Sebastian Suarez

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Education

Bachelor of Science in Software Engineering May 2027 (Expected Grad.)
University of Calgary *Calgary, AB*

Relevant Coursework: Data Structures and Algorithms, Operating Systems, Software Architecture.

Experience

Software Development Intern Jan 2025 – Aug 2025
TC Energy *Calgary, AB*

- Replaced manual spreadsheet tracking for 12 Pipeline Integrity teams with an Angular and Python web app on AWS, adding favourites and a consolidated view that cut data lookup time from **4 min to 1 min (75%)** for **100+ users**.
- Implemented input validation, role-based access control, and company-wide SSO integration to secure data entry.
- Built an interactive planning tool mapping projects by pipeline location and year, flagging overlaps to bundle co-located work and reduce costs.
- Cut dashboard load time from **16s to 2.5s (84%)** via data caching and event-driven loading across 20+ data sources.
- Redesigned S3 data ingestion with a team of 3, removing redundant data and enabling incremental loads into Microsoft Fabric, cutting department-wide S3 usage by **35%**.

Program Optimization Intern May 2024 – Dec 2024
TC Energy *Calgary, AB*

- Built 15+ VBA macros, automating multi-step data entry and engineering algorithm runs, cutting processing time from **2.5m to 1m (60%)**, with several being adopted as official team tools.
- Built Power BI dashboards using Power Query (M) and DAX to consolidate multiple data sources for VP-level budget meetings on project portfolios of up to **$1B+**.
- Developed 10+ Python scripts to extract, clean, and report on data for 300+ Pipeline Integrity projects, supporting daily operations and fiscal year-end analysis.
- Onboarded and mentored 3 new hires on team workflows, data sources, and internal tools, serving as their primary point of contact.

Projects

SCOUT Search & Rescue UAV Sep 2026 – Present
University of Calgary Capstone | Sponsors: Lockheed Martin, Intelligent Dynamics and Control Lab *Calgary, AB*

- Building a web-based GCS in React, TypeScript, and Vite, delivering live thermal video, real-time telemetry, MapLibre mission mapping, and operator review of person detections.
- Implementing a FastAPI and PyMAVLink backend that receives ArduPilot SITL telemetry through mavlink-router and streams it to the operator interface in real time.
- Engineering health monitoring for GPS, telemetry, camera, and ML detection model, alerting operators on any failure.
- Writing Vitest and pytest suites for the frontend and backend, automated through GitHub Actions CI.
- Leading onboard computer vision in Python, driving thermal camera selection through resolution analysis and evaluating YOLO for real-time person detection on NVIDIA Jetson.

Quantitative Trading & Execution Platform Jan 2026 – Aug 2026
Personal Project *Calgary, AB*

- Developed ML-based trading signals in Python, backtested on sector-specific market data since 2020 to validate strategies before live deployment.
- Built a live 24/7 FastAPI engine placing orders in under **0.2s**, trading **$100K+** monthly in stocks and crypto.
- Secured remote access with a WireGuard VPN for authorized devices and source/IP signal authentication.
- Engineered fault tolerance with partial-fill resubmission in under 0.5s, idempotency keys, and crash recovery from a SQLite ledger, monitored via a React dashboard and Discord alerts.

Technical Skills

Languages: Python, TypeScript, JavaScript, Java, C/C++, SQL
Frameworks: React, Angular, FastAPI, Flask, REST APIs, GraphQL
Cloud & DevOps: AWS (Lambda, API Gateway, S3), Azure, Firebase, Vercel, Docker, Linux, GitHub Actions, GitLab CI
Data & Robotics: PostgreSQL, MySQL, pandas, NumPy, scikit-learn PyTorch, ArduPilot, MAVLink