Atishaya Maharjan

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EDUCATION AND AWARDS

BSc. (Hons) in Computer Science & Mathematics, Minor in Statistics　　Winnipeg, Manitoba
University of Manitoba　　*Aug. 2022 - Present*

International Undergraduate Student Scholarship | *University of Manitoba*
Dean's Honor Roll | *University of Manitoba*
Summer Undergraduate Research Poster Competition Winner | *University of Manitoba*

EXPERIENCE

Senior Frontend Developer　　Mar. 2024 – Present
LG Electronics　　*New Jersey, USA (Remote)*

- Maintaining and creating new features in microservices for LG US using **Next.js** and **Redux** with **TypeScript**.
- Integrated custom tagging frameworks to capture detailed user interaction metrics, enabling data-driven product decisions.
- Built and maintained the new Business to Business (B2B) platform for LG US serving over **1000+** new business vendors.

Senior Software Engineer　　June. 2025 – Present
Hoek Insights　　*Netherlands (Remote)*

- Developed a **Python** package to embed interactive **Three.js** visualizations for user defined images within **Jupyter Notebooks** using **React renderers**.
- Engineered a full-stack marketing platform supporting seamless order processing, shipment tracking, and checkout experience using **FastAPI**.

Undergraduate Researcher　　Mar. 2024 – Present
Geometric, Approximations, and Distributed Algorithms (GADA) Lab　　*Winnipeg, Manitoba*

- Contributing to novel algorithm research on **interference minimization** and **tractable solutions** to graph theoretic problems.
- Used **SageMath**, **Jupyter Notebook**, and **Python** to visualize complex graph algorithms with the minimum spanning tree intersection problem.

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

- Extending an existing architecture for **Graph Neural Diffusion** networks into **Hypergraph Neural Diffusion networks**.
- Using **PyTorch** and **PyTorch Geometric** to test out theoretical concepts to benchmark and improve models.
- Tracked and communicated experiment results using **MLFlow**, contributing to collaborative research pipelines.

COMP 3170 (Analysis of Algorithms and Data Structures) Grader　　July. 2025 - August. 2025
University of Manitoba　　*Winnipeg, Manitoba*

- Graded **40+** quizzes and assignments properly within the given time constraints.

Undergraduate Researcher　　Jan. 2024 - Jul. 2025
University of Manitoba　　*Winnipeg, Manitoba*

- Hypothesized and proved a closed solution to find the **independence number (α)** of perfect binary trees.
- Proved preliminary results about the Hurlbert and Kamat's Conjecture for perfect binary trees using a variety of tools such as **generating functions**, **numerical approximation**, and **enumerative counting**.

Computer Science Help Center Leader　　Jan. 2025 - April. 2025
University of Manitoba　　*Winnipeg, Manitoba*

- Helped **100+** first, second, and third year students on all of the offered Computer Science courses by the Faculty of Science.
- Conducted sructured review classes for **COMP 1012** and **COMP 2080** students; helping them with topics such as **Python**, **Dynamic Programming**, **Greedy Algorithms**, **Computational Complexity**, etc.

Senior Frontend Developer   Aug. 2019 – Apr. 2024

Timeero   *Phoenix, Arizona, USA (Remote)*

- Led frontend development of a mileage-tracking web application using using **TypeScript**, **React.js**, **Vite**, **React Query**, **Mapbox**, **Bootstrap**, **Chakra UI**, and **Sass**.
- Supported and created over **15+** new features that mapped geo-spatial data to segments for better time capturing.

PROJECTS

Personal Portfolio Website | *Astro, React.js, TailwindCSS, Neovim*
- Built a terminal-style interactive portfolio website which is server side rendered using **Astro**.
- Used **React.js** to make the site interactive and have a spotlight feature for user commands.

Spatially Embedded Graphs | LATEX, *Python*
- Used **Python** to model experiments and results for constructing the Hamiltonian path that minimizes the average pair-wise distance of n points in $\mathbb{R}^2$.
- Presendted findings via LATEX**Beaner** slides in weekly research meetings to communicate with fellow researchers.

FPT Optimization for minimizing interference in a 1D network | *Complexity Theory*
- Designed a **Fixed-Parameter Tractable** algorithm for interference minimization in 1 Dimensional networks; explored **NP-hardness** reductions and **approximation** techniques.

On Stars In Trees And Strongly Regular Graphs | *Sage, Graph theory, Combinatorics*
- Working on showing that **perfect k-nary trees satisfy the Hurlbert and Kamat's Conjecture** which is related to the number of independent sets, mentored by Dr. Mahsa Nasrollahishirazi and Dr. Andrii Arman to publish a journal paper.

Brachistochrone Trajectory | *Python, Numpy, Matplotlib, SciPy*
- Modeled and visualized **Bezier-approximated** brachistochrone paths in **Python** to compute and compare time-of-travel metrics .

ACHIEVEMENTS

.devHacks Winner of 'Most Chaotic Evil Hack' | *React.js, TailwindCSS, FastAPI, Supabase, BERT, Neovim*
- 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 2025 2nd place | *C, Python, Cryptography, ghidra*
- Achieved second place at the annual CSSA CTF by solving web based CTF challenges.

TECHNICAL SKILLS

Languages: JavaScript, Java, Python, C, C++, R, SageMath, BASH
Databases: MSSQL, SQLite, MongoDB, Postgres
Frameworks: ReactJS, NextJS, AstroJS
Libraries: PyTorch, PyTorch Geometric, Numpy, Scipy, SkLearn, MLFlow, Pandas **Developer Tools**: Git, Neovim, Tmux, Docker, VS Code, IntelliJ
UI Tools: Figma, Adobe XD, Adobe Illustrator

VOLUNTEER EXPERIENCE

Events Executive | *.devClub*   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.

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.