Prem Patel

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Education

University of Waterloo — Waterloo, ON
Honours Bachelor of Computer Science (BCS) — *Expected Dec. 2026*
- GPA: 3.8; Coursework: Data Structures, Algorithms, Object-Oriented Programming, Operating Systems, Databases, Computer Architecture, Functional Programming, Machine Learning, AI

Wilfrid Laurier University — Waterloo, ON
Honours Bachelor of Business Administration (BBA) — *Expected Dec. 2026*
- President's Gold Scholarship (merit-based academic award)

Experience

Software Engineer Intern — Jan. 2025 – Present
Kinaxis — *Ottawa, ON*
- Contributed to **C++ server** and agent/worker layers (Node.js/TypeScript, Java), leveraging **multithreading** and **WebSockets** to run/debug **embedded algorithms**, drive a custom query engine, and build constraint-based **optimization models** for supply-chain planning
- Designed guardrails in server/optimizer layers to prevent resource overuse, improving stability on large runs; cut lock contention by **30%** and shipped a **logger** module for throughput analysis
- Extended **Jenkins** AFT CI/CD with unit, integration, and E2E tests; built a **C#** benchmarking harness (bursty/steady workloads) with metrics aggregation and latency profiling across an async queue
- Deployed agent service on **Kubernetes** via **Docker** + **Helm** (**Azure**/**GCP**); standardized a JSON logging schema and integrated with **Datadog** ingestion/dashboards, enabling consumption-based pricing
- Presented **10+** cross-team demos showcasing features and design 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*
- Consolidated contacts from multiple sources into a Salesforce single source of truth; deduplicated and standardized records, expanding the prospect universe by **30%** and improving lead routing
- Built repeatable cleanup and categorization pipelines for Excel datasets (up to **13,000** records)

Projects

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
- Designed the parser with operator precedence; used post-order AST traversals to drive type checking and code gen

Technical Skills

Languages: C++, Python, C, Java, C#, TypeScript (JavaScript), Go, SQL, Bash, Kotlin, R, HTML/CSS
Developer Tools: Git, VS/VS Code, Node.js, Yarn, Maven, CMake, Jenkins, Docker, Helm, GCP, Azure, gtest, Jest
Frameworks & Libraries: .NET, Spring Boot, React, Flask, FastAPI, Pandas, NumPy, PyTorch, Boost.Lockfree