Justin Zhang

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Technical Skills

CAD/CAM Softwares: SolidWorks, SW PDM, SW Simulation, Ansys Discovery, AutoCAD, Fusion360, PrusaSlicer
EDA/Hardware Programming Softwares: KiCAD, Altium Designer, VESC, Siemens SIMATIC STEP 7
Skills: SLA/FDM 3D Printing, Machining/Manufacturing, DMM, Oscilloscope, DFM/DFMA, GD&T, SMD Soldering
Languages: C++, C, MatLab, Python, RobotC, VHDL

Experience

Mechanical Engineering Co-op Jan. 2025 – Apr. 2025
Electrium Mobility *Waterloo, ON*

- Led mechanical sub-team and managed logistics for the electric longtail conversion kit project
- Assisted longtail conversion kit electrical subteam in wiring for the battery pack and kit
- Assisted in the design and fabrication of parts for the terms projects including go kart, custom RC, and onewheel
- Created mechanical workshops to teach members the basics of CAD design

Engineering Co-op (Mechatronics) Sep. 2023 – Dec. 2023
RAB Design Lighting Inc. *Toronto, ON*

- Redesigned housing using DFMA techniques and specified new LED Drivers and module to reduce cost by 30%
- Conducted failure analysis and identified root cause for failure on RMA lighting fixtures
- Completed quality control inspection of engineering and production samples
- Created dimension drawings for spec sheets and for machine shop production
- Generated installation instructions for end customer and contractors to assist in fixture installation

QA Engineering Lab Assistant Co-op Student Apr. 2024 – Aug. 2024
Amphenol Corp Canada *Markham, ON*

- Conducted various physical (IP, IK, Durability) and electrical tests (Low Level Contact Resistance, Dielectric Withstanding Voltage/Insulation Resistance) on electrical connectors to EIA, ASTM, ASME, and IEEE standards
- Operated and programmed specialized testing machines, used to conduct various environmental tests
- Updated 3D models and drawings to accommodate for changes in new injection molds
- Compiled test results into a QA Test Report (QTR) to be used as a certification document for the end product

Projects

Injection Molded Steering Wheel Grips | *SolidWorks, Mold Design, 3D Printing/Print Finishing* Mar. 2025

- Designed reusable 2-part injection mold for overmolded steering wheel grips in SolidWorks
- Used mold with Shore 70A urethane resin to create durable rubber grips for a go kart steering wheel

Stud-E Study Helper Robot | *SolidWorks, 3D Printing, Laser Cutting, RobotC* Sept. 2023 – Dec. 2023

- Co-designed and co-built robot which follows lines and dispenses precise amount of user-selected objects
- Components designed in SolidWorks and AutoCAD, manufactured using 3D printing and laser cutting
- Programmed the Lego EV3 platform in RobotC to follow a line but stops occasionally to let user select to dispense or to continue

More info is available on justinz.ca if you would like to learn more about these projects and others!

Design Teams

Electrium Mobility | *Team Lead - Mechanical* April 2025 – Present

- Leading student design team and advising on mechanical design for all aspects of the team

Electrium Mobility | *Project Lead - Electric Longtail Conversion Kit* Jan. 2025 – Apr. 2025

- Co-led team of 13 members to create a conversion kit to convert a standard bike into an electric cargo bike
- Frame designed in SolidWorks with DFMA concepts and project budget in mind
- Completed finite element analysis (FEA) in SolidWorks Simulation to achieve a Safety Factor of 2

Relevant Courses: **MTE 325** (Microprocessor Systems and Interfacing), **MTE 320** (Actuators and Power Electronics), **MTE 220** (Sensors and Instrumentation)