Matteo Aiello

Mechanical Engineering Student

Website: https://www.matteoaiello.github.io | Email: matteo.aiello22@gmail.com | Mobile: (403) 612-6725

EDUCATION

University of Victoria — **Victoria, BC**

Bachelor of Engineering (BEng): Mechanical Engineering — 2017-Present

Pursuing a Specialization in Energy Systems

WORK EXPERIENCE

Systems Engineering Co-op – Corvus Energy Inc.

January – May 2019 | Richmond, BC

- Assembled and utilized a thermocycling test jig to simulate strain/stress on a Corvus lithium-ion battery module from thermal expansion differentials.
- Developed python scripts to plot/evaluate resistance data from a welded-tab battery jig DAQ in MATLAB.
- Safely operated machining tools to complete various tasks (lathe, mill, drill press, band saw, etc.).
- Used Solidworks CAD to model and design various battery module jigs and parts and used FEA to address stress cracks on prototype laser-welds.
- Designed and reported a new method of vibration-testing to mimic operational fatigue of electrical components and analyze integrity.

Sustainable Energy Engineering Co-op – Crescent Point Energy Corp. (CPG)

May – September 2018 | Calgary, AB

- Assisted with and provided research for multiple projects with aim to reduce company carbon intensity (emissions/production). Focused primarily on solar, wind energy and power reduction.
- Performed economic modelling, emission projections/environmental impact, power savings, and CAD layouts to help assess the feasibility of new projects. Worked with PFDs, P&IDs, and Vizio.
- Utilized the laws of fluid mechanics and thermodynamics to make calculated projections for heat exchangers in CPG production territories.

Mechanical Engineering Co-op – Ergonomyx Technologies Canada Inc.

May – September 2020 | Victoria, BC

- Acted as one of two mechanical engineers in a small start-up company, yielding experience with increased responsibility, independence, and communications.
- Underwent extensive design, prototyping, assembly, and iteration of mechanical systems with challenging constraints. Employed practices like 3D printing, soldering, lathing, milling, Fusion 360 (CAD), circuitry, and more.
- Demonstrated and developed understanding of quiet, efficient energy harvesting with brushless DC motors using a pulley system that was implemented in stationary bikes.

PROJECT EXPERIENCE

Tidal Turbine Gearbox – University of Victoria

Designed a custom gearbox using various calculations and a supplemental Solidworks CAD package. Co-leader of the team's communications, design, and workflow.

Laser Weld Integrity Testing – Corvus Energy Inc.

Designed and executed a comprehensive test plan to assess prototype weld designs on thermocycling jigs to simulate strain/stress of module operation. The jigs were a part of microcontroller-integrated systems.

Energy-Harvesting Solution – Ergonomyx Technologies Inc.

Contributed to the design of an energy-harvesting solution for stationary bicycles using Fusion 360 CAD, 3D-printed prototyping, and machining to conceive a DC motor-to-pulley mechanism capable of generating 5V at 30rpm.

Renewable Energy R&D – University of Victoria

Delivered a technical research report on Direct Air Capture (DAC) technology and associated science, feasibility.

Vibration Testing Model – Corvus Energy Inc.

Established a method of accelerated-life testing for vibrational fatigue of shipboard batteries with LabView and MATLAB.

TECHNICAL SKILLS

- **Design** – skilled at designing spreadsheets and engineering drawings. Experienced in Solidworks, AutoCAD, Microsoft Vizio, PFDs, P&IDs, LabView.
- **Testing** – able to produce and evaluate smart test cases to analyze variables of time, economics, materials, and efficiency. Experienced in Finite Element Analysis (FEA), Ansys and Solidworks Simulation.
- **Software/Systems** – fundamental programming competency in C, MATLAB, Java, and Python. Proficient in Microsoft Office. Familiar with various software development environments/practices (ex: Github).
- **Research** – able to gather/sort information effectively from various resources to isolate important concepts. Past personal research reports available upon request.
- **Mechanical** – hands-on experience with advanced electrical hardware, circuitry, battery modules and machining tools/equipment.

VOLUNTEERISM

- **Community Leader/Athlete –** Served as a member of the community playing for the Fort McMurray Oil Barons Junior 'A' Hockey Club (semi-professional), participating in charity events, making speeches, and raising money to support the community's rebuild after the traumatic fires in 2016.
- **Rider –** Participated in an annual cycling challenge to raise money for cancer through the SickKids Foundation by pledging to ride at least 500km throughout the month of august. Last year I raised over $3300.
- **Campus Wingman –** Currently serving as a member of the Canada Action Coalition to educate and inspire other Canadians about Canadian energy and resources. A campus wingman also helps recruit others in his/her community.

INTERESTS & ACCOMPLISHMENTS

Accomplishments:

- University of Victoria Entrance Scholarship for Academic Excellence ~ 2017
- Alexander Rutherford Scholarship for Academic Excellence ~ 2017
- Alberta Junior Hockey League Championship ~ 2016

Interests:

- Renewable Energy Solutions, Mechatronics, Computer-Integrated Engineering
- Cycling, Hockey, Skiing, Photography, Fashion, Fitness, Art, Fantasy Sports

REFERENCES

- **Scott McNally** – Green Energy Advisor, Crescent Point Energy. Harvard, Stanford Graduate
- **Shawn Hanna** – Systems & Reliability Engineer, Corvus Energy.
- **Sergio Perez** – Engineering Lead, Ergonomyx Technologies Canada Inc.

*Referee contact information available upon request.

*See *https://matteoaiello.github.io* for more information on projects, skills, etc.