

# Mohid Tahir

Mechanical Engineer

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## Education

### University of Toronto

Sep. 2021 – Apr. 2026

*Bachelor of Applied Science and Engineering*

*Toronto, ON*

- **Program:** Mechanical Engineering + PEY Co-op, Minor: Engineering Business, Certificate: EV Design
- **Related Coursework:** Mechanical Engineering Design, Kinematics and Dynamics of Machines, Electric Vehicle Design, Product Design, Design for the Environment
- **Dean's Honours List:** Fall 2025 & Winter 2026

## Technical Skills and Qualifications

**Software & Tools:** SolidWorks (CSWA Certified), AutoCAD, Onshape, Microsoft Office Suite (Excel, Word, Powerpoint)

**Engineering & Design:** GD&T, DFM/DFA, Tolerance Analysis, BOM Development, FEA, Reverse Engineering, Iterative Design, Prototyping, Engineering Drawings

**Fabrication & Programming:** Manual Machining (lathe, mill, drill press), Benchtop CNC, 3D Printing, PCB Design, Python, MATLAB, Basic Machining Certification (George Brown College)

## Professional Experience

### Mechanical Engineering Intern (Special Projects)

May 2024 – Aug. 2025

*AGS Automotive Systems*

*Oshawa, ON*

- Modelled 20+ bracket, fixture, and process assemblies in SolidWorks with GD&T-compliant drawings, supporting active production programs across the plant
- Applied the MOST (Maynard Operation Sequence Technique) method to benchmark cycle times on key workflows, identifying changes that cut process time by 15%
- Audited 50+ steel bundles per week against internal specifications, flagging dimensional and surface defects before downstream processing
- Built Excel tracking models to visualize process metrics and present recommendations to engineering leads, turning time-study data into actionable layout and tooling changes

### Design Engineering Intern

May 2023 – Aug. 2023

*Parts Apart*

*Toronto, ON*

- Designed a coffee mug with a convertible handle (top-mounted for stacking, side-mounted for drinking) end-to-end as the sole design engineer on a two-person team, working directly with the founder across discovery, CAD, prototyping, and user testing
- Modelled the product in SolidWorks and iterated across multiple prototype rounds, applying DFM/DFA principles to resolve manufacturability trade-offs between form, cost, and assembly
- Scoped a target user segment affecting roughly 40% of the population through customer interviews and secondary research, sharpening product positioning before CAD work

## Projects

### Low-Speed PMSG for Vertical Axis Wind Turbine

Sep. 2025 – Apr. 2026

*Capstone Design (MIE490/491), Client: UTWind*

*University of Toronto*

- Designed a custom direct-drive outer-rotor radial-flux permanent magnet synchronous generator for UTWind's 2026 vertical axis wind turbine, targeting 600 to 1200 W output at 100 to 200 RPM with under 0.1 Nm starting torque
- Screened four generator architectures (induction, switched reluctance, axial-flux PM, radial-flux PM) using a weighted decision matrix, eliminating candidates with poor low-RPM efficiency and high cogging torque
- Collaborated with teammates to optimize rotor and stator geometry based on electromagnetic simulation data, successfully hitting 842 W output and 0.09 Nm peak starting torque
- Delivered a fabrication-ready SolidWorks assembly with procurement specs for NdFe35 magnets and ASTM A677 (M19) lamination steel, setting up the 2026 turbine build

### The WindRunner

Jan. 2026 – Apr. 2026

*Product Design (MIE540)*

*University of Toronto*

- Designed a propeller-driven sprint car targeting a \$15 retail price and a strict \$6 BOM, balancing speed, durability, and a child-safe mesh guard constraint
- Conducted full factorial DOE and factor analysis, identifying an 85 mm wheel diameter as the dominant variable that improved track times by nearly 10 seconds across carpet and tile surfaces

### Google Home Housing

Jan. 2024 – Apr. 2024

*Design for the Environment (MIE315)*

*University of Toronto*

- Ran a materials trade study comparing plastic and FSC-certified wood for smart speaker housings, using hybrid Life Cycle Assessment and 5-year Net Present Value as the decision basis
- Showed wood delivered roughly \$96 in per-unit savings versus plastic over 5 years while reducing cradle-to-grave emissions