Prem Patel

416-526-9566 | p352pate@uwaterloo.ca | prempatel149 | prem-pxtel | Portfolio

Education

University of Waterloo — Waterloo, ON
BCS (Computer Science) | GPA: 3.8 — *Expected Dec. 2026*

Wilfrid Laurier University — Waterloo, ON
BBA (Finance Concentration) | President's Gold Scholarship — *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 transparent **consumption-based pricing** generating **$1M+** annual revenue
- 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

Ledger-First Transaction System | *Node.js, TypeScript, Fastify, PostgreSQL, Prisma* — Jan. 2026

- Designed an immutable double-entry ledger (derived balances) with async trade execution; ensured auditability and replay-safe retries via transactional idempotency keys and **SYSTEM** counterparties enforcing financial invariants

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**)

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