

BLAIR KLOOS

Mechanical Engineer | Mechatronics Specialist | Medical Device R&D

blair.kloos@gmail.com | 604-396-2037 | Vancouver, BC | LinkedIn: [linkedin.com/in/blairkloos](https://www.linkedin.com/in/blairkloos)

SUMMARY

Versatile Mechanical Engineer (Mechatronics) with 7+ years of experience in regulated medical device R&D (ISO 13485, IEC 60601). Proven track record in New Product Introduction (NPI), taking complex electromechanical systems from prototype to production. Expert in design control, CAD governance, and bridging the gap between mechanical hardware and electrical control systems.

CORE SKILLS

- **Design & NPI:** SolidWorks (CSWP), GD&T (ASME Y14.5), FEA, Design for Manufacturing (DFM/DFA), ECO/BOM Management, PDM.
 - **Systems & Mechatronics:** Control Systems, Signal Processing, PLC/VFD Programming, Data Acquisition (DAQ), C#, Arduino, MATLAB.
 - **Regulatory & Quality:** IEC 60601, ISO 13485, Risk Management (DFMEA/PFMEA), Process Validation (IQ/OQ/PQ).
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PROFESSIONAL EXPERIENCE

Kardium Inc. | *Product Validation & Infrastructure Lead*

Jan 2018 – May 2025

- **Design Governance:** Established company-wide SolidWorks CAD standards and best practices, acting as the technical delegate for CAD review and approval to ensure design robustness and PDM integrity.
- **NPI Transition:** Collaborated with cross-functional teams to resolve IEC 60601 torque failures in injection-molded components; developed assembly aids and updated manufacturing work instructions to ensure production scalability.
- **Capital Infrastructure:** Managed the procurement, commissioning, and validation of \$25K+ custom capital equipment and high-throughput 3D printing systems for the R&D lab.
- **Automation Integration:** Designed and implemented an automated saline preconditioning system utilizing C# scheduling; increased testing throughput by 8x while reducing operator-induced variability.
- **Lab Leadership:** Led a 5S optimization program for the R&D and formal testing laboratory, improving space utilization and documentation traceability for audit readiness.

IFD Corporation | *Product Engineer (Mechatronics)*

May 2017 – Dec 2017

- **Systems Integration:** Designed a high-torque validation platform integrating a 3kW AC Brushless Motor, VFD, and torque transducer; programmed automated test logic to simulate field-service loads for power utility components.
- **Technical Support:** Led root cause investigations and CAPA execution for international customer non-conformances (US/Mexico), restoring product confidence through rigorous hardware verification.

Novadaq Technologies | *Mechanical Engineering Co-op (NPI)*

May 2016 – Dec 2016

- **Cost Reduction:** Redesigned a CO2 cylinder mounting system, reducing part cost and assembly time while ensuring compliance with SGS-certified IEC 60601 safety standards.
- **Sustaining Engineering:** Released ECOs for retrofit kits across 50+ field units.
- **Product Design:** Managed a 200+ component BOM for a handheld medical imaging device with strict thermal and optical constraints.

UBC Aerodynamics Lab | *Aerodynamics Lab Assistant (Co-op)*

Jan 2015 – Aug 2015

- **Biotelemetry Testing:** Performed aerodynamic/hydrodynamic testing on 3D printed sea turtles to determine transmitter drag; optimized attachment procedures for wildlife tracking electronics to minimize energetic costs to animals.
- **Instrumentation:** Performed maintenance and calibration on wind tunnel data acquisition hardware and sensors.

Evasc Medical Systems | *R&D Engineering Co-op*

May 2014 – Aug 2014

- **Cleanroom Operations:** Fabricated and tested brain aneurysm clips and delivery catheters within an ISO Class 7 cleanroom environment.
 - **Prototype Validation:** Developed custom test fixtures to validate stent deployment forces and mechanical fatigue.
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TECHNICAL PROJECTS & LEADERSHIP

Vancouver Hack Space | *Member/Volunteer*

June 2025 – Present

- Perform precision maintenance on industrial shop equipment.
- Recently diagnosed and repaired a table saw trunnion tilt mechanism to restore factory tolerances.
- Overhauled the laser cutter fume extraction system to resolve critical airflow/exhaust issues.

UBC Orbit (Satellite Design Team) | *Structural Sub-team Lead*

June 2016 – Dec 2018

- Led structural sub-team in the design, FEA, and manufacture of a 3U CubeSat.
- Coordinated integration testing and managed technical reviews for national competition.

Prosthesis: Mechanical Racing Machine | *Technical Lead / Project Coordinator*

Sep 2015 – Apr 2016

- Project Lead for a 5-person team designing a hydraulic foot prototype for a 4,000kg mechanical racing machine.
- Performed bearing life calculations and FEA for high-impact loads.

SAE Formula UBC | *Aerodynamics Validation Engineer*

Sep 2015 – Apr 2016

- Designed and fabricated a wind tunnel test rig for race car rear-wing validation; verified CFD simulations through empirical data collection.
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EDUCATION & CERTIFICATIONS

- **B.A.Sc. Mechanical Engineering (Mechatronics)** | University of British Columbia | 2017
- **Certified SolidWorks Professional (CSWP)** | 2017
- **Fundamentals of GD&T (ASME Y14.5)** | 2017
- **EIT / P.Eng. Candidate** | Engineers & Geoscientists BC (EGBC)