

Prem Patel

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EDUCATION

University of Waterloo

Honours Bachelor of Computer Science (BCS)

Waterloo, ON

Expected Dec. 2026

EXPERIENCE

Software Engineer Intern

Jan. 2025 – Present

Kinaxis

Ottawa, ON

- Implemented backend features in a **distributed C++ server** coordinating **TypeScript (Node.js)** and **Java** agent/worker runtimes (Embedded Algorithms team)
- Shipped user-facing enhancements and a custom **VS Code extension** using **WebSockets** to run and debug user-defined **embedded algorithms**
- Designed thread-safe server/optimizer **guardrails** to prevent resource overuse on large runs; improved stability and cut lock contention by **30%** while rolling out a "Bring Your Own Model" optimization feature
- Extended **Jenkins** AFT CI/CD with unit, integration, and E2E coverage; built a **C#** benchmarking harness (bursty/steady) with metrics aggregation and latency profiling across an async queue
- Deployed agent services on **Kubernetes** via **Docker + Helm (Azure/GCP)**; integrated a new logging schema with **Datadog** dashboards to support consumption-based pricing
- Enabled multi-agent configurations for the Java runtime container; improved agent-response serialization using **FlatBuffers** and shipped a new logger module
- Presented **15** cross-team demos showcasing design decisions and outcomes in a fast-paced **Kanban** environment

Software Engineer Intern

Jan. 2024 – May 2024

AutoTrader

Toronto, ON

- Developed and optimized **Python microservices** across **30+ automotive brands**, leveraging **Pandas** and a **REST API** to accelerate OEM data processing by **8x** for partners like Toyota and BMW
- Engineered **Azure pipelines** in **Python** to automatically generate and deliver monthly performance reports to **150+ dealerships**, querying data from **Redash** and managing reporting for select dealer groups
- Optimized data processing algorithms with the **Tabula** library, cutting manual work, saving hours each month, and increasing data accuracy by up to **85%**
- Led new hire **training**, mentoring a new full-time employee and interns, and improved team onboarding

Data Engineer Intern

Jan. 2023 – Apr. 2023

D2L

Waterloo, ON

- Consolidated contacts from multiple sources into a Salesforce single source of truth; deduplicated and standardized records, expanding the prospect universe by **30%** and improving lead routing

PROJECTS

NBA Analytics Dashboard (Full-Stack Web App) 📁

May 2025 – Jul. 2025

- Used **React**, **Flask (Python)**, and **PostgreSQL** to visualize NBA player and team performance
- Designed and optimized SQL queries, materialized views, and indexes for scalable reads (~2–3x); implemented role-based auth and triggers for secure access and audit logging

Barber Review Mobile App (Android/Kotlin) 📁

Sep 2024 – Dec 2024

- Developed an **Android mobile app** using **Kotlin**, **Compose UI**, and **MVVM architecture** to connect with barbers based on user-centric traits such as sociability and hairstyle specialty; followed **Scrum** sprints
- Integrated the **Google Places API** for barbershop data, along with **Firestore auth** and **cloud database storage** for secure, scalable data management

Predicting Plant Traits Using CNNs and Boosting 📁

Jul. 2024 – Aug. 2024

- Designed and implemented a **PyTorch** plant trait prediction pipeline using **ResNet50 CNN** and **XGBoost**
- Applied **Bayesian optimization** to fine-tune models, ultimately improving baseline model performance by **192%**

TECHNICAL SKILLS

Languages: C++, Python, C, Java, C#, TypeScript (JavaScript), Go, CMake, SQL, Bash, Kotlin, R, HTML/CSS

Developer Tools: Git, VS/VS Code, Node.js, Yarn, Maven, CMake, Jenkins, Docker, Helm, GCP, Azure, gtest, Jest

Frameworks & Libraries: React, Flask, FastAPI, .NET, Spring Boot, Pandas, NumPy, PyTorch, Boost.Lockfree