Pranjwal Singh

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Education

University of Waterloo — Waterloo, ON
Bachelor of Computer Science Honors — *Sep. 2025 – Apr. 2030*
Coursework: Designing Functional Programs, Linear Algebra, Probability

Experience

CJCR IT Operations & Applications Development — June 2025 – Aug. 2025
Applications Development Intern — *Rheinmetall, St-Jean, QC*

- Built **Power Apps** applications for reporting dashboards, audit tracking, and management of cadet-issued electronic assets, integrating **Dataverse** and **SQL** tables, coding in **Power Fx**, and designing **UI/UX**; delivered MVPs to stakeholders and national staff through formal presentations.
- Contributed to a **Vue.js** web application used to organize all activities across the program (used by **1000+ program staff** nationwide); created new pages, and initiated and implemented a real-time website notification system using **SignalR**.
- Assisted in the **.NET** backend, introducing a new entity to store notifications, setup updates to stakeholders with **SignalR Hubs**, and developed **RESTful APIs** supporting asset tracking and reporting.
- Participated in **Agile Scrum/Kanban** team processes, collaborating on sprints, retrospectives, and iterative feature development across a nationwide IT team of **55+ members**.
- Gained exposure to **Microsoft Azure DevOps**, using it for version control, code reviews, and task assignment across the team.
- Developed and maintained **Power Automate** approval flows to streamline operational processes for the team.

Ericsson R&D — June 2024 – Aug. 2024
Digital Transformation Intern — *Ottawa, ON*

- Monitored and reported on software **KPIs** from **Jenkins CI/CD** pipelines, evaluating overnight cluster runs according to pmCounters, diagnosing failures, and submitting tickets using internal Ericsson tools.
- Assisted in containerized environments using **Kubernetes and Docker**, including basic exposure to **Rancher UI** for cluster management and orchestration.
- Contributed to data visualization and monitoring using dashboards to track performance metrics on **Grafana**.
- Gained foundational understanding of telecom systems, including radio frequencies, beamforming, cluster architecture, signal processing, TCP/UDP protocols, and OS-level interactions.

Skills

Languages	Python, Kotlin, C#, JavaScript, TypeScript, HTML/CSS, Power Fx
Libraries/Frameworks	React, Vue.js, Tailwind CSS, Jetpack Compose, FastAPI, Flask, .NET, Unity, Numpy, Pandas, Matplotlib, Framer, Power Apps, SignalR
Tools and Platforms	Supabase, Vercel, Render, MS Azure DevOps, GitHub, Sourcetree, Jira, Docker, Jenkins, Agile/Scrum/Kanban
Databases	PostgreSQL (entity modeling), Dataverse
Spoken Languages	English, French, Hindi

Projects

Portfolio Website — 2025–2026

- Designed and implemented a personal portfolio website to showcase projects and professional experience, emphasizing responsive design and modern UI/UX patterns. Integrated analytics tracking and contact forms, enabling data-driven insights into user interactions.
  Tech Stack: *React, TypeScript, Tailwind CSS, Vercel, Framer*

POS + mPOS Merchant System (Web + Mobile) 2025-2026

- Developed a full-stack POS + mPOS platform providing merchants with a complete environment to add/manage products, maintain stock, process transactions, and generate digital receipts.
- The web dashboard incorporates AI-driven price optimization, leveraging linear regression and gradient boosting models trained on web-scraped competitor pricing and historical sales trends.
- The mobile app leverages the phone camera for product scanning and easier checkout tallying, along with real-time notifications to merchants for key events.
  Tech Stack: *React, TypeScript, Framer, Tailwind CSS, Android Studio, Kotlin, Jetpack Compose, Google camera APIs, FastAPI, PostgreSQL on Supabase, Vercel(web backend), Render(mobile backend)*

mute. Mobile App 2025-2026

- Developed and launched a mobile application with strict mode to block user-defined apps, websites, and keywords, including a toggleable generic adult content filter, enforcing time-bound restrictions.
- It also has context-aware notification management, dynamically muting non-critical messages based on location and schedule while preserving essential alerts
  Tech Stack: *Kotlin, Jetpack Compose, Android Studio*

Realms Game 2026

- Developed a PvP/PvE shooter game in Unity, with player mechanics, AI opponents, unique weapon systems, world design, and integrated health, scoring, and inventory systems, as well as networked multiplayer functionality for online matches.
  Tech Stack: *Unity, C#*

Neurolink Glasses (BCI + IoT Integration) 2024–2025

Research + Prototype Developer

- Developed a wearable smart glasses system reading simplified neural signals (EEG/BCI) to control IoT devices in real time, enabling brain-to-device interactions for lighting, screens, and environmental sensors.
- Designed BLE communication protocols between the glasses and multiple devices, ensuring secure and low-latency data transmission.
- Conducted initial signal processing and mapping experiments to validate control accuracy and responsiveness.

Tech Stack: Python, Arduino/ESP32, BLE, EEG Sensors, Microcontroller Programming

BLE Beacon System 2024

IoT Developer

- Implemented a BLE-based system to broadcast event or classroom codes to smartphones within range, allowing automated attendance tracking and context-aware notifications.
- Designed backend authentication to ensure only registered devices receive messages associated with valid BLE transmissions.
- Integrated front-end mobile app notifications and logging, facilitating real-time awareness for attendees.

Tech Stack: Python, BLE, Android (Kotlin), FastAPI, PostgreSQL (Supabase)

Autonomous Drone with Multi-Sensor Navigation 2024–2025

Embedded Systems + Robotics Developer

- Designed a research-focused autonomous drone platform integrating multiple navigation techniques: computer vision (optical flow), ultrasonic, infrared, LiDAR, GPS, IMU, and magnetometer for robust obstacle detection and environment mapping.
- Implemented modular sensor fusion algorithms to improve flight stability, localization, and real-time path planning under various environmental conditions.

- Integrated BLE beacon signals to extend operational range for outdoor navigation and coordinated multi-device scenarios.
- Designed evaluation framework to benchmark sensor performance and algorithm efficiency for research publication purposes.

Tech Stack: Python, C++, Arduino/STM32, BLE, OpenCV, ROS, LiDAR, Ultrasonic Sensors, IMU

Flask Website 2024

- Designed and deployed a simple Flask web application as a personal learning project, implementing routes, templates, and basic user interactions.
- Experimented with deployment pipelines, including migration of the project to Vercel for hosting and scaling experiments.
- **Tech Stack:** JavaScript, HTML/CSS, Chrome APIs

Workspacer Extension 2024

- Built a Chrome extension prototype aimed at improving tab/workspace organization for productivity.
- Packaged and configured the extension for browser testing, with plans to release on the Chrome Web Store.
- **Tech Stack:** JavaScript, HTML/CSS, Chrome APIs

Text-to-Speech Summarizer 2024

- Developed a proof-of-concept tool that converts uploaded text into speech and extracts key summaries for fast review.
- Deployed a demo on the web with plans to extend into a SaaS-style "course companion" tool for students.
- **Tech Stack:** Python, Flask, NLP libraries, Vercel