Nathan Au

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Education

Concordia University   **Montréal, QC**
Bachelor of Engineering – Software Engineering, Co-op   Sep. 2024 – May 2028 (expected)
- GPA: 3.4/4.0

Relevant Skills

Technical Languages: Python, TypeScript, JavaScript, SQL, Dart, HTML, CSS, C++, Java
Frameworks & Libraries: FastAPI, Flutter, Vue.js, Next.js, Tailwind CSS, Pandas, Matplotlib, NumPy, pytest, Hugging Face Transformers, PyTorch
Practices: OOP, REST APIs, Agile/Scrum, Git Version Control, Unit & E2E Testing, ETL Pipelines, LLMs, NLP
Spoken Languages: English (Native), French (Professional – CECR DELF B2)

Experience

Software Developer – Mobile & AI Integration   **Nov. 2024 – Apr. 2025**
Google Developer Group – Concordia University   Hybrid / Montréal, QC
- Developed a cross-platform Flutter mobile application that helps university students in Montréal connect with peers, discover local study spots, and stay up to date on upcoming campus events all on one platform.
- Built a data-driven recommendation engine using user profiles managed in Firebase Realtime Database and Gemini LLM integration via Vertex AI to generate personalized connection suggestions based on shared interests and goals.
- Integrated the Concordia University Open Data API to retrieve 60+ upcoming campus events in real-time and implemented responsive geolocation-based features using flutter_map for interactive study spot discovery.
- Delivered technical presentations at Flutter Montréal and Concordia University to audiences of 100+ attendees and produced the official launch video to showcase system architecture and data flow.

Systems Engineering Intern – Hardware & Operations   **Sep. 2023 – Feb. 2024**
Renaissance Network Reinvent   Ottawa, ON
- Performed system-level testing on satellite tracking units in FlightTest diagnostic software to ensure pre-deployment hardware-software sync and debugged 200+ electronic modules by validating I/O with test instrumentation.
- Reduced material costs and improved repair efficiency by salvaging ~100 high-value microchips and electronic components from scrap PCBs through component-level desoldering to enable parts reuse in future repairs.
- Managed inventory of 1,000+ repair components using barcode-enabled data capture and Excel-driven tracking (PivotTables, XLOOKUP) to validate records and maintain data accuracy across repair logistics pipelines.
- Executed end-to-end operational workflows (test, debug, repair, assembly, quality control) in collaboration with multiple cross-functional engineering teams to meet production deadlines.

Projects

Reel Digest | Python, Telegram Bot API, Ollama (Granite 4), SQLite, yt-dlp, OpenCV | Source Code   **Dec. 2025**
Messaging-based productivity tool that saves users' time by turning short-form content into concise text summaries.
- Designed a multi-modal media processing pipeline with Google STT for audio transcription and OpenCV computer vision/Tesseract OCR optical character recognition for on-screen text extraction to enable contextual LLM analysis.
- Configured a SQLite caching layer to eliminate redundant inference, persist user history, and successfully serve live summaries for 300+ unique production requests.

TeeFour AI | Python, FastAPI, Ollama (Gemma 3), SQLModel, Tesseract OCR, pytest | Source Code   **Oct. 2025**
Automated tax document processing system that eliminates manual data entry for tax accounting workflows.
- Engineered a two-layer document classification algorithm using PyMuPDF/Tesseract OCR to categorize known document types (T4s, IDs, receipts) via filename analysis and content-keyword matching logic.
- Streamlined tax form data field extraction by integrating a locally hosted LLM to transform unstructured OCR text inputs into validated, machine-readable JSON outputs for downstream use in tax filing software.

PartCart | Vue.js, Supabase, Tailwind CSS, Vite, JavaScript | Source Code   **May 2025**
Internal communication platform that simplifies the part procurement process for computer repair operations.
- Architected a full-stack order management system using Vue.js and Supabase with role-based access control to support real-time communication between technicians (requesting) and buyers (approving/denying).
- Constructed reactive dashboard interfaces with Supabase Realtime and Tailwind CSS to incorporate live order updates, form validation logic, order list sorting/filtering, priority-based colour indicators, and order detail modals.

More projects: nathan-au.github.io