

NEIL SACHDEVA

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Education

University of Waterloo

Expected Graduation 2026

Bachelor of Applied Science in Computer Engineering

Waterloo, ON

- Relevant Coursework: Systems Programming and Concurrency, Probability Theory & Stats, Data Structures and Algorithms, Discrete Math and Logic I & II, Advanced Calculus

Experience

MedEssist

May 2024 – August 2024

Software Engineering Intern

Toronto, ON

- Developed a customer service chatbot using **Node.js**, **OpenAI API**, and LLMs (**GPT-3**), reducing average query resolution time by **40%** and increasing query handling capacity by **30%**.
- Implemented real-time data synchronization using **WebSockets** for bidirectional communication and **AWS API Gateway** for routing, improving user productivity by reducing average task completion time by **5 minutes**.
- Created an FAQ automation chatbot powered by **LLMs** with **OpenAI API** and **Node.js**, enabling the chatbot to handle 500 additional queries per day and reducing support ticket volume by **hundreds per week**.

Martinrea Int.

Sep 2023 – Dec 2023

Software Engineering Intern, Data Science

Vaughan, ON

- Implemented a self-supervised learning system with **LSTM RNNs** in **TensorFlow** for anomaly detection in machine presses, identifying early signs of mechanical wear from **millions** of operational data points.
- Performed thorough database validation in the Dashboard using **MongoDB**, applying complex joins and aggregate functions to achieve an accuracy rate of **98%**, which enhanced software reliability.
- Designed an **LSTM**-based system in **TensorFlow** to detect micro-fractures and splits in metal parts before visual inspection, leading to an **18%** reduction in production line stoppages due to part defects.

DiamondX

Jan 2023 – Apr 2023

Software Developer Intern

Waterloo, ON

- Built a web scraper using **Selenium** and **Pandas** to gather review data, integrating with a **BERT** model to perform sentiment analysis, allowing real-time tracking of public sentiment on **500+** product brands.
- Implemented **Redux** for efficient state management, creating selectors and middleware, which reduced application errors by **10** incidents per week and improved state consistency.
- Designed a web scraping tool using **BeautifulSoup** and **Python**, collecting news articles for sentiment analysis with a **VADER** model, improving prediction speed and identifying **1000+** trending positive and negative headlines daily.

Projects

JusticeFlow (Human Rights First | *Node.js, Express.js, MySQL, Redis, AWS*)

- **Co led** a team of **8** volunteers in developing scalable API routes with **Node.js**, and built interactive **React** components to support attorneys at **Human Rights First** in tracking litigation against extremist groups.
- Optimized data models and queries, integrated **Redis** for caching, and utilized **AWS Aurora** for improved relational database management, ensuring efficient access for **100+** lawyers.
- Deployed **AWS DynamoDB** for managing unstructured case logs, improving system performance by handling **large-scale, dynamic data**.

ArtGAN with Advanced Image Analysis | *Python, TensorFlow, OpenCV, YOLO*

- Developed a **TensorFlow**-based **GAN**, enhanced with **YOLO** and SIFT/SURF for object and pattern recognition, achieving 92% accuracy in generating artwork, with a 30% improvement in texture complexity.
- Utilized **CNNs** and **autoencoders** for automated feature extraction, cutting manual annotation time by 50% and dynamically adapting to new art styles, broadening the model's versatility.
- Curated a **50,000+** artwork dataset, applying augmentation for a **40%** increase in diversity and **95%** style matching accuracy, reducing model training time by **25%** and increasing image fidelity by **15%**.

Technical Skills

- **Languages:** , Python, JavaScript/TypeScript, Groovy, C++, Java, C#,
- **Technologies:** React, Node.js, SQL, MongoDB, Selenium, Django, Azure, Docker, Kubernetes, AWS
- **Libraries:** Tensorflow, Pytorch, SciKit-learn, XGBoost