Manav Patel

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EDUCATION

University of Calgary — Calgary, Canada
Bachelor of Science in Computer Science | GPA 3.9/4.0 (Dean's List 2023-2025) — *Sept. 2023 – April 2027*

EXPERIENCE

Undergraduate Research Assistant — May 2025 – Aug 2025
University of Calgary | C++, OpenMP, Boost, NTL — *Calgary, AB*
- Selected as a research student among 200+ applicants to develop optimized C++ algorithms to accelerate computation and handle billions of cubic number fields efficiently
- Facilitated large-scale tabulation of cubic number fields beyond the 10^6 cubic number fields covered by the last major computation in 1990
- Aiming to contribute toward a joint publication, current work is estimated to save several months of compute time through algorithmic and system-level improvements

Software Developer — Apr 2025 – Present
Independent Professional | Azure DevOps, Docker, Python — *Remote, Canada*
- Collaborated with a team to enable scalable infrastructure and deployment automation on Azure DevOps, supporting high-profile national events (organized by MasterCard, Enfocom), handling up to 500 participants
- Authored custom build and validation scripts for automated challenge testing, reducing QA cycles by approximately 35% and boosting system reliability across all competition environments
- Engineered end-to-end CI/CD workflows leveraging Docker, resulting in a 30% reduction in deployment time

Deputy Vice-President Operations — Jul 2024 – Present
The CyberSecurity Club | AWS, Docker, Digital Ocean, CTFd — *Calgary, AB*
- Deployed and containerized 40+ CTF challenges using Docker, streamlining environment consistency and enabling rapid scaling for national hackathons
- Provisioned and managed AWS EC2 instances to ensure high availability and fault tolerance, supporting 100+ teams with zero downtime across major club events
- Developed and contributed to backend systems for multiple club websites serving 1700+ club members

Machine Learning Researcher — Apr 2024 – Jun 2024
Vision Research Lab | Python, PyTorch, BERT, CLIP-ViT, BLIP, Flask, TailwindCSS — *Calgary, AB*
- Led a 4 member team in developing and training sentiment analysis model designed to analyze social media posts
- Developed and optimized data preprocessing and augmentation pipelines, applied hyperparameter tuning and regularization techniques to mitigate overfitting, increasing model accuracy by 17%
- Leveraged LLM Model Ensemble techniques and integrated CLIP Vision-Transformer to jointly analyze multi-modal inputs, achieving 80% in contextual sentiment prediction

PROJECTS

NutriSync | *Python, Flask, React, TypeScript, NodeJS, PostgreSQL, psycopg2* — Mar 2025
- Directed a 3 member team to create a full stack recipe management system with React, TypeScript, Tailwind CSS frontend and Flask REST API backend connected to PostgreSQL, with role-based access control (Admin, Moderator, Member) using session cookies
- Built a personalized recipe recommendation system using Scikit-Learn, enhancing user engagement through tailored nutritional suggestions based on past user specific analytics (likes, tracked recipes)

Game Center | *Java, Figma, JUnit, JavaFX* — Jan 2025 - Mar 2025
- Led a 10-member software engineering team in designing and delivering a scalable game hub platform, enabling users to access and play multiple games seamlessly
- Developed and integrated a fully functional matchmaking system connected to a database, and authored 50+ tests to ensure system reliability and performance

TECHNICAL SKILLS

Languages: Python, Java, C/C++, SQL, TypeScript, HTML/CSS, Assembly
Developer Tools, Frameworks & Libraries: TensorFlow, PyTorch, Keras, Flask, React, NodeJS, ASP.NET, pandas, TailwindCSS, OpenMP, Tkinter, BeautifulSoup, Figma, JUnit, Git, VSCode, Linux