

ABHINAV GUPTA

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EDUCATION

University of Waterloo

Sep 2020 - Apr 2025

Candidate for Bachelor of Honours Computer Science – Software Engineering Specialization

Relevant Courses – Intro to AI, Algorithms, Data Structures, User Interfaces, Database Management, Software Design

WORK EXPERIENCE

Machine Learning Engineer Intern

May 2024 – Aug 2024

Bell

Toronto, ON

- Executing DevOps for ML models, built and trained in-house, stored as **Docker** images using **TerraForm**, **Kubernetes**, **GCP**, **Jenkins**, and **OpenShift** to help Bell customers across Canada find solutions to their complex problems easily.

Cloud Backend Engineer Intern

May 2023 – Aug 2023

Deloitte

Toronto, ON

- Engineered a system to enable users to search for data from 2,000+ cloud bundles stored in **MongoDB** using **C#** and **.NET**, implementing advanced string matching and a dynamic Mongo query builder for streamlined data retrieval.
- Built a backend service that schedules task execution for cloud account provisioning - accelerating the process by **50%**.
- Constructed an object-oriented caching service using **Redis Cache** to enhance cloud account data retrieval speeds by **10x**.

Backend Engineer Intern

Jan 2023 – Apr 2023

OpenLane

Toronto, ON

- Implemented **AWS Serverless** REST APIs in **TypeScript** with **PostgreSQL** and **Elastic Search** databases to execute business logic for online car auctioning - involved building lambda functions, controllers, query builders, and post-processors.
- Built a **NodeJS** script to run multiple threads in parallel to query 6 million rows of data from **OracleDB** to update development databases weekly. Improved performance by **160%** when compared to single-threaded querying.
- Formulated 40+ **Cucumber** integration, **Jest** unit, and **Mocha** unit test cases - ensuring code reliability and robustness.

Frontend Developer Intern

May 2022 – Aug 2022

TutorOcean

Ottawa, ON

- Utilized **ReactJS**, **MeteorJS**, and **CSS** to implement new features on the B2C EdTech platform, such as a tutor availability blocking system, and fix over **40%** of issues reported across all B2B SaaS products.
- Diagnosed and documented complex issues by finding patterns in data retrieved from **MongoDB** using **Studio3T**.

PROJECTS

Red Wine Quality Classifier 🍷

- Built a non-linear deep neural network with **Sigmoid** and **ReLU** activation functions and the **Mean Squared Error** loss function to predict the quality of red wine, given its physical attributes - rating can be a decimal from 0 to 10.
- Trained the model for **500 epochs** with **k-fold cross validation** on a wine quality dataset in batched gradient descent using **Python** with **NumPy**, **Matplotlib**, and **SkLearn**. MAE was **0.7**, making it accurate (0.7 away from true rating).

TripTailor (UofTHacks AI Project) 🗺️

- Engineered and built a multi-table **PostgreSQL** database to store users, destinations, and their relationships, managed by **ElephantSQL**, for an AI platform that enables users to make travel plans for any country in the world with ease.
- Enhanced user engagement by fetching and displaying images to the **ReactJS** frontend from **Unsplash API**, whose queries consist of countries, cities, and locations being generated with prompt engineering through NLP by **Cohere API**.

KeyHaven 🔑

- Built a password management platform with industry-level security: master passwords encrypted with **BCrypt** algorithm, passwords stored with **AES-256** encryption, and data sent to client via **HttpOnly** session cookies stored serverside.
- Utilized **Docker** to containerize the **NodeTS** frontend and **Express** backend, ensuring seamless deployment and scalability.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, C++, C#, C, Kotlin, SQL, HTML/CSS

Frameworks: React, Node, Flask, Material-UI, .NET, Express, TailwindCSS, NextJS, Redux, Swagger, Cucumber, Jest, Mocha

Developer Tools: Git, Linux, TerraForm, Kubernetes, OpenShift, MongoDB, PostgreSQL, OracleDB, Elastic Search, Postman, AWS, GCP, DBeaver, Studio3T, Redis Cache, Docker, Heroku, Jenkins