Melissa Ma

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Education: University of Toronto — *Bachelors in Mechanical Engineering*

Sep 2020 - Apr 2024, 4.0 sGPA (86%), Relevant courses: Thermodynamics (90%), Manufacturing (88%), Materials Science (88%), Electricity Fundamentals (95%), Linear Algebra (93%), Differential Equations (91%), Fundamentals of Computing (93%)

Qualifications

- 3.5+ years of experience in SolidWorks, CATIA V5, AutoCAD, and Fusion360 for engineering drawings and 3D models, ANSYS for FEA
- Experience in creating Mechanical Bill Of Materials for engineering projects and knowledge in GD&T
- Highly proficient in Microsoft Office, Gantt Charts, and PowerBI to streamline project lifecycle and keeping track of project closures
- Aptitude in working with cross-functional teams, suppliers, and technicians to discuss design decisions, manufacturing details, and project timelines

Experiences

Alstom/Bombardier — *Project Engineering Intern*

Toronto, CA · May 2022 - August 2022

- Used CATIA V5 (part design & generative shape design) to route complex steel pipes for air intake systems that are to be installed on 20 trains under Go Transit
- Drafted 10+ toleranced engineering drawings of pipes and complex geometries, which were successfully used in the manufacturing process
- Sourced parts to create mockups and prototypes for conduit systems (fittings, pipes, conduit brackets etc) from hardware stores and McMaster-Carr

UofT Hyperloop Design Team — *Braking Team Lead*

Toronto, CA · July 2020 - PRESENT

- Assembled the pneumatic braking system by contacting suppliers, researching about 30+ parts specs, and using drill press, milling machine, tube bender/cutter, wrench...
- Created FMEA and performed testing on the pneumatic system using an air compressor and solenoid valve (integration with electronics) to ensure that the system meets safety requirements
- Re-designed the configuration of ten battery modules using SolidWorks, to reduce the space they take on the Hyperloop pod by 15%

UofT Decisionics Lab — *Research Student*

Toronto, CA · May 2021 - May 2022

- Received First Place at UofT Undergraudate Engineering Research Day 2021
- Pioneered a microscopic image analysis process by writing a script in MATLAB
- Assembled an automatic image collector using Arduino, belt-drive motor, and a 3D printed motor mount that reduced the image collection time by >75%

Design Projects (more in portfolio: melissama.ca)

Tactile Sensing Drone (personal)

- Designed and assembled a tactile sensing drone using rapid prototyping and various sensors. Selected parts based on hand calculations

Smart Stove Top Knob (personal)

- Designed and fabricated a device that would remotely turn off stove top knobs
- 3D-printed prototypes, integrated with electronics and web interface

CNC Milling Machine (UofT, Team Leader)

- Designed a 4-axis milling machine for architects and engineering firms that are looking to create prototypes, sourced parts from McMaster-Carr

HOBBIES & INTERESTS

Electric vehicles, sustainable energy, cooking, dancing, guitar, hiking

PUBLICATIONS & CONFERENCES (Hyperlinked)

Uniform Dispersion of Steel Fibers in Silicone Composites via an Externally Applied Magnetic Field - Materials Letters 2022

On the Use of Magnetic Fields for Dispersing Steel Fibers in Silicone - American Society of Mechanical Engineers SMASIS 2022

AWARDS/LEADERSHIP

1st place UofT Engineering competitions: UTEK 2022 and UNERD 2021

MIE Summer Research ($7500), Mitacs Globalink Research ($6000), International Experience ($4000) awards

First year Mechanical Engineering class rep

Canadian Hyperloop Competition Committee Technical Team

CERTIFICATIONS

UofT Machine Shop Operator (Lathe, Mill, Drill Press)

SOLIDWORKS Certified: Associate in Mechanical Design