Margaret Yan

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Education

University of Waterloo **April 2029**

Bachelor of Biomedical Engineering | ***3.99 GPA*** | *Biomechatronics, Engineering Society, SERVE*

Experience

Undergraduate Research Assistant **September 2025 – Present**

University of Waterloo, Fluid Flow Physics Group *Waterloo, ON*

- Modelling laryngeal fatigue to predict vocal fold motion and control patterns through neuromuscular simulation.
- Adapting existing fatigue models to capture realistic force patterns and fatigue behaviour in laryngeal muscles.
- Analyzing simulation results to assess how neural drive patterns influence phonation stability/fatigue progression.

Engineering Project Manager Intern **April 2025 – August 2025**

Highbury Canco Corporation *Leamington, ON*

- Managed a **$1M+** production line build by coordinating design and installation for an integrated system.
- Developed formal piping and equipment layout drawings in **Autocad** to support construction and design reviews.
- Individually directed a **$600K+** phased-in office renovation for **50+ staff**, ensuring uninterrupted operations.
- Reviewed **P&IDs**, **process flows**, and **equipment layouts** to plan installation and identify requirements.

Technical Skills

Tools: SolidWorks (Fusion 360), Z-Suite (3D-Printing), AutoCAD, MATLAB, Python, Java, C++
Skills/Certifications: Iterative prototyping, Biomedical device design, Laboratory Safety (WHMIS, Biosafety certified)

Projects

KeyFlow Assist | View Project Jan 2025

- Developed an **assistive piano prototype** to facilitate **music-supported therapy** for Cerebral Palsy patients.
- Applied risk assessment principles **(Fault Tree Analysis)** to identify and mitigate risks, ensuring user safety.
- Conducted user-centered testing using Likert-based evaluations to outline **design revisions** for future iterations.

3D Puzzle | Solidworks and Z-Suite Jan 2024

- Designed a multi-part butterfly puzzle in **SolidWorks** using assemblies to create a functional 3D mechanism.
- Applied mate constraints, pin-hole alignments, and parametric dependencies to achieve precise motion/part fit.
- Printed and refined the prototype using **Z-Suite** to validate tolerances and ensure smooth mechanical interaction.

Super Mario Bros Clone | Java Jan 2024

- Built a **2D platformer game** in **Java**, with mechanics for player movement, power-ups, and level design.
- Programmed real-time collision detection, animations, and user inputs for a responsive UX.
- Implemented game logic and physics systems to handle interactions between characters, platforms, and obstacles.

Leadership Experience

Sports Society Director **Sept 2024 – April 2025**

University of Waterloo *Windsor, ON*

- Organized a **100+ participant charity basketball event**; managed equipment, scheduling, and setup logistics.
- Handled communication with event staff / spectators, ensuring smooth operations and positive experience.

Ontario Volleyball Official **Sep. 2022 – Present**

Ontario Volleyball Association *Windsor, ON*

- Implemented OVA safety regulations in high-pressure environments to identify hazardous equipment/unsafe play.
- Officiated **AAU Nationals in Florida (950+ teams)**, managing court logistics, and record management.
- Resolved frequent disputes between participants by making clear, impartial decisions under pressure.