

# Aiden Van Greuning

## Skills

**Technical & Analytical Skills** Biomedical signal processing, data analysis, feature extraction, MATLAB, algorithm implementation, machine learning fundamentals, biomedical data interpretation, computational modeling, system characterization

**Experimental, Systems & Engineering Skills** Experimental system design, embedded control systems, Arduino-based development, sensor integration, fluid mechanics and biofluid modeling, peristaltic pump systems, experimental prototyping, validation and testing, microfluidics concepts

**Research, Laboratory & Professional Skills** Wet-lab techniques and cell culture, optical microscopy, biomaterials handling, protocol execution under biosafety constraints, experimental documentation, technical reporting, literature review, feasibility analysis

## Education

2020–2025 **Bachelor of Engineering in Biomedical Engineering**, *Toronto Metropolitan University*

## Academic Projects

**Capstone: Low Cost Cerebrovascular Flow Pump (Sep. 2024–Apr. 2025)**  
Grade: 89%

- Solely executed a capstone project typically assigned to a four-person team, designing and building a pump system (cost ~\$600, ~75% less cost compared to similar systems in professional labs) to replicate brain arterial blood flow for interventional neuroradiology training
- Integrated with a 3D-printed Circle of Willis model, developing an Arduino-based control system for precise flow regulation and collecting flow/pressure data with a flow sensor and Poiseuille's Law using a glycerol–water blood analog

**Signal Processing of Cerebromicrovascular Disease (Nov.–Dec. 2024)**  
Grade: 75%

- Processed and analyzed electrocardiogram (ECG) signals from elderly diabetic patients with cerebromicrovascular disease, applying the Pan–Tompkins Algorithm for heartbeat event detection and feature extraction/analysis
- Identified PQRST points and achieved 66.7% sensitivity and 62.3% validation accuracy in machine learning classification; ~20% above literature benchmarks

## Experience

Apr.–Apr. 2025 **Deputy Returning Officer**, *Elections Canada*, Richmond Hill, ON

- Verified voter ID, issued ballots and maintained accurate records for 103 electors; assisted with ballot counting, documentation and compliance reporting

Aug. 2024–Mar. 2025 **Vice President of Administration (Volunteer)**, *IEEE EMBS TMU Chapter*

- Led and delegated tasks to a 7-member team, fostering collaboration with TMU student groups and external professionals to advance joint initiatives

Sep.–Dec. 2023 **Innovation Boost Zone Apprentice**, *PINION (Innovation Boost Zone Startup, TMU)*

- Recruited volunteers through surveys/outreach and developed the startup's first website to support international student onboarding

## Certifications

2025 **GCP–Basic; R for Data Science (Analysis & Visualization); TCPS 2: CORE (2022), N2/CITI Program; LinkedIn Learning; Government of Canada**

2026 **Medical Devices; Health Canada Division 5; Lean Six Sigma Foundations, N2 Canada; N2/CITI Program; LinkedIn Learning**