

Reiner Ethan Umila

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PROFESSIONAL SUMMARY

Software Engineering student at McMaster University currently completing an 8-month Software QA co-op with the Government of Ontario, performing manual QA testing on OSAP's student- and administrator-facing web applications and building self-directed Python Playwright automation to accelerate manual test execution. Hands-on experience also spans full-stack development, data engineering, and embedded systems: built and shipped a complete full-stack weather application with a FastAPI Python back-end, pandas data pipeline, Pydantic validation models, SQLite caching, and a fully styled React front-end with automatic dark mode and card-based hourly forecast display. Additional experience in algorithmic Python development with NumPy, Streamlit dashboard design, REST API integration, SQL, object-oriented programming, UML design, automated testing with Selenium, and technical documentation. Hardware background includes ESP32 firmware in C++, custom PCB design in Autodesk Fusion, I²C/SPI/MQTT integration, and Node-RED IoT dashboards from a formal capstone project.

EDUCATION

Bachelor of Technology, Software Engineering Technology (Co-op)

McMaster University

Expected December 2027

Ontario College Advanced Diploma, Computer Engineering Technology

Seneca Polytechnic

2024

- 3.8 GPA, Honours

PROJECTS

Weather Application (Full-Stack) | Python, FastAPI, React, JavaScript, pandas, Pydantic, SQLite, HTML/CSS

Personal Project

December 2025 – Present

- Designed and built a complete client/server weather application (v1.0): a FastAPI Python back-end with two RESTful API endpoints, CORS middleware, structured exception handling, and Pydantic data models (CurrentWeather, HourlyWeather, WeatherResponse) enforcing validated response contracts at the API boundary.
- Architected two back-end data retrieval paths: a city-name endpoint geocoding user input via the Nominatim API before querying Open-Meteo across 8 meteorological variables, and a coordinates endpoint accepting raw browser geolocation values with reverse geocoding at town/borough granularity.
- Applied pandas to process raw hourly forecast data: constructing timezone-aware datetime indices from UTC timestamps via `tz_convert()`, filtering a 168-hour raw dataset to a 24-hour rolling forward window, rounding and type-casting all fields, and serialising the result for front-end consumption; implemented SQLite-backed caching with 1-hour expiry and retry logic to reduce redundant API calls.
- Built a fully styled React front-end with a CSS custom property design system supporting automatic light and dark mode, card-based hourly forecast display, dual-mode location input (browser geolocation on mount plus manual city search form), full async state management via React hooks, and conditional rendering across loading, error, and data states.

BlockBlast! Puzzle Solver | Python, NumPy, Streamlit

Personal Project

February 2026 – Present

- Designed a modular, object-oriented codebase across four files with clean separation of concerns: solver orchestration, board mechanics, piece catalog, and GUI layer, each independently testable and replaceable.
- Implemented an 8x8 NumPy binary matrix board representation and a recursive exhaustive search across all permutations of 3 pieces, with a composite scoring function weighting placed cells and cleared lines to find the highest-value placement sequence.
- Built a fully interactive Streamlit GUI with clickable cell-toggle grids, crop-and-validate piece input, step-by-step solution playback with colour-coded board rendering, and multi-turn session state continuity.
- Developed a test suite validating solver output against known board states and applied a continuous test-and-refine cycle to surface and fix edge case failures at each development stage.

Human Benchmark Game Device (Capstone) | C++, ESP32-S3, Node-RED, Autodesk Fusion, PlatformIO

Academic Project, Seneca Polytechnic

November 2024

- Collaborated with a partner across the full project lifecycle within a 2.5-month timeline: requirements, system design, C++ firmware on the ESP32-S3, two custom PCBs designed in Autodesk Fusion, hardware integration, testing, and formal delivery to an evaluation panel.

- Diagnosed and resolved multiple hardware integration issues by tracing root causes through datasheet analysis and targeted testing, resolving I²C, SPI, and GPIO conflicts; integrated a Node-RED IoT dashboard for real-time session performance tracking and data logging via MQTT.

WORK EXPERIENCE

Software QA Intern, Ministry of Public and Business Service Delivery and Procurement, Toronto, ON May 2026 – December 2026

- Perform manual QA testing on OSAP's Student-Facing (SFA) and Administrator-Facing (AFA) web applications for the Government of Ontario, covering Full-Time, Part-Time, Microcredential, and OLSG/OLSG-ME financial aid application types.
- Log and track defects through ALM within a structured, lead-driven QA lifecycle, coordinating fix verification and retesting with development teams across successive builds.
- Independently developed Python Playwright automation scripts to accelerate repetitive manual test cases, such as student profile creation, reducing setup time shared across multiple assigned test suites.

Office Assistant (Co-op), Tangentia Inc., Toronto, ON

2018 – 2019

- Executed systematic functional testing on a newly developed company website, validating expected behaviour across multiple platforms and browsers and reporting defects as part of the pre-release QA process.
- Managed client data entry and record maintenance across internal systems, supporting accuracy across marketing and financial workflows.

Warehouse Attendant, University of Toronto Press, Toronto, ON

2022 – 2026

- Identified the root cause of a persistent inventory backlog in the warehouse management system (AS400), developed a solution independently, and executed both the physical reorganisation and system updates, reducing the required cleanup cycle from weekly to monthly.
- Trusted with direct access to the AS400 inventory management system to update and maintain stock location data, where errors had direct and immediate operational consequences for order fulfilment.
- Regularly called upon by colleagues to diagnose and resolve technical issues with Windows workstations, printers, and AS400 warehouse software, drawing on self-acquired knowledge to keep operations running.

ADDITIONAL SKILLS

Languages: Python, JavaScript, C++, C, HTML/CSS, SQL

Frameworks: FastAPI, React, Pydantic, Streamlit, pandas, NumPy

Testing: Manual QA testing, Playwright (Python, self-directed automation), Selenium (automated web testing), ALM defect tracking, functional testing, system testing, UML (use case, class, sequence, state diagrams)

Networking & IT: DNS, HTTP/HTTPS, TCP/IP, Kali Linux, Security Onion, Wireshark, Cisco Packet Tracer

Concepts: OOP, REST APIs, full SDLC, Agile, client/server architecture, data modelling, QA methodology, STLC

Tools: Git, VSCode, PlatformIO, Node-RED, Autodesk Fusion, Microsoft Office, SharePoint, SAP (basic), AS400 (basic)