Prem Patel

📞 416-526-9566 | ✉ p352pate@uwaterloo.ca | 🔗 prempatel149 | ⬡ prem-pxtel | 🔗 Portfolio

EDUCATION

University of Waterloo   Waterloo, ON
BCS (Computer Science) | BBA (Wilfrid Laurier University)   *Expected Dec. 2026*
- GPA: 3.8 | President's Gold Scholarship (merit-based)

EXPERIENCE

Software Engineer Intern   Jan. 2025 – Apr. 2026
Kinaxis   *Ottawa, ON*
- Built platform features across a **distributed C++ server** and **TypeScript (Node.js) + Java** agent/worker runtimes over persistent **WebSockets** for supply-chain planning execution
- 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 (BYOM)** 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** using **RAII semaphores** to prevent resource overuse on large runs and **multi-tenant clusters**; reduced lock contention by ∼**30%**
- Standardized **structured logging + metrics**, integrated with **Datadog** dashboards to attribute CPU 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%**
- Mentored and onboarded new full-time hires (docs + walkthroughs + pairing), reducing ramp time

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