

# 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

- Executed 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.
- Developed software to streamline **CloudSQL** schema changes from DEV to UAT and PROD using **AtlasGo**, **Bash**, and **YAML** being run on **GitLab CI/CD** - eliminating the chance for DDL mismatches between database environments.
- Built a **BentoML** unit testing framework with **Python**, **Pytest**, and **Docker** to test the model and its API logic, which will run in the CI pipeline with **Jenkins**, for Bell's data scientists to implement for their respective AI projects.

### 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

### AI WebScrapper

- Built an API microservice with **Python** and **FastAPI** that can give an overview, industries, and services of any company in the world from just their website URL using OpenAI's **GPT 3.5-turbo** LLM, hosted on **Docker** for easy scalability.
- Engineered a **RAG** system with **Chroma Vector DB** and **Langchain** using OpenAI's **text-embedding-3-small** model for the LLM to tackle the problem of hallucination. Increased the accuracy of responses by **60%**.

### 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, Docker, Heroku, Jenkins