 1st place in Quebec

2019

Full Ride Scholarship to University of Quebec Network (Declined)

2019

SKILLS

Programming: Python, JavaScript, Typescript, Rust, C++, Java, OCaml, SQL, Bash

Data Analysis: Jupyter, Pandas, Numpy, PyTorch, PyTorch-Lightning, Hydra, Wandb, Scanpy

Frontend Frameworks: React, SvelteKit, Vanilla HTML & CSS, Dash, Plotly, Android Studio, XCode

Backend Frameworks: Flask, NodeJS, Rust Rocket, Rust Diesel, Celery

Other: Git, Docker, AWS, Oracle Cloud, Unix, Linux, Nginx

LANGUAGES

Native: English, French

Fluent: Standard Mandarin Chinese

Working Proficiency: Spanish

PRESS

McGill Reporter. Relations Office (2021, August 31). *Six McGill students receive Canada's largest STEM scholarships*

LaPresse. n.a. (2019, 16 April). *LaPresse tête d'affiche: Élève honoré Stephen Lu*