

HAMZA OBEIDI

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EDUCATION

Bachelor of Applied Science in Nanotechnology Engineering, University of Waterloo 2025–2030

Relevant Coursework: NE 140 Linear Circuits, NE 111 Python Fundamentals

Engineering Society NE '30 Representative; Nanotechnology Academic Representative

EXPERIENCE

Isotope Laboratory Research Assistant May 2026 – Sept 2026
University of Waterloo Waterloo, ON

- Operated, calibrated, and debugged analytical instrumentation including a gas chromatograph, isolating hardware versus performance faults through systematic root-cause analysis.
- Prepared and analyzed environmental DIC and DOC sample data, applying instrument diagnostics to keep measurements accurate and reproducible.

Bio-mechatronics Systems Design Oct 2025 – Current
University of Waterloo Biotron Waterloo, ON

- Defined system architecture, requirements, and interfaces between sensors, actuators, and control software for a bio-mechatronic device.
- Wrote design specifications guiding component selection and software–hardware integration across the team.

Quality Assurance Analyst Oct 2023 – Jan 2024
TAMVOES Health Kitchener, ON

- Designed and executed test cases for backend edge cases and failure modes, identifying, documenting, and tracking bugs to improve web application reliability.
- Communicated defects and test results to cross-functional developers, supporting iterative releases and regression testing.

PROJECTS

ConnectEDU (Full-Stack Development, REST APIs, LLM Integration)

- Built a full-stack web platform at a hackathon that replaces ad hoc guidance-counsellor scheduling with a structured appointment-booking flow on the Google Calendar API.
- Integrated an LLM-powered chatbot trained per school and district so each institution's bot answers students with its own rules, automating information access through REST APIs.

EMG Signal Processing Pipeline (Python, DSP, Testing, CI)

- Developing a DSP pipeline (filtering, rectification, envelope detection) for surface-EMG signals, validated against public EMG datasets, with automated tests and CI (in progress).
- Builds on an EMG-controlled robotic hand I designed: custom AD8221 analog front end plus embedded firmware turning muscle signals into proportional servo control.

SKILLS

Languages Python, Java, C, C++, SQL, MATLAB

Software & Tools REST APIs, LLM Integration, Continuous Integration (CI), Digital Signal Processing (DSP), PyCharm

Libraries NumPy, Pandas, SciPy

Also Embedded Systems, Microcontrollers, Verilog (learning), QA & Test Design