

# Mohid Tahir

Mechanical Engineering Candidate

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## Education

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### Bachelor of Applied Science and Engineering

Sep 2021 – Apr 2026

University of Toronto, Toronto, ON

- **Mechanical Engineering + PEY Co-op | Minor: Engineering Business | Certificate: EV Design**  
Related coursework: Mechanical Engineering Design | Kinematics and Dynamics of Machines

### Ontario Secondary School Diploma

Sep 2017 – Jun 2021

Meadowvale Secondary School, Mississauga, ON

## Technical Skills and Qualifications

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**Software & Tools:** SolidWorks, AutoCAD, Onshape, Minitab, Microsoft Office Suite, Calibre

**Programming & Languages:** Python, MATLAB, CSS, HTML, Git

**Soft Skills:** Time Management, Collaboration, Critical Analysis, Verbal & Written Communication, Technical Documentation, Client Communication, Project Management

**Simulation & Analysis:** Life Cycle Assessment (LCA), Net Present Value (NPV) Modeling, DMAIC, Weighted Decision Matrices, Circuit Simulation (SuperSpice), Op-Amp Analysis

**Fabrication & CAD Practices:** Manual Machining (lathe, mill, drill press), PCB Design, 3D Modeling, Reverse Engineering, Tolerance Analysis

## Professional Experience

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### Mechanical Engineering Intern (Special Projects)

May 2024 – May 2025

AGS Automotive Systems | Oshawa, ON

- Designed 20+ part and process models in SolidWorks, improving manufacturing efficiency and drawing accuracy
- Updated schematic drawings in AutoCAD to ensure consistency across production projects
- Analyzed time data using the MOST Technique, achieving a 15% reduction in process times for key workflows
- Conducted quality audits on over 50 steel bundles per week, ensuring compliance with company standards
- Performed process improvement analysis in Excel, supporting workflow enhancements and data-driven decision making

### Design Engineering Intern

May 2023 – Aug 2023

Parts Apart | Toronto, ON

- Conducted the end-to-end development of a product, overseeing 4 stages of the product development lifecycle
- Performed extensive market research to identify and define a target niche, one that impacts 40% of the population
- Employed computer-aided design (CAD) and manufacturing processes to develop and enhance prototypes
- Collaborated closely with the company founder to transform the concept into a tangible product, costing under \$50

### Communications Manager & Project Team Member

Jan 2022 – Apr 2022

Engineering Strategies and Practice II (APS112) | University of Toronto

- Spearheaded the development of a design project for a prominent client, a professor seeking a device for the course: *Six Sigma for Engineers (DMAIC)*
- Responsible for handling all communication between the client and the team, improving turnaround time by 20%

### Shift Leader

Jun 2020 – Jan 2024

Dairy Queen | Mississauga, ON

- Managed store operations including cash register balancing, order flow, and customer issue resolution
- Trained incoming employees, contributed to new product ideation, and built team morale during peak hours

## Projects

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### All-Wheel-Drive Demonstration Platform

Sep 2025 – Dec 2025

Electric Vehicle Design (APS380) | University of Toronto

- Designed and assembled a scaled all-wheel-drive vehicle platform to demonstrate drivetrain architecture, torque distribution, and vehicle dynamics principles
- Integrated mechanical subsystems with sensing and control logic to evaluate traction behavior under varying load and surface conditions
- Iteratively tested and refined drivetrain layout and component selection to improve stability, responsiveness, and system robustness

### Google Home Housing

Jan 2024 – April 2024

Design for the Environment (MIE315) | University of Toronto

- Assessed replacing Google's plastic speaker housing with sustainable wood using NPV, LCA, and stakeholder analysis
- Concluded wood offered \$96 in savings and lower emissions over 5 years, aligning with social and environmental goals
- Synthesized findings in a consulting-style recommendation emphasizing aesthetics, disposal, and perception

### Printed Circuit Board

Jan 2024 – April 2024

Analog & Digital Electronics (MIE346) | University of Toronto

- Designed a PCB to scale a 0–0.35V signal to 0.25–3.3V using op-amps and Butterworth low-pass filters
- Simulated circuits in SuperSpice, refined schematic in Multisim, and completed PCB layout in Eagle
- Fabricated and validated the board with <4% error against theoretical predictions

### Robotic Arm for Rover

Sep 2023 – Dec 2023

Kinematics and Dynamics of Machines (MIE301) | University of Toronto

- Redesigned a Europa rover's robotic arm to function on Io's volcanic terrain, mounting it on a drone for aerial mobility
- Optimized link lengths using MATLAB and SolidWorks for folding arm simulations within tight drone dimensions
- Achieved a lightweight aluminum alloy design with 3D modeled joints, ensuring reach and stability across harsh terrain

### Mechanical Dissections

Jan 2023 – April 2023

Mechanical Engineering Design (MIE243) | University of Toronto

- Reverse-engineered and modeled devices like a can opener, jigsaw, and 12:1 gearbox using SolidWorks and hand drafting
- Measured and recreated physical parts with parametric constraints, culminating in a functioning CAD gearbox system

### Pick and Place CNC Machine

Jan 2023 – April 2023

Mechanical Engineering Design (MIE243) | University of Toronto

- Conceptualized a desktop CNC for PCB assembly using 3-axis motion and interchangeable vacuum heads
- Designed lead screw assemblies and ratchet reel feeds in SolidWorks, emphasizing affordability and modularity
- Developed vision alignment and orientation logic for high-accuracy placement in educational settings

### Miniature Pneumatic Engine

Nov 2022

George Brown College Machining

- Learned how to use various machines such as a lathe, mill, drill press, and grinder to create a functional engine
- Gained important knowledge on efficiency of design, relating to feed rates, cutting speeds and safety

### Short Story – “Snow Falling Soundlessly at Night”

Feb 2020

Meadowvale Secondary School

- Wrote and formatted an original short story as an EPUB for a scholarship submission
- Explored themes of memory and resilience using structured narrative, showing crossover between creativity and engineering

### **Handmade Coffee Table & Jewellery Box**

**Dec 2018**

Meadowvale Secondary School

- Mastered how to use machines like a band saw and belt-sander to turn a plank of wood into a project-ready piece
- Designed and assembled functional wooden pieces with attention to detail, symmetry, and finishing techniques

### **Birdhouse**

**Dec 2017**

Meadowvale Secondary School

- Built a functional birdhouse using basic woodworking tools in Grade 9, marking my first-ever hands-on construction
- Applied early measurement and cutting skills, learning the importance of symmetry, layout, and structural planning
- Painted and installed the birdhouse in my backyard — still in use today, reminding me of the joy of building

### **CO<sub>2</sub> Gas Car**

**Oct 2017**

Meadowvale Secondary School

- Built and raced a CO<sub>2</sub>-powered wooden car, learning early principles of aerodynamics, weight distribution, and speed
- Recognized for innovative design and execution during class competition

## **Volunteering & Extra-Curriculars**

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### **Frosh Leader – Skule Frosh Team**

**Sep 2022**

University of Toronto | Toronto, ON

- Led orientation activities for new engineering students, promoting inclusion and engagement across diverse cohorts

### **Photographer**

**Nov 2019 – Mar 2020**

Meadowvale Secondary School | Mississauga, ON

- Captured key school and community events for newspaper publication, using photography to document student life

### **Summer Camp Counselor**

**Aug 2019**

City of Mississauga | Mississauga, ON

- Led orientation activities for new engineering students, promoting inclusion and engagement across diverse cohorts

### **World of Welcome Volunteer**

**Aug 2019**

Peel District School Board | Mississauga, ON

- Helped immigrant students acclimate to school life in Canada by leading orientation and peer support activities

### **Event Assistant**

**Jul 2019**

ICNA Relief Canada | Mississauga, ON

- Supported event logistics and merchandise sales for charity events, ensuring smooth setup and breakdown

## **Awards & Certifications**

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Dean's Honours List, SolidWorks Associate (CWSA), Basic Machining (George Brown), Secondary School Valedictorian, Ontario Scholar, Subject Award – International Business (99%), Subject Award – Canadian Law (99%)