Alexandre Eberhardt

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Education

Université Laval, *Master's in Computer Engineering (M.Sc)* Aug 2025 – Apr 2027

GPA: 4.17/4

Courses: Computer Vision, Mobile Robotics, Algorithms, SOLID Principles, Kalman Filtering, Computational Complexity.

Université de Technologie de Compiègne (UTC), *Computer Engineering Degree* 2021 – Apr 2027

GPA: 4.66/5

Courses: Algorithms & Data Structures, Operational Research & Optimization, Computer Security, Distributed Systems, Real-time & Embedded Systems, AI & Logic Programming, Control Systems for Robotics.

Experiences

Software Engineer Intern, *Savoir-faire Linux — Montreal, Canada* Aug 2024 – Feb 2025

- Modernization of the extension system for **Jami** (Open-source P2P Softphone).
- Integration of Deep Learning models **(YOLOv11-seg)** for video masking with **ONNX Runtime** in C++.
- Performance optimization: inference time reduction (0.3s to 0.01s) via **NVIDIA CUDA/cuDNN** hardware acceleration.
- Resolution of complex cross-platform compilation issues (Android NDK, macOS) and development of reactive interfaces in **QML**.

Projects

Arduino Jukebox 2024

- Design of an interactive audio embedded system in **C++** on Arduino.
- Integration of hardware modules: **RFID** badge reading for music selection and audio management (DFPlayer).
- Development of control logic and hardware interrupt management.

Mastery Bot Brawl Stars 2024

- Development of an automation bot in **Python** to optimize game progression.
- Implementation of **Computer Vision** (image/state detection) for real-time screen analysis.
- Programming of input simulation scripts and decision-making logic.

Eye Tracking System (Computer Vision) 2025

- Development of an eye-controlled mouse interface for people with reduced mobility (Course GIF-7001).
- Design of a stereoscopic system (2 cameras) with **Thin Plate Spline** calibration for precise gaze projection on screen.
- Use of **MediaPipe** for facial landmark extraction and **OpenCV/NumPy** for image processing and 3D reconstruction.
- Implementation of voluntary blink detection for clicking and **Tkinter** interface.

Technical Skills

Programming Languages: C++, C, Python, Java, JavaScript, CUDA, SQL, MATLAB, Rust, QML

Tools: Git, Docker, CMake, ONNX Runtime, Android Studio, Linux, Qt, Gerrit

Leadership & Community Involvement

Student Vice-President — UTC, Council of Studies and University Life Nov 2023 – Nov 2025

- Elected representative of 5,000 students, voting on academic reforms and budgets.
- Management of grants for student initiatives.

Secretary & Board Member — Technology and Entrepreneurship Cluster (UTC) Feb 2025 – Aug 2025

- Updated statutes (Law 1901) and provided administrative support for 17 student clubs.

President & Association Manager — UTC (Various Associations) 2021 – 2025

- President of the Comic Book Library, President of the Japanese Culture Club.
- IT Manager for end-of-semester events.

Languages

French (Native), English (Fluent)