

Dario Serrano

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Portfolio: lismutt.github.io/darioserrano.github.io/

Authorized to work in the U.S. (Citizen), EU (Citizen) and Canada (Work Permit)

PROFILE

Mechanical Engineering student at the University of Toronto with experience in mechanical design (SolidWorks, Eagle PCB, ANSYS, Creo, MATLAB) and applied AI (PyTorch). Seeking a 12–16 month co-op/internship (2026) in Mechanical/Mechatronics Engineering, with strong interest in AI-driven systems and analytical modeling.

EDUCATION

University of Toronto, Toronto, ON

2023–2027

B.A.Sc. Mechanical Engineering + PEY Co-op

Minor: Robotics & Mechatronics — Certificates: Engineering Business, AI Engineering

Teams: U of T Baja Racing (Suspension) — U of T Racing (Chassis Design)

High school distinctions: International Math Modeling Competiton (IMMC) top 3 percent, Physics Bowl National Gold

ENGINEERING EXPERIENCE

Engineering Intern — Schindler Group

Jul–Aug 2024

Shanghai, China

- Modeled elevator structural components Ω -Beam and L-Beam parts in Creo parametric with main worldwide R&D team; performed FEA analysis under FKM guidelines.
- Built basic MATLAB ODE models to analyze oscillations and validate simulation accuracy.
- 3D-printed lift solution prototypes on industrial systems for rapid iteration.

Androgynous Spacecraft Docking Mechanism — Kinematics and Dynamics of Machines

Sep–Dec 2025

Toronto, ON

- Built a parametric CAD model of a 6-arm variable-angle rough-alignment mechanism for a microsatellite docking interface.
- Wrote MATLAB kinematic and static analysis code to compute docking cone half-angle over 0.40–0.45 m slider travel and resolve forces under a 6 kN axial docking load (1000 N per arm).
- Solved a 6×6 equilibrium system to compute joint reactions and required slider actuator force ≈ 2.17 kN, and implemented Jacobian-based force mapping for Stewart-platform actuator loads.

Current Sensing & Anti-Aliasing PCB — Digital and Analog Circuits

Jan–May 2026

Toronto, ON

- Designed an analog current-sensing system mapping 0–3.5A to 0.25–3.3V ADC range using LM324 under 0–19V single-supply constraints; validated DC sweep and gain scaling in LTspice.
- Designed a 3rd-order Chebyshev low-pass filter (1kHz cutoff, ≥ 35 dB at 5kHz) to mitigate aliasing for 50–70kHz ADC sampling; selected standard 5%/10% RC values.
- Created a 2-layer PCB in EAGLE with controlled routing of power/ground returns; generated Gerber/drill files and fabricated + hand-soldered board for validation.

CNC Mill Design Project — Mechanical Engineering Design

Sep–Dec 2024

Toronto, ON

- Designed a functional market ready CNC mill in SolidWorks targeting hobbyist users.
- Ran cost–performance analysis and evaluated design candidates for manufacturability.

AI & ANALYTICAL PROJECTS

Seizure Detection with CNN–LSTM — Applied Fundamentals of Deep Learning

May–Sep 2025

Toronto, ON

- Built a CNN–LSTM model in PyTorch to classify EEG seizure data (CHB-MIT dataset from a Boston pediatric hospital) for seizure prediction.
- Implemented preprocessing: Butterworth filtering, wavelet denoising, sliding-window segmentation.
- Achieved AUROC 0.96 and F1-score 0.84; strong generalization on unseen data.

Research on Rocket Optimization

Jun–Oct 2022

Remote

- Published “Applications of Optimization Techniques for Solid Rocket Design” (Darcy & Roy Press).
- Applied numerical optimization for propulsion performance. DOI: 10.54097/hset.v38i.5936

TECHNICAL SKILLS

Design & Simulation: SolidWorks, Creo, ANSYS, 3D Printing, Machining

Programming: Python, PyTorch, MATLAB, NumPy, pandas, SciPy

Other: Microsoft Office, Minitab Languages (Native Speaker): English, Mandarin, Shanghainese

Reference: Available upon request from Daryoush Ziai, CEO — Schindler Asia Pacific.