Minoru Yoshida

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Education

MSc in Software and Information Technology Engineering Jan. 2025 – Dec. 2026
École de technologie supérieure *Montreal, QC*

Bachelor of Electrical Engineering Aug. 2021 – Dec. 2024
École de technologie supérieure *Montreal, QC*

DEC in Electronics Technology, Audiovisual Aug. 2018 – May 2021
Cégep du Vieux Montréal *Montreal, QC*

Experience

Teaching Assistant May 2024 – Present
École de technologie supérieure - Electrical Engineering Department *Montreal, QC*

- Mentored 30+ students per semester in C programming, covering topics from defensive programming to network communication and resource synchronization.
- Led weekly lab sessions on client-server application development, guiding students in using Linux, GDB, Valgrind, and Git/GitLab for robust software creation.
- Evaluated student projects and assignments, providing constructive feedback to improve code quality, design principles, and problem-solving skills.

Software Developer Aug. – Dec. 2024
École de technologie supérieure - Electrical Engineering Department *Montreal, QC*

- Developed and deployed a full-stack e-learning web application utilized by over 100 students across two electromagnetism courses per semester.
- Engineered an AI-powered tutor using an OpenAI API and RAG pipeline that dynamically generates practice questions and provides contextual hints to guide students through problem-solving.
- Constructed the application with a robust Django backend and a responsive Bootstrap frontend, creating an intuitive and accessible learning platform.

Research Intern May 2024 – Aug. 2024
École de technologie supérieure - LATIS *Montreal, QC*

- Engineered a MATLAB library for the geometric analysis of ultrasound tongue contours, translating complex algorithms from a Master's thesis into reusable, documented code.
- Conducted comprehensive benchmarking of the new library against existing lab tools, demonstrating a significant improvement in processing speed and accuracy.
- Streamlined the data acquisition workflow by improving recording and preprocessing scripts, reducing the time for data collection by over 20%.

Research Intern/Assistant Sept. 2023 – Apr. 2024
École de technologie supérieure - LATIS *Montreal, QC*

- Developed C++ software for synchronized acquisition and digitization of ultrasound and audio data, ensuring high-fidelity data streams for phonetics research.
- Created custom MATLAB scripts for comprehensive analysis of audio and video data, automating feature extraction and signal processing tasks.
- Managed the complete data lifecycle, including collection, organization, and archival of experimental data to ensure integrity and accessibility for the team.

Optical Product Development Intern Jan. 2022 – Apr. 2022
Belden *Montreal, QC*

- Increased measurement efficiency by over 10x by automating a Keyence 3D system with Python scripts and optimized software macros.
- Performed validation and qualification testing on optical fiber products using industry-standard equipment to ensure compliance with quality benchmarks.
- Authored detailed test reports, meticulously documenting all procedures, data, and observations for quality assurance and engineering review.

CCU Operator (Video Engineer) May 2021 – Dec. 2023
RDS, Bell Media *Montreal, QC*

- Managed real-time video signal processing in a high-pressure live broadcast environment, ensuring compliance with broadcast standards and optimizing visual quality.
- Operated and calibrated complex studio equipment, including cameras and lighting systems, to achieve optimal performance for live sports productions.
- Collaborated with production and technical teams to rapidly troubleshoot and resolve on-air issues, minimizing broadcast interruptions.

Assistant IT Technician Apr. 2021 – Jan. 2022
Pixcom Inc. *Montreal, QC*

- Provided Tier 1/2 IT support, resolving hardware, software, and network issues for 200+ employees in a fast-paced media production environment.
- Designed and deployed an internal IT asset tracking system, improving equipment management and reducing replacement costs.
- Collaborated with the Technical Director to analyze and optimize IT infrastructure, enhancing system reliability and user productivity.

Freelance Audiovisual Technician Apr. 2016 – Present
Self-Employed *Montreal, QC*

- Managed end-to-end audiovisual projects for corporate and media clients, from equipment setup and operation to post-production editing.
- Provided professional sound engineering services, including recording, mixing, and mastering for music releases and live events.

Projects

SYNAPSÉTS Biotechnology Club (Exoskeleton Team Lead) | *C++, Python, Git, STM32* Mar. 2024 – Present

- Lead the software sub-team in developing firmware for a powered leg exoskeleton for the Applied Collegiate Exoskeleton (ACE) Competition.
- Programmed an STM32 microcontroller in C++ to process and fuse real-time data from a suite of sensors, including EMG, IMUs, and force sensors.
- Implemented a user-intent recognition algorithm that uses sensor data and motor feedback (speed, rotation) to provide predictive and synchronized walking assistance.

SYNAPSÉcole de technologie supérieure Biotechnology Club (Prosthetic & VR Teams) | *C#, Python, Unity, scikit-learn*Apr. 2023

- Developed Python-based AI algorithms to filter and classify real-time EEG signals for controlling a 3D-printed prosthetic arm.
- Engineered a neurofeedback system within a Unity VR game (C#), translating processed EEG data into in-game actions to enhance user control.
- Created a proof-of-concept model using eye-tracking data captured via an EEG headset to provide an alternative control scheme for the prosthetic.

Japanese Seinen Association of Montreal | *Python, TypeScript, React, Docker* Mar. 2023 – Dec. 2023

- Developed a multi-functional Discord bot (Python) to automate event management and staff coordination for an association of over 50+ members.
- Built a companion web application using TypeScript and React to streamline participant registration and simplify event planning for staff.

ECLIPSE Solar Vehicle Club | *C/C++, MATLAB, Python, Altium, Git* Aug. 2021 – Mar. 2023

- Designed and routed multi-layer PCBs for the vehicle's telemetry and battery management systems using Altium Designer.
- Wrote firmware in C for STM32 microcontrollers to manage power distribution, data logging, and CAN bus communication.
- Managed the team's media production (photography, videography) and coordinated international logistics for the World Solar Challenge in Australia.

Publications

Aalto, E., **Yoshida, M.**, Menard, L., Cardoso, W., & Laporte, C. (2024) | *Published*

- *"Effects of an ultrasound biofeedback session on maximal tongue movements."* Presented at the 13th International Seminar on Speech Production (ISSP), Autrans, France.

Volunteer Experience

JSAM Language Exchange Staff Mar. 2019 – Present

- Coordinated weekly language exchange events for 40+ participants, facilitating cultural exchange and language practice in Japanese, English, and French.
- Managed program logistics, including scheduling, participant registration, and resource allocation to optimize operational efficiency.

Yatai Montreal Staff 2019 – 2023

- Collaborated with a team of 50+ volunteers to execute a large-scale annual festival, attracting over 10,000 attendees each year.
- Leveraged trilingual abilities (French, English, Japanese) to assist guests and volunteers, enhancing their overall event experience.

Technical Skills

Languages: C/C++, Python, C#, SQL, MATLAB, JavaScript/TypeScript, HTML/CSS, VHDL, Bash
AI Frameworks: PyTorch, TensorFlow, scikit-learn, OpenCV, Librosa
Web Frameworks: React, Django, Astro, Bootstrap, Flask, Flutter
Developer Tools: Git, GitLab, Docker, VS Code, Visual Studio, Unity, STM32CubeIDE, JUCE
Engineering Software: Altium Designer, KiCAD, AutoCAD, LabVIEW, Simulink, Quartus, ModelSim
Multimedia Software: Pro Tools, Logic Pro, Final Cut Pro, Adobe Creative Suite, Reaper, iZotope RX

Languages

English: Native
French: Native
Japanese: Native