# Ritchie Feynman

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## Highlight of Qualifications

- Enrolled in year 4 of 5 in McMaster University's Engineering Physics and Biomedical Engineering Co-op program, **eligible for 4-, 8-, 12- and 16-month co-op** placements starting May 2026
- Proven experience in wet-lab environments through course-work and academic research experience
- Strong project management and development skills through coursework and internship experience
- Demonstrated teamwork and communication ability in all collaborative project and work experience

## Education

**Engineering & Health Sciences Co-op (BEngBME)** | *Engineering Physics Stream* **Sept 2022 – Apr 2028**

*McMaster University*

- Awarded Provost Honor Medal for perfect 4.0 GPA in first year studies (2023)

## Experience

**R&D Engineer Intern** | *Stryker, Etobicoke ON* **May – Aug 2025**

- Designed and developed innovative single-use medical devices, contributing to improved patient care and compliance with FDA and ISO standards
- Executed hypothesis-driven experiments and statistical analyses, accelerating design validation
- Independently managed engineering workstreams, adapting plans to evolving project needs and demonstrating strong initiative
- Ensured strict adherence to the Quality Management System, enhancing documentation accuracy and audit readiness

**Wet-lab Research Assistant** | *Department of Biochemistry, McMaster University* **May - Aug 2024**

- Investigated enzyme-substrate interactions in metabolic pathways, contributing to a project on allosteric regulation mechanisms
- Purified recombinant proteins using affinity and size-exclusion chromatography, increasing yield consistency by 40%
- Conducted kinetic assays and analyzed data using Excel, improving assay reproducibility by 25%

## Projects

**Risk Analysis Project** | *Engineering Economics Course Project* **Mar – Apr 2027**

- Led a 4-member team in designing a cost-effective healthcare solution for a real-world client, applying engineering economics and project management principles to improve service delivery for a target population of 10,000+
- Conducted feasibility analysis using time value of money, cash flow projections, and value engineering, resulting in a solution projected to reduce operational costs by 15% over 5 years
- Delivered technical reports and stakeholder presentations, incorporating feedback to refine design and align with environmental, societal, and economic constraints

**Genetic Engineering Project** | *Genetic Engineering Course Project* **Feb - Apr 2024**

- Led a 4-member team in designing a synthetic biology solution to a real-world health problem, applying molecular cloning, PCR, and in silico modeling using MATLAB SimBiology
- Engineered a functional genetic circuit and validated its performance through 5 wet lab experiments, including plasmid ligation and diagnostic digests
- Developed a predictive model simulating biological system behavior, improving design accuracy by 30% through iterative testing and simulation
- Authored a peer-reviewed style scientific paper and delivered a final presentation to a panel of faculty and peers, demonstrating strong technical communication and collaboration skills

**Computational Heart Model** | *Computational Multiphysics Course Project* **Mar - Apr 2024**

- Developed a detailed computational model of blood flow through the heart using COMSOL Multiphysics
- Applied principles of fluid dynamics and cardiovascular physiology to simulate realistic blood flow patterns
- Utilized COMSOL's finite element analysis (FEA) capabilities to analyze pressure, velocity, and shear stress within the heart chambers and valves
- Conducted sensitivity analyses to learn the impact of various physiological parameters on blood flow
- Interpreted simulation results to provide insights into potential cardiovascular issues and their underlying mechanisms



## Extracurricular Activities

**K+ Device Team Member** | *McMaster University Medical Device Team* **Sept 2023 – Present**

- Developed a wearable electrochemical sensor for real-time potassium ion detection in sweat, aimed at early detection of hypokalemia in cardiac patients
- Fabricated ion-selective electrodes using valinomycin-doped PVC membranes, achieving a detection limit of 0.5 mM
- Conducted calibration and signal processing using Arduino and MATLAB, improving sensor response time by 25%

**2nd Year Representative** | *McMaster University IbioMed Society* **Sept 2023 – Apr 2024**

- Represented the interests of 200 students in 2nd year cohort of biomedical engineering to society meetings, facilitating interaction between the student body and society leaders
- Organized and managed monthly events, including guest lectures, workshops, and social gatherings, enhancing the academic and social experience of peers

## Skills

**Programming Languages:** Python, C/C++, MATLAB, Simulink, R, Java

**Lab Skills:** Molecular Cloning, Fluorescence Microscopy, Flow Cytometry, Spectroscopy, Hydrogels, PCR, Plasmid Ligation, chromatography, protein purification

**Software:** SolidWorks, AutoCAD, ANSYS, Abaqus, Multisim, Maple, MATLAB SymBiology, COMSOL, MS Office, GSuite