Kevin Rae

kevinrae001@gmail.com | (236) 978-5817 | kevinrae001.github.io

Skills

CAD/Design: SolidWorks, Creo, AutoCAD, GD&T ASME Y14.5, DFM/DFA, SolidWorks PDM
Prototyping: 3D printing, CNC, welding/fabricating, soldering, microcontrollers
Analysis: MATLAB, Simulink, FEA, CFD
Programming: C++, C, C#, Python

Experience

Founder, 1552592 B.C. LTD. – Vancouver, BC Aug 2025 – Present

- Delivered mechanical designs and prototypes for client projects, including 3D assemblies, drawings, BOMs, and test-ready documentation; produced PFDs/P&IDs and supporting code/scopes of work as needed

Research & Development Engineer, Ascent Systems Technologies – Vancouver, BC Sep 2021 – May 2025

- Performed hand calcs and FEA to size members/fasteners and verify strength and stiffness under expected loads
- Designed mechanisms in SolidWorks and released drawings for 300+ parts and assemblies deployed in the field
- Designed a custom telescoping mast supporting a 1.8 kW solar array; validated operation in 80 km/h winds and integrated rotation/tilt for sun tracking
- Developed the mechanics of a machine that uses solar energy and waste heat to warm water and air for the Canadian military at remote locations, winning three rounds of a defense competition and a $1.5M prize
- Reduced the fuel requirements of a relocatable temporary camp by 15% by designing a heat exchanger to heat up potable water using the waste heat from a scrubber system
- Owned the SolidWorks CAD and released drawings/BOM for a drone/camera/sensor station monitoring remote airstrips, supporting a $1.4M Transport Canada contract award
- Programmed ESP32s using C and C++ for pump and motor control and sensor data acquisition, developed C++ data analysis tools and built C# HMIs

Mechanical Engineering Intern, BC Research – Vancouver, BC Jan 2020 – Aug 2020

- Designed a 100 L general-purpose vacuum distillation unit for separation and solvent recovery; engineered the kettle, condenser, column, jacket, and overall assembly in accordance with ASME BPVC standards
- Designed a testing apparatus to assess the blood penetration of N95 masks for Vancouver Coastal Health
- Designed and built a hydraulic compression system which feeds 20 kg of foam per minute into a reactor

Mechanical Engineering Intern, Dometic, Marine Division – Richmond, BC Sep 2018 – Dec 2018

- Designed a cylinder-pin wrench in Creo that was manufactured in the hundreds for production use
- Diagnosed and repaired a boat simulator that allowed engineers to assess steering products in-house
- Developed and executed durability tests on steering helms that led to product design improvements

Mechanical Engineering Intern, BD Diesel Performance – Abbotsford, BC May 2018 – Aug 2018

- Created casting and machining drawings of turbochargers, manifolds, and exhaust assemblies for production
- Designed and built a flow bench for turbochargers and manifolds; optimized the flow path using SolidWorks Flow Simulation (CFD)
- Designed precision fixtures for a rotor balancing machine that enabled balancing of transmission components to within 0.001” total indicated runout, using GD&T to control tolerance stack-up

Education

The University of British Columbia– BASc in Mechanical Engineering, Mechatronics Option May 2021
Graduated with Distinction