

Russell Bilinski

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EDUCATION

University of Victoria

B.Eng., Mechanical Engineering, Minor in Electrical Systems (in progress)

Fourth year | Expected graduation: Fall 2027

Victoria, BC

EXPERIENCE

Tesla | Mechanical Design Engineering Intern, Battery Pack

Jan 2025 – Jul 2025 | Palo Alto, CA

- Led a battery-pack materials project with **projected eight-figure annual savings**, from sourcing and test development through trials, analysis, and recommendations to directors.
- Led supplier DFM reviews and refined prototype CAD for a part targeted at **million-unit annual production**. Drafted design guidance for scaling the new manufacturing process.
- Developed and ran a coupon-level battery abuse test through **20 test runs**. Created the fixtures, procedures, and documentation needed for other teams to repeat the test.
- Defined a factory **installation torque window** for a self-threading fastener through hundreds of torque-to-failure tests and aging experiments, supporting technical de-risking, sourcing, and cost-down planning.
- Fabricated prototypes in-house and commissioned others from external shops. Managed purchasing and a five-figure inventory to keep vehicle subsystem tests on schedule.
- Developed **MATLAB scripts** that converted raw test data into engineering summaries presented at multiple director-level program reviews.

UVic Formula Student (FSAE)

Victoria, BC

Performance Manager

Jul 2026 – Present

- Appointed as the team's **first Performance Manager**, using first-principles models and parameter sweeps to estimate competition-point sensitivities and evaluate vehicle changes against reliability and development effort.
- Translated broad team goals into actionable **subsystem targets** and performance metrics, using engineering methods and physical relationships to define what each subteam should improve and track.

Vehicle Dynamics Lead

Feb 2026 – Jul 2026

- Re-established the subteam after two years without a dedicated lead, organizing weekly meetings and technical lectures.
- Built a **lap simulation** and component models to inform battery sizing, competition energy strategy, and sprocket selection.

Battery Pack Engineer

Jan 2024 – Feb 2026

- Developed **structural hand calculations and thermal models** to guide battery-segment design and cooling requirements.
- Designed a compact, rules-compliant HV junction box for ~580 V and ~150 A operation.
- **Fabricated and instrumented** battery-module prototypes using laser-cut and 3D-printed structures. Tested forced-air cooling on live cells under electrical load.

Professional Components | Mechanical Engineering Co-op

Aug 2023 – Jan 2024 | Sidney, BC

- Designed hundreds of custom SolidWorks packaging layouts to reduce box size, shipping cost, and damage while simplifying packing for technicians.
- Created and modified **100+ product assemblies and drawings**, including trade-show display products and supporting fabrication documents.

Nicholson Manufacturing | R&D Engineering Co-op

Jan 2023 – Apr 2023 | Sidney, BC

- Designed and 3D-printed a motor coupling for destructive product testing.
- Updated hundreds of shop-floor drawings, maintained revision history, and converted legacy 2D drawings into 3D CAD models.

TECHNICAL SKILLS

CAD & Design: 3DEXPERIENCE, SolidWorks, Engineering Drawings, Fixture Design

Analysis & Programming: MATLAB, Thermal Modeling, Python, Data Analysis, Structural Calculations

Testing & Instrumentation: Thermal Testing, Sensor Instrumentation, Low-Cost Data Acquisition & Instrumentation