

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 end-to-end features across a **distributed C++ server** and **TypeScript (Node.js) + Java** runtimes over persistent **WebSockets**, delivering reliable execution workflows for supply chain planning runs
- Shipped a **VS Code extension** that improved developer experience for authoring/running/debugging embedded algorithms (breakpoints + publish/run flows), reducing iteration time by **40%**
- Launched **Bring-Your-Own-Model** optimization by building a **solver-agnostic** integration layer and **async** execution pipeline to run user-defined models safely at scale
- Designed thread-safe CPU/memory **guardrails** using **RAII semaphores** to prevent noisy-neighbor resource spikes in **multi-tenant** clusters; reduced lock contention by **~30%**
- Standardized **structured logging + metrics** and integrated **Datadog** dashboards to attribute compute usage per customer, enabling accurate consumption-based pricing
- Implemented **multi-agent execution** in Java runtime containers and optimized message serialization with **FlatBuffers** to safely support **25%** larger payloads
- Deployed agent services on **Kubernetes** via **Docker + Helm (Azure/GCP)**
- 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 **Python** services processing OEM feeds for **30+ automotive brands**; reduced end-to-end processing time by **8x** by restructuring transformations and batching (Pandas + REST integrations)
- Built **Azure Pipelines** automation to generate and deliver monthly reports for **150+ dealerships**, integrating **Redash** queries and enforcing consistent schemas/validation
- Automated PDF/table ingestion and validation with **Tabula**, reducing manual cleanup by **5 hrs** per refresh cycle and improving reporting accuracy by up to **85%**
- Partnered with dealerships to scope purchase-experience requirements and ship feed + reporting updates, reducing back-and-forth on change requests

Data Engineer Intern

Jan. 2023 – Apr. 2023

D2L

Waterloo, ON

- Led a CRM single-source-of-truth initiative by designing repeatable **data-quality** workflows (dedupe, normalize, categorize) across **15k+** records; improved lead routing and expanded prospect universe by **30%**

PROJECTS

Instill (Mobile Journaling App) 📱

Jan. 2026

- Built an offline-first journaling app implementing outbox-based sync (delta sync, idempotent ops, conflict-safe merges) using **React Native/TypeScript** and a **Node/Postgres** backend (**Fastify/Prisma + Vitest**)

NBA Analytics Dashboard (Full-Stack) 📊

May 2025 – Jul. 2025

- Built a full-stack NBA dashboard (**React, Flask, PostgreSQL**); designed and optimized SQL with indexes/materialized views for **~2-3x** faster reads and added role-based auth + audit triggers

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++, TypeScript (JavaScript), Python, Java, Go, SQL, Bash, C#, Kotlin

Dev Tools: Git, VS/VS Code, Node.js, Docker, Kubernetes, Helm, Postgres, Jenkins, Datadog, GCP, Azure

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