

Nathan Bissett

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EDUCATION

University of Western Ontario, London, ON, Canada

Graduation Date: June 2025

BESc. in Software Engineering

- Relevant Courses: Data Structures & Algorithms, Artificial Intelligence, Operating Systems

WORK EXPERIENCE

Fusion Universal Healthcare, Toronto, ON, Canada

June 2025 - Present

Software Developer

- Built the core of an **AI clinical-intake service** (FastAPI, WebSockets): patients talk to a Claude-powered assistant that gathers their symptoms, and the service pulls structured clinical fields out of each reply.
- Used **Claude tool-use / structured outputs** to produce schema-validated, cited clinical prep summaries: possible diagnoses, suggested tests, and questions for the doctor. Added model fallback and audit logging to GCS, then pushed results to the backend.
- Built and maintained Emma, a real-time call-orchestration backend in **Python (FastAPI)** that pairs patients with available consultants over **MQTT (TLS)**, using a presence/call state machine and Firestore-backed state across iOS and web clients. Held **99% call-connection reliability** through early rollout.
- Owned the **Google Cloud (GCP)** infrastructure across dev/test/prod: Cloud Run and deploy triggers, Compute Engine VMs, load balancing, and Secret Manager.
- Built the iOS integration in **Swift/SwiftUI**: new and refactored UI, backend data flows, and the client-side MQTT layer that connects the app to Emma. Shipped across several TestFlight releases (bug fixes, new features, in-app call ringing).
- Built front-end modules in **Vue.js** (PrimeVue, Axios) and integrated the Stream Chat API for HIPAA-compliant real-time messaging between patients and providers.

TPI Enterprises Inc, Goderich, ON, Canada

May 2023 - September 2024

Software Developer - Wire Harness Lab

- Optimized and normalized the **SQL database** by restructuring redundant fields into relational tables, reducing duplication and improving query performance and schema maintainability.
- Developed an embedded **C++** control system for an autonomous lawn mower, implementing PID algorithms and STL vector libraries for stable motor control and responsive handling on steep terrain.
- Developed a **Python** application to automatically detect and trace wire harness connection mismatches by comparing expected mappings against actual connection data. Automated error localization reduced **troubleshooting time by 60%** and prevented incorrect manual corrections.

ENGINEERING PROJECTS

Cheer Website, ([Link](#)) | React.js, GCP, Next.js

- Implemented user authentication, responsive dashboards, and form validation features using React hooks and context-based state management. Ensured **WCAG-compliant** accessibility and intuitive navigation aligned with client usability goals. Deployed the full-stack app on GCP.

LolaBees, ([Link](#)) | Node.js, C, PHP

- Led a team of four on an IoT beehive-monitoring system: Arduino and ESP32 sensors (temperature, humidity, weight) feeding a cloud-hosted API and a web dashboard with live charts and alerts for cold snaps or sudden weight drops, helping prevent up to **40%** of typical winter hive losses.
- Placed **2nd of 13 teams** in the design competition, judged the most reliable and power-efficient build given the hardware and connectivity limits.

SKILLS

Languages: Python, JavaScript/TypeScript, Swift, C++, SQL

Frameworks: React, Next.js, Node.js, Vue.js, FastAPI, SwiftUI

AI / LLM: Claude & Gemini APIs, tool-use / structured outputs, LLM integration

Cloud: GCP (Cloud Run, Firestore, Cloud Storage, Secret Manager), Docker

Messaging & Data: MQTT, WebSockets, REST, MongoDB, MySQL

Tools: Git/GitHub, Linux, Jira, Agile/Scrum