Dario Serrano

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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, 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 (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 **Ω-Beam** and **L-Beam** parts in Creo; performed **FEA** under **FKM** guidelines.
- Built **MATLAB ODE** models to analyze oscillations and validate simulation accuracy.
- 3D-printed 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.

CNC Mill Design Project — Mechanical Engineering Design Sep–Dec 2024
Toronto, ON

- Designed a **functional 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).
- 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

OTHER EXPERIENCE

Private Tutor — Freelance May 2023–Present
Hybrid (China, U.S.)

- Tutored **50+** international students (Physics, Math, Chemistry, English AP/IB); emphasis on analytical problem-solving.

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.