

Prem Patel

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EDUCATION

University of Waterloo

BCS (Computer Science) | BBA (Wilfrid Laurier University)

- GPA: 3.8 | President's Gold Scholarship (merit-based)

Waterloo, ON

Expected Dec. 2026

EXPERIENCE

Software Engineer Intern

Jan. 2025 – Apr. 2026

Kinaxis

Ottawa, ON

- Built features across a **distributed C++ execution server** and **TypeScript (Node.js) + Java** agent/worker runtimes over **WebSockets** to execute user-defined **embedded algorithms** and publish results; shipped a **VS Code extension** enabling run/debug workflows
- 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
- Developed a **C#** benchmarking harness (bursty/steady) with metrics aggregation and latency profiling across an async queue; extended **Jenkins AFT CI/CD** with unit, integration, and E2E coverage
- Deployed agent services on **Kubernetes** via **Docker + Helm (Azure/GCP)**; standardized a JSON logging schema and integrated **Datadog** dashboards to enable consumption-based pricing
- Enabled **multi-agent** configurations for the **Java** runtime container; improved agent-response serialization using **FlatBuffers** and shipped a new **logger** module to support throughput analysis
- 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

- Owned a CRM single-source-of-truth project; designed repeatable data-quality **workflows** (dedupe, normalization, categorization) across **15,000+** records, improved lead routing, and expanded the prospect universe by **30%**

PROJECTS

Instill (Mobile Journaling App)

Jan. 2026

- Built an offline-first journaling app (**React Native/TypeScript**) with an outbox-based sync engine, idempotent ops, and conflict-safe merges to prevent data loss
- Designed a **Node/TypeScript + Postgres** backend (**Prisma, Fastify**) supporting delta sync, optimistic concurrency, account management, and automated testing with **Vitest**

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

Compiler and Assembler for a C-like Language

Jun. 2023 – Aug. 2023

- Implemented an end-to-end WLP4 compiler in **C++**: lexer, recursive-descent parser, semantic/type checker, and **MIPS** code generator; wrote an assembler to emit machine code

TECHNICAL SKILLS

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

Dev Tools: Git, VS/VS Code, Node.js, Yarn, Maven, CMake, Jenkins, Docker, Helm, GCP, Azure, Datadog

Frameworks/Libs: Spring Boot (DI, Filters, MDC, WebSockets), .NET, Fastify, Prisma, Boost, FlatBuffers, gtest, Jest