

Bhavdeep Arora

416-841-5785 | bhavdeepsa@gmail.com | [linkedin.com/in/bhavdeeparora](https://www.linkedin.com/in/bhavdeeparora) | github.com/bhavv04 | bhavdeep.dev

SUMMARY

Computer Science graduate specializing in Software Engineering with a track record of delivering data-driven projects across ML, cybersecurity, and climate tech. Known for strong communication, collaborative problem-solving, and the ability to ship clean, well-documented work independently.

EDUCATION

Toronto Metropolitan University

Toronto, ON

Bachelor of Science (Honours) Computer Science · Software Engineering Concentration

2022–2026

- Relevant Coursework: Data Structures & Algorithms, Software Engineering, Operating Systems, Data Science

TECHNICAL SKILLS

Languages: Python, Java, C/C++/C#, JavaScript, HTML/CSS, Go, Rust

Frameworks: React, Node.js, Tailwind, Django, Flask, ASP.NET

Developer Tools: Git, Docker, Google Cloud Platform, TravisCI

Data & Cloud: Hadoop, Apache Spark, MySQL, MongoDB, SQLite, AWS, Azure, Firebase

PROJECTS & RESEARCH

Lacunae | *Python, PyTorch, U-Net, fastMRI, HDF5* | [Github](#)

- Trained a **U-Net** (7.7M parameters) on the fastMRI single-coil knee dataset to reconstruct diagnostically useful MRI images from **4x undersampled k-space data**, recovering structure that naive inverse FFT cannot
- Implemented a **random Cartesian undersampling mask** with fixed low-frequency center retention, trained with L1 loss and evaluated using **SSIM/PSNR metrics** against fully sampled ground truth

Deadzone | *Python, Random Forest, ERA5/NOAA Datasets, Plotly Dash* | [Live](#) | [Github](#)

- Engineered an end-to-end **ML pipeline** analyzing Gulf of Mexico hypoxic dead zones using ERA5 and NOAA datasets, training a **Random Forest model** to predict dead zone extent from climate and nutrient runoff features
- Built an **interactive Plotly Dash dashboard** to visualize spatial dead zone trends and model outputs across multi-decade environmental data

Thunderhead | *Go, Reverse Proxy, HTTP, Behavioral Analysis* | [Live](#) | [Github](#)

- Built a **lightweight reverse proxy** in Go that scores incoming HTTP requests 0–100 across five behavioral signals (robots.txt violations, crawl patterns, request rate, header anomalies) to detect and mitigate bot traffic without third-party services
- Implemented **graduated response dispatch** — allow, tarpit (5s delay), or 403 block — based on configurable score thresholds, with structured JSON logging of all decisions

GAIA | *Python, PyTorch Geometric, NetworkX, FastAPI, Next.js* | [Github](#)

- Building a **cross-domain cascade failure predictor** for ecological systems using a graph neural network where nodes are ecological indicators and edges are literature-derived causal relationships sourced from peer-reviewed climate research
- Designed a **multi-domain causal graph** ingesting real-time feeds from NOAA, NASA Earthdata, and OpenAQ across marine, atmospheric, and terrestrial domains — propagating disturbance signals forward in time to predict cascade events with confidence intervals

EXPERIENCE & LEADERSHIP

Data for Good Toronto | *Data Analyst*

May 2026 - Present

- Collaborated with a cross-functional team to analyze datasets for non-profit and social impact organizations, surfacing actionable insights to support data-driven decision making
- Cleaned and processed raw data using Python and pandas, contributing to end-to-end analytics pipelines for community-focused projects

SciXchange | *Technical Assistant*

September 2023 - April 2024

- Mentored and guided 50+ participants through science exchange exhibits, translating complex topics into accessible explanations