Vivaan Chugh

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Education

University of Waterloo — Waterloo, ON
BASc. in Computer Engineering — *2029*
Relevant Coursework: Fundamentals of Programming, Digital Circuits and Systems, Linear Circuits

Technical Skills

Languages: Python, C, C++, JavaScript, TypeScript, SQL, C#, Java, Bash/Shell Scripting
Libraries: React, Next.js, Angular, Flask, Django, PyTorch, TensorFlow, Pandas, NumPy, Matplotlib, Express.js, Bootstrap
Tools: Git, Docker, DynamoDB, Lambda, S3, AWS, MongoDB, PowerBI, Tableau, PostgreSQL, Postman, SolidWorks

Experience

SBI Canada Bank — May 2025 – August 2025
Software Engineering Intern — *Toronto, ON*
- Developed a **DNN intranet module** working **C# and SQL Server** to process and generate employee time log reports, enabling HR to filter by date, branch, and login times, and improving reporting efficiency by **60%**.
- **Led** the development of a **Flask** web application to **automate** monthly compliance checklist submissions, integrating form validation, PDF generation, and email notifications — reducing manual follow-ups by **70%.**

KnovaOne — May 2025 – August 2025
Software Engineering Intern — *(Remote) Florida, USA*
- Engineered a document parsing backend in **Python and MongoDB** to extract and log keyword metadata from PDFs, **improving** internal review speed by **50%**.
- Designed a role-based access control (RBAC) system using **Flask-Login** and **SQLAlchemy**, enabling secure multi-user workflows for internal document tagging and review.

UW Orbital — January 2025 - Present
Software Developer — *Waterloo, ON*
- Developed efficient software in **C** for satellite systems, **optimizing performance** and resource utilization on the RM46 microcontroller while ensuring robust operation in space-critical environments through error handling.
- Implemented and debugged **robust communication protocols** for satellite systems, resulting in a **28% improvement** in data transmission reliability in simulated space environments.

Orbital Robotics — September 2020 – June 2024
Software Developer — *Oakville, ON*
- Developed advanced automation algorithms in **Java** to optimize robotic movement patterns, reducing execution time by **40%** while enhancing path efficiency and increasing operational precision by **25%**.
- Utilized **SolidWorks** to design, refine, and simulate 3D models of critical robot components, collaborating closely with a **50-person team** to enhance functionality and secure a **top 10 ranking** in provincial robotics competitions.

Projects

Findr: AI-Powered Hackathon Matchmaking | ***FastAPI, React, Python, MongoDB, Gemini AI*** — March 2025
- Developed a **full-stack matchmaking** platform to connect hackathon participants based on skills and interests.
- Built a **FastAPI** backend with **MongoDB** for data storage/user authentication via **GCP Identity Platform.**
- Implemented an AI-powered resume parser using **PyPDF2**, **Google Vision API**, and **Gemini AI**, extracting and structuring user profiles dynamically.

Digit Classifier using CNN | ***Python - PyTorch, TensorFlow, Machine Learning*** — March 2025
- Developed a **CNN** in **PyTorch** to classify handwritten digits from the MNIST dataset with high accuracy.
- Optimized network performance by designing multiple convolutional layers and fine-tuning hyperparameters, leveraging the **Adam optimizer** for efficient training, faster convergence, and improved accuracy.
- **Evaluated model accuracy** on test data by implementing comprehensive performance metrics and **visualized** training progress through detailed **loss curve analysis**, ensuring robust and reliable model performance.

Sales Data Analysis and Forecasting Tool | ***Python - (Pandas, NumPy, Scikit-learn), SQL*** — March 2025
- Cleaned and transformed large sales datasets by leveraging Python libraries such as **NumPy and Pandas**, resulting in a comprehensive data set for analysis and improved accuracy in forecasting models.
- Extracted and aggregated sales data using optimized **SQL** queries, providing valuable insights into product performance, customer behavior, and sales trends, which informed key business decisions.
- Developed and deployed predictive models with Scikit-learn to forecast future sales trends, achieving an **accuracy rate of 85%** and enabling the business to proactively adjust strategies and inventory.