Alex Economopoulos

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|https://github.com/Alexecono | www.linkedin.com/in/alexander-economopoulos

Skills

Software: C++, Python, JavaScript, Java, HTML, CSS, MATLAB, Simulink, GUI Development, Git
Hardware: SolidWorks, AutoCAD, ANYSYS, 3D Printing
Design: Debugging, Root Cause Analysis, Teamwork, Effective Communication

Projects

Graphing Calculator (C++)

- Developed a real-time mathematical function plotting application with **custom function parsing**
- Implemented zooming and panning using **coordinate transformations**
- Designed interactive **GUI** using **OpenGL** and **ImGui**

Sudoku Solver with GUI (Java)

- Designed and implemented a **recursive backtracking algorithm** to instantly solve 9x9 Sudoku puzzles
- Created a user-friendly **GUI** using **Swing GUI** for puzzle input and visualization

2D Collision Simulator (Python)

- Simulated elastic and inelastic collisions with user-controlled mass, velocity, and position
- Applied conservation laws to compute post-collision states and energy loss
- Developed an interactive **GUI** using **Tkinter**

Experience

Guidance, Navigation, Controls Member
UW ORBITAL, Waterloo, ON — September 2025 – Present

- Simulated satellite eclipse periods using vector math and **Simulink** to predict solar panel charging capabilities
- Modelled expected Earth magnetic field measurements at the satellite using **MATLAB/Simulink** to support magnetorquer-based attitude stabilization
- Estimated Viscous and Coulomb friction coefficients to support **high fidelity reaction wheel model**

Engineering Intern
Hammerschlag and Joffe Engineering Consultancy , Toronto, ON — July 2024

- Updated fire protection layouts by mapping legacy devices for a large department store chain using **AutoCAD**
- Performed **electrical load and water usage calculations** for corporate clients to aid engineering analyses
- Reviewed tender documents and contractor submissions, ensuring accuracy and compliance with **Excel**
- Drafted and edited **shop drawing review reports** to support construction quality control

Head of Chapter
FUTURE HEALTH PROFESSIONALS, Toronto, ON — September 2024 – June 2025

- Managed registration, finances, and event logistics for **60+** chapter members
- Organized and facilitated a **peer mentor program**, personally mentoring 6 students
- Produced and directed a **promotional video** that increased chapter membership by **25%**
- Competed in the Medical Innovation event, designed a **first responder drone concept** with a team

Education

University of Waterloo, ON — 2025-2030
Candidate for Bachelor of Applied Science in Biomedical Engineering
GPA: 3.9
Relevant Courses:
Digital Computation, Data Structures and Algorithms, Matrices and Linear Systems, Human Factors in Design