

# Mohamed Elsayed

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## EDUCATION

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### University of Toronto

*Bachelor of Engineering in Engineering Science*

**Relevant Coursework:** Data Structures and Algorithms (Python/C), Linear Algebra, Engineering Mathematics and Computation, Calculus I/II

Toronto, Ontario

*Sep. 2025 – May 2030*

## EXPERIENCE

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### Undergraduate Research Assistant

*American University in Cairo*

July 2025 – Aug. 2025

*New Cairo, CAI*

- Developed a custom electronic control system using microcontrollers to automate a precision translation stage for optics experiments.
- Designed and assembled circuit boards for motor control and magnetic field manipulation, ensuring reliability through rigorous testing.
- Programmed microcontrollers to integrate hardware and software for automated research setups.

### Backend Intern

*eVision*

July. 2024 – Aug. 2024

*New Cairo, Cai*

- Developed and deployed a high-performance file parsing system, automating data processing to accelerate integration workflows and improve data reliability.
- Partnered with frontend, database, and QA teams in a cross-functional agile environment to ensure seamless integration and system robustness.
- Acquired hands-on, full-stack experience across the entire software development lifecycle (SDLC), from design and implementation to testing and deployment

## PROJECTS

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### LaTeX Notetaker Converter | *TypeScript, JavaScript, CSS, Python*

Dec 2025 – Present

- Built a web-based tool to convert handwritten, typed, and audio notes into structured LaTeX documents optimized for notation heavy coursework and technical writing.
- Implemented OCR, parsing and automation pipelines to generate compilable LaTeX with support for equations, figures, and modular document organization.

### Structural Beam Simulation | *Python, MATLAB*

Nov 2025

- Built a general-purpose beam simulation engine for arbitrary cross-sections by computing section properties directly from geometry; generating deflection curves, and factor-of-safety statistics for arbitrary loads using numerical integration (Euler–Bernoulli Beam Theory).
- Developed MATLAB stress/deformation visualizations, including 3D deflection animations under moving/distributed loads, and validated predictions against physical tests to improve accuracy.

## TECHNICAL SKILLS

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**Languages:** Java, Python, C, SQL, JavaScript, HTML/CSS, TypeScript, MATLAB

**Developer Tools:** Git, VS Code

**Libraries:** Pandas, NumPy, Matplotlib