Aidan Kennedy

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Internships & Experience

BORON ENERGY CO. • Mechanical Engineer • *May 2024 – Current*

- Designed a convection-cooled heat sink using Altair suite (CFD and FEA) simulations to optimize the heat sink design, incorporating tolerance stack-up and GD&T drawings to manage a 0.3mm gap to PCBA components for optimal heat removal, while also designing for high-volume production of cast materials
- Manufactured and designed electric drivetrain dynamometer capable of measuring inverter, motor, or full system 3D efficiency maps by measuring currents, voltages, and mechanical output at all stages of the drivetrain
- Developed python simulation to define exact system accuracy of the dyno DAQ throughout full three-dimensional power spectrum to be paired with efficiency maps to provide exact localized accuracy

STANDARDAERO HELICOPTERS • Mechanical Design Internship • *May 2023 – December 2023*

- Designed rotorcraft tail boom frame fitting, reducing the cost of a tail boom rebuild by approximately $44,000
- Used 3D scanning equipment to reverse engineer and complete inspections on geometrically complex parts
- Optimized first article inspection process by developing an automatically populated SolidWorks inspection template, saving an average of 4 hours per batch of inspections, translating to over 100 work hours per year
- Designed aircraft stringers as well as an aluminum mating die, to form variable profile sheet metal parts accounting for material spring-back, effects to part surface finish, and tool wear with steel die lining
- Design of a new autopilot configuration for helicopters that cannot accommodate the StableLight Autopilot due to conflicting previous modifications, my design altered the component layout to allow for alternative fitment

NEWGRIND INC. • Research and Design Assistant • *March 2021 – September 2022*

- Collaborated with R&D team to develop and build prototype machines being designed for production
- Administered amperage and voltage load tests on prototyped machines to assess the capabilities of new components, as well as weight capacity testing on machines during the concrete grinding process
- Conducted field testing with prototyped machinery, recorded and analyzed results and submitted conclusions

Design Team

UBC FORMULA ELECTRIC DESIGN TEAM • *September 2022 – Present*

Mechanical Technical Director • *April 2024– Present*

- Co-leading a University team of over 80 students designing and building a Formula-style electric racecar
- Set up a top-down parametric modelling CAD design infrastructure to enable more efficient CAD design
- Collaborated to shift the team to a locally hosted Subversion Network to improve team workflow efficiency
- Currently Designing quad-motor integrated cooling loop, custom power electronics cooling plates, and motor cooling sleeves to optimize component temperature during our competitions 22Km endurance event
- Manufacturing two-stage compound planetary gearboxes for in-hub development producing 300Nm per wheel

Drivetrain Sub-Team Lead • *August 2023 – March 2024*

- Designed positive pressure battery pack cooling system, graded to IP-54 specifications, used to uniformly cool 6 separate battery pack segments, using SolidWorks, FEA flow simulations, fabricated metal and 3D-printed parts
- Characterized, designed, and tested a liquid cooling loop for our electric drivetrain with wind tunnel testing, lap simulation, and efficiency testing to keep our motors and inverters at optimal temperatures during endurance events with high ambient air temperatures of 30-40 degrees, and an 80KW peak output powertrain
- Designed and manufactured adjustable motor mounts for dual rear gearboxes, complete with force simulations, fabrication drawings, as well as a custom jig for ease of installation, and in house machined parts

Skills

MECHANICAL DESIGN

- SOLIDWORKS
- FEA/CFD Simulation
- Parametric Design
- DFM/DFMA

MANUFACTURING

- Milling
- Welding
- Lathe
- Carbon Fiber Layup

OTHER

- MATLAB
- Python
- Jira
- Microsoft 365

Edu

University of British Columbia • *Sept 2023 – May 2026*
Bachelor of Applied Science - Mechanical Engineering,

Kwantlen Polytechnic University • *Sept 2022 – May 2023*
Engineering Transfer Program - Deans Honor List