

Detail-oriented & holistically-minded Mechanical Engineer with an array of successful projects in the sustainable technology space. Experienced leader of electric vehicle teams, trailblazer of functional renewable energy projects, and proficient designer of electric propulsion systems. Skilled in mechanical, electrical, & systems design, manufacturing processes, and interdisciplinary team leadership. History of strong working relationships with excellent communication.

HIGHLIGHTED SKILLS

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|------------------------------------|---------------------------------------|------------------------------------|
| ❖ Electric vehicle team leadership | ❖ CAD (Inventor, SolidWorks, NX) | ❖ Metal & wood shop proficiency |
| ❖ Technical project management | ❖ Electrical systems & High Voltage | ❖ MATLAB, Simulink, Python |
| ❖ Automotive Systems Design | ❖ Stress & fluid analysis (FEA & CFD) | ❖ Manufacturing & assembly methods |

WORK EXPERIENCE

Engineering Project Manager | EarthTea | Dec 2024 – May 2025

- Led the technical development of a beverage technology start-up in Assam, India
- Conducted technical interviews, hired seven employees, & delegated technical responsibilities
- Divided project into actionable objectives, defined the scope, produced preliminary and detailed designs
 - Produced design documents and CAD models (Onshape) for parts and subassemblies involving multiple fluid ports, heating elements, motors, microcontrollers, temperature sensors, solenoid valve, pressure relief
- Facilitated technical discussions, design reviews, timeline management
- Led on-site visit with laboratory staff to assess manufacturing capability, delegated at pivotal innovation conference
- Travelled solo to Asia, Africa, Europe to expand horizons and conquer cultural, mental, & physical challenges

Head Technician | Effi | Mar – Dec 2024

- Led the technical development of a micromobility start-up, repaired 500+ micromobility products
- Developed methodology for the assembly, testing, diagnosis, maintenance, and repair of E-Bikes and E-Scooters
- Researched and purchased equipment for repairs and diagnostics, managed inventory
- Performed advanced mechanical and electrical diagnostics and repairs for open-ended problems
- Controller programming, motor repair, battery testing, hydraulic oil change, brake & transmission tuning
- Conducted customer intake, business modelling, in-person and phone sales, marketing strategy, content creation

Systems Engineer | Stellantis | Aug 2022 – Nov 2023

- Systems Engineer on the Propulsion Mobility Management team, focus on Power Moding & e-Mobility
- Developed and released requirements documents in IBM Doors and electrical logic diagrams in Microsoft Visio
 - Functional requirements, interactions between software layers, hardware requirements, diagnostics
- Designed Power Moding system for new vehicles (Electric & Hybrid)
 - Implemented new network architectures, improved strategies for propulsion procedure and thermal runaway
- Provided/received support, feedback, troubleshooting, and collaborated with software, safety, and testing teams
- Analyzed MATLAB script, Simulink diagrams, CANalyzer data

Mechanical Engineering Co-Op | McMaster Automotive Resource Centre | May - Aug 2021

- Designed, implemented & tested liquid cooling systems for electric vehicle motors
 - Developed 3D models (SolidWorks) of entire cooling systems
 - Sourced & purchased components including hoses, fittings, heat exchangers, adhesives, etc.
 - Produced operating manuals & instructed other employees on the operation of the systems
- Created 3D model (SolidWorks) and thermal model (Ansys Fluent/Icepak) of a lithium-ion battery pack
- Presented thorough research findings on thermal management and analysis of electric vehicle batteries

Mechanical Design Engineer | McMaster Automotive Resource Centre/FCA | May - Aug 2019

- Mechanical Design Engineer for the Power Electronics team using SolidWorks
- Designed components of a traction inverter for an electric vehicle project for Fiat Chrysler Automobiles
 - Busbar design, two-stage cooling system design, housing design, thermal & electrical insulation considerations, material & fastener selection
- Multidisciplinary communication with technical R&D team, stakeholder presentations

Program Director | Camp Shomria | Feb - Aug 2018

- Overnight summer camp, focused on education & critical thinking
- Hired 40 staff members, planned and facilitated 4 hours of daily programming for over 100 campers
- Leader of the counsellor body, manager of all counsellors
- Communicated daily plans & instructions to entire staff body
- Resolved conflicts involving staff, campers, & parents

EXTRACURRICULARS

Driver Input Team Lead | Formula Electric (FSAE) | Sep 2017 - May 2019

- Development of an electric racecar at McMaster University
- Led interdisciplinary team meetings & technical communication
- Managed design & fabrication of steering system, dashboard, accelerator & brake pedals, seat, safety equipment
- Independently designed and manufactured a carbon fiber racing seat
 - Iterative 3D design (SolidWorks) with strict constraints
 - Multiple prototypes & aluminum mold manufacture
 - Carbon fiber infusion via shop-made rig & vacuum seal (VARTM)
- Delivered specified CAD drawings to manufacturing companies

Senior Mechanical Member | EcoCAR | Aug - April 2021/22

- Addition of hybrid & autonomous systems to a Chevrolet Blazer, sponsored by GM
- Design, manufacture & assembly of skid plate to protect drivetrain
 - Iterative 3D design (Siemens NX), fatigue failure, impact fracture, & drag force calculations
 - Manufactured aluminum parts, assembled to vehicle
- Mentored younger team members in technical & non-technical skills
 - Ran a Siemens NX tutorial (3D modelling software) for the Mechanical Engineering Team
 - Mentored 2 Junior Mechanical Team members throughout the year

Engineer | Global Engineering Brigades | Apr-May 2018

- Collaborated with a team of engineering students, professional engineers, and local community members of Los Pozos, Honduras to understand and mitigate a water crisis
- Designed and mapped out a large water piping system, physically laid out the coordinates for the piping

PROJECTS

Electric Snowboard | Sep – Apr 2021/22

- Led a team in the development of an electric-motorized snowboard for a Capstone Project
- Performed terramechanics calculations for key component selection (track, motor, battery, gear ratio, etc.)
- Detailed mechanical design of drivetrain, frame, mounts, housing, skids, & tensioning system
- Purchased, manufactured, and assembled chain drive system with gears and motor
- Designed, assembled, & tested electrical system with battery, controller, & motor
- Programmed motor via product software

Problematic Materials in Electric Vehicle Development | May – Aug 2021

- Completed a 50-page individual research paper with 90+ sources
- Discussed issues with extraction, recycling, new technologies
 - Child labour, wildlife damage, rainforest destruction, carbon emissions, supply deficiencies
- Gained a deep understanding of Li-Ion battery technology & relevant materials

Foot-Powered Log Splitter | Jan – Apr 2021

- Detailed group-based design & analysis of a foot-powered log splitter
- Market research, financial analysis, design brainstorm, iterative 3D design (Autodesk Inventor)
- Mechanical design of 4-member linkage system with 50+ parts
- Performed analysis of input & cutting forces, buckling, pin shear, fatigue, etc.

E-Bike Conversion | July – Sep 2020

- Converted a standard bike to an electric bike with a motor, battery, sensors (speed, shift & brake), display
- Calibrated electrical system, precisely shortened shift cable, wire management
- Maintenance of the chain, brake and shifter tension, disc brake cleaning, electrical insulation, other adjustments

Wall-Climbing Robot | Jan – Apr 2019

- Fabricated a robot using an Arduino, 3D printed & laser cut parts, other materials
- Robot successfully climbed over a wall while navigating along a set path

DIY Wind Turbine | Apr – Aug 2017

- Designed and manufactured a wind turbine out of PVC pipe, household items, power inverter and generator

EDUCATION

Bachelor of Mechanical Engineering and Society | McMaster University | Sep 2017 – Apr 2022

- Deans' Honour List
- Engineering & Society Program
 - Broadened understanding of engineering through historic case studies & discussions with industry experts
 - Enhanced writing abilities, presentation skills, & critical thinking skills
- Minor in Sustainability
 - Expertise of sustainable solutions (renewables, circular economy, eco materials)
 - Knowledge of environmental science (agriculture, water cycles, pollutants)
- Exchange semester at the University of Limerick, Ireland (Jan-May 2020)

CERTIFICATIONS

❖ DFMEA certified (Stellantis)	❖ High Voltage certified	❖ Red Cross CPR/AED C
❖ AECD certified (Stellantis)	❖ Electrical Hazards certified	❖ AODA and Human Rights Code
❖ Metal Shop certified (McMaster)	❖ MATLAB & Simulink Onramp	❖ WHMIS
❖ Wood Shop certified (McMaster)	❖ Fire Safety certified	❖ CASI Snowboard Instructor License
