

# 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 in a **distributed C++ server** and **TypeScript (Node.js) + Java** agent/worker runtimes over persistent **WebSockets**, focusing on throughput, isolation, and reliability under load
- Shipped a **VS Code extension** to author, publish, and run/debug user-defined **embedded algorithms** with breakpoints, reducing developer iteration time by **40%**
- Launched **Bring-Your-Own-Model** optimization by building a **solver-agnostic** integration layer and **async** job pipeline to run user-defined models at scale
- Designed thread-safe CPU/memory **guardrails** in **C++** using **RAII semaphores** to prevent noisy-neighbor resource spikes in **multi-tenant** clusters; cut lock contention by **32%**
- Standardized **structured logging + metrics** integrated with **Datadog** dashboards to attribute CPU usage per customer, enabling fair and transparent **consumption-based pricing**
- Optimized response serialization with **FlatBuffers** to support **25%** larger payloads without performance regressions, improving throughput consistency under load
- Deployed agent services on **Kubernetes** via **Docker + Helm (Azure/GCP)** for repeatable rollouts and presented **15** cross-team demos 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 API 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

### 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 target prospect universe by **38%**

## 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, 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