Aidan Somani

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TECHNICAL SKILLS

Software: SolidWorks, ANSYS/Granta, MATLAB/Simulink, Python, C, Altium, Excel, SVN, Revit, AutoCAD, Bluebeam
Manufacturing: CNC, Turning, Milling, Welding (TIG/MIG), 3D Printing, Water Jet, Hand Tools

WORK EXPERIENCE

Suspension Team Lead – UBC Formula Electric *Vancouver, BC • Sep 2024 – Present*

- **Led a team of 7** across suspension **design**, **simulation**, and **validation**, **directing** brake-rotor thermo-mechanical FEA, TTC tire characterization, and bolted-joint methodology to support full-vehicle development.
- Redesigned the lower steering column and engineered a lightweight, machined ball-bearing support, reducing steering free play by **over 90%** (from >7° to <1°) while cutting part **count, weight, and cost**.
- Utilized a **Pacejka MF6.2** Tire Fitter with TTC data to validate performance of our tires against 5 competitors.
- Authored fully-toleranced engineering drawings to **GD&T per ASME Y14.5**, applying **DFMA** principles to all parts.
- **Topology-optimized** 7075-T6 rear bellcranks in ANSYS, **reducing mass by 56.7%** while raising the **safety factor** from **1.5 to 2.84** across two load cases while **reducing cost** to produce.
- Built **MATLAB** tools **translating tire forces** into **suspension-member loads** and fed FEA-derived compliance into vehicle dynamics simulations to tune motion ratios, ride frequencies, and load transfer.

Mechanical Engineering Intern – WSP Canada *Vancouver, BC • May 2025 – Dec 2025*

- Sized, selected, and designed **HVAC & plumbing systems** for multiple projects ranging from $100K to over $10M in total project value, with mechanical scope exceeding $2M.
- Produced and marked up **P&ID diagrams**, schematics, and construction documents in Revit and Bluebeam.
- Created mechanical details adopted into the National WSP Library to **ensure on-site alignment** with **design intent**.

TECHNICAL PROJECTS

Active Mountain Bike Shock *Jun 2024 – Present*

- Designing a custom monotube-IFP shock with electronically controlled active and predictive Low-Speed Compression damping, driven by an **nRF53 BLE embedded system** taking IMU and oil pressure inputs.
- Modeled a test shell assembly in **SolidWorks**, validating force load path and producing a **working 3D-printed prototype** to verify frame fit and packaging.

Custom Miniature Solenoid Valve *Feb 2026 – May 2026*

- Designed a sub-16 mm, naturally open micro solenoid valve to actuate the active shock damping circuit.
- Validated actuation forces from first principles, including magnetic, spring, and oil pressure forces. Achieved a **magnetic pulse force 3.9 times larger** than the static **oil pressure force at 500 psi**.
- Confirmed performance via 2D axisymmetric **magnetostatic FEA** in FEMM, corroborating with hand calculations.

EDUCATION

The University of British Columbia *Sep 2023 – April 2028*

Bachelor of Applied Science – Mechanical Engineering, General Option

CGPA: 87.3%

Related Courses: Mechanics I (99%), Heat Transfer (93%), Fluid Dynamics II (91%)

Availability: Available for an internship starting July 2026

INTERESTS

Hiking, Mountain Biking, Skiing, Golfing, History, Drone Photography, Investing