Joseph Pongonthara

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Career Objective

Solutions-driven mechatronics engineering graduate with proven experience in software development, full-stack system architecture, robotics systems and analytical problem-solving. Passionate about leveraging technical expertise, strategic thinking, and cross-functional collaboration to deliver impactful solutions in dynamic, data-intensive environments.

Education

University of Waterloo — Waterloo, Canada
Bachelor of Applied Science in Mechatronics Engineering — *Graduated June 2025*

St. Michael's Choir School — Toronto, Canada
Valedictorian, Student Council President — *Graduated June 2019*

Technical Skills

- **Languages & Programming:** Python, Javascript, C++, Embedded C, SQL, HTML, CSS, MATLAB
- **Web & Software Development:** React.js, REST APIs, Next.js, TypeScript, Git, Client-Server Architecture, Responsive Design, Web Scraping
- **Tools & Frameworks:** Palantir Foundry & AIP, Azure Cosmos DB, PostgreSQL, Supabase, Arduino, UART & I2C Sensor Communication, Simulink
- **Core Competencies:** Full-Stack Development, Software Architecture, Distributed Systems, Real-Time Systems, Algorithm Design, Data Structures, Database Management

Professional Employment History

AI Software Engineering Intern — Tenuto Labs — June 2025 - Present
- Building and deploying two AI-powered prototypes for two use cases at a professional services firm.
- Responsible for backend architecture design alongside migration documentation for the firms Azure-based backend services to deliver secure, real-time AI solutions & scalable solutions.
- Assisting in the front end integration between the Next.js & React system to the prototype's Supabase backend
- Contributing to API architecture and internal tooling decisions across frontend and backend components.
- Conducted technical discovery sessions and requirements gathering with stakeholders, including C-level executives, iteratively translating user feedback into clearly defined MVP features and functional software solutions.

Mechanical Engineering Intern Callidus Engineering, Quasar Consulting — Jan-Apr, Sep-Dec 2022; Jan-Aug 2024
- Delivered high-volume mechanical drawing packages using AutoCAD and Revit, consistently meeting aggressive project deadlines while reducing revision cycles.
- Improved team throughput by proactively coordinating with multidisciplinary stakeholders to ensure drawing accuracy, code compliance, and fast approvals.

Independent Engineering & Software Inititatives

Software Engineering — Personal Pro Shop (Web Application)
- Built a full-stack web application to recommend personalized tennis gear leveraging user inputs & large language models.
- Designed a React front end and integrated it to Foundry backend services via Palantir's REST API to retrieve AI-powered recommendations.
- Managed backend configuration and API-based integrations, demonstrating proficiency in enterprise-grade data platforms.
- Managed backend configurations and secure data integrations via Palantir's Foundry platform, demonstrating expertise in high-volume data handling and distributed software architecture.

Mechatronics Engineering — Bike Safety Device
- Designed and prototyped a sensor-based safety system using a Time-of-Flight (T.O.F.) sensor and Bluetooth communication module for real-time proximity detection.
- Developed real-time embedded firmware for sensor-based safety devices using ARM-based microcontrollers, integrating Bluetooth modules and sensor drivers for immediate user feedback.

Firmware Engineering — Ball & Beam Controller Design
- Designed and tuned discrete-time motor controllers to stabilize a dynamic ball-and-beam system, achieving performance goals in overshoot, error, and settling time.
- Applied Input-Output Parametrization (IOP) for advanced control design, demonstrating strength in system modeling, motor dynamics, and closed-loop optimization.