Atishaya Maharjan

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Education

BSc. Joint Hons in Computer Science & Mathematics, Minor in Statistics Aug. 2022 – Present
University of Manitoba *Winnipeg, Canada*

Awards

International Undergraduate Student Scholarship | **Dean's Honor Roll**

Experience

Senior Software Engineer Mar. 2024 – Present
LG Electronics *Englewood Cliffs, USA (Remote)*

- Maintained and built new features for B2B microservices serving over **1000+** vendors using **Next.js**, **Redux**, and **TypeScript**, driving **25%** increase in user engagement.
- Implemented analytics and custom tagging frameworks to capture detailed performance metrics, enabling data-driven product decisions across **6+** product teams.
- Developed AI search engine for global GNB header, improving search efficiency by **40%** and reducing latency by **35ms** on average.
- Engineered promo code functionality with magic link integration and automated logic, increasing conversion rates by **15%**.

Senior Software Engineer Jun. 2025 – Jan. 2026
Hoek Insights *Amsterdam, Netherlands (Remote)*

- Built a **Python** package to embed interactive **Three.js** visualizations in **Jupyter Notebooks** via **React renderers**, cutting render time by **38%** and reducing bundle size by **25%**.
- Designed an MVP marketing platform using **FastAPI** and **PostgreSQL** with **18+** endpoints, **10** workflows, and **95%** integration-test coverage; achieved **¡200ms** median API latency in staging.

Software Engineer Aug. 2019 – Apr. 2024
Timeero *Phoenix, USA (Remote)*

- Led frontend development of mileage-tracking application using **TypeScript**, **React.js**, **Vite**, and **Mapbox**, serving **1,000+** active users.
- Implemented **15+** geo-spatial features for segment mapping, improving time-capture accuracy by **30%**.

Researcher – Algorithms & Graph Theory Mar. 2024 – Present
Geometric, Approximation, and Distributed Algorithms (GADA) Lab *Winnipeg, Canada*

- Delivered **2** talks on wiggly permutations (published at CCCG Summer 2025) and space-efficient Eulerian circuits (published at SOSA 2026) at weekly GADA lab meetings.
- Developed a fast approximation algorithm for Hamiltonian path optimization in spatially embedded graphs; built visualization and randomized test generation tooling across **100+** synthetic instances.
- Contributed to noncrossing spanning trees library, improving performance by **30%** and establishing **Python best practices**.
- Engineered hypergraph visualization tool for ML research.

Machine Learning Researcher May. 2025 - Present
Terrabyte Machine Learning Research Group *Winnipeg, Canada*

- Extended Graph Neural Diffusion architecture to Hypergraph Neural Diffusion networks using **PyTorch** and **PyTorch Geometric**, prototyping **4** model variants.
- Implemented **MLFlow** metrics and tracked **25+** experiments across **5+** datasets for reproducibility.

Researcher – Combinatorics & Graph Theory Jan. 2024 - Jul. 2025
Department of Mathematics, University of Manitoba *Winnipeg, Canada*

- Proved closed-form solution for independence number of perfect binary trees and verified Hurlbert-Kamat's Conjecture using **generating functions** and computational analysis across **1,000+** cases.

CS Help Center Leader & Teaching Assistant Jan. 2025 - Apr. 2025
University of Manitoba *Winnipeg, Canada*

- Mentored **100+** students in first to third-year CS courses and graded **150+** assignments for Analysis of Algorithms course (COMP 3170).

Projects & Research

Brainstorm | *Full-Stack*
- Built an AI-powered, role-specific knowledge management system (**144** commits, **4** collaborators), integrating **Pinecone**, **Jira**, **Redis**, and **PostgreSQL** with interactive charts; demoed to **7** users at Sprint to Innovate 2026.
- Implemented retrieval-augmented generation (**RAG**) with role-based access controls and grounding across **4** integrated systems to reduce hallucinations; pitched for the CIPS Manitoba Challenge.
- Built a model-routing layer with dynamic model selection and fallback policies, optimizing latency vs. quality across a multi-model LLM pool.

Spatially Embedded Graphs | *Python*
- Modeled Hamiltonian paths in $\mathbb{R}^2$ with research published at CCCG and SOSA conferences; generated **200+** randomized instances and presented findings at GADA lab meetings.
- Built visualization pipelines and automated test generation, validating approximation behavior on **200+** randomized inputs.

Hurlbert–Kamat Property in Perfect m-ary Trees | *SageMath, Graph Theory*
- Investigated Hurlbert–Kamat (HK) property in perfect m-ary trees using **SageMath** and combinatorial analysis.
- Implemented computational checks across **1,000+** cases to support conjecture validation.

Personal Portfolio Website | *Astro, React.js*
- Terminal-style server-side rendered portfolio with interactive command spotlight feature and **15+** custom commands.
- Designed modular command routing, theming, and **6+** content sections with reusable React components.

Achievements

.devHacks | *React.js, TailwindCSS, FastAPI, Supabase, BERT, Neovim*
- Winner of **'Most Chaotic Evil Hack'** among **20+** teams.
- Built a chatroom using websockets with a text classification Machine Learning model using **BERT** and **PyTorch** that categorizes messages (e.g., 'brainrot', 'nerdy', 'dad joke', etc) and provide users with in-game currency.
- Developed a **Fast API** backend with **Supabase** for persistent storage, implemented message reactions and designed a custom UI with **React.js** and **TailwindCSS** in **TypeScript**.

CSSA CTF | *C, Python, Cryptography, Ghidra*
- Achieved **1st** place among **41** teams (2026) and **2nd** place among **25+** teams (2025) at the annual CSSA CTF by solving web based CTF challenges.

Summer Undergraduate Research Experience | *C, Python, Cryptography, Ghidra*
- Achieved **3rd** place for Computational Sciences in the poster competition among **50+** students researchers.

Technical Skills

Languages: JavaScript, TypeScript, Python, Java, C, C++, R, SageMath, BASH, SQL
Databases: PostgreSQL, MongoDB, SQLite, MSSQL, Pinecone (Vector DB), Redis
Web Frameworks: Next.js, React.js, FastAPI, Node.js, Astro
ML/Data Libraries: PyTorch, PyTorch Geometric, NumPy, SciPy, Scikit-learn, MLFlow, Pandas
Cloud & DevOps: AWS, Docker, PostgreSQL, Tmux
Developer Tools: Git, Neovim, VS Code, IntelliJ, Figma, Jupyter
Specialized: AI MCPs for Application Integration, Three.js, Beamer (LaTeX)

Volunteer Experience

Events Executive | *.devClub (University of Manitoba)* Aug. 2023 – Jul. 2024
- Co-led planning and execution of workshops, hackathons, and academic review events to enhance community engagement in the Computer Science Department at the Faculty of Science.

Coding Kickoff Facilitator | *University of Manitoba* Feb. 2025 - Mar. 2025
- Facilitated workshops that taught **IDE setup** and **Git** to **50+** first year university students.

Audio Visual Team Member | *Bethesda Church* Jul. 2023 – Present
- Operated Audio Visual (A/V) equipment for weekly sermons and live events, ensuring high-quality audiovisual experiences for attendees.