Douglas Zhu

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Skills

Testing	Robotics	Production
Test Rig Design	Python Signal Procesing	KiCAD, LTSpice, and Solidworks
Common Benchtop Debuging	Embedded Controls	3D Printing, CNC, and Lathing
FMEA and HAZOP Analysis	SPI, UART, and I2C	Schematic Capture

Education

University of British Columbia,
Bachelor of Applied Sciences - Electrical Engineering *Sep. 2021 - May. 2026*

British Columbia Institute of Technology,
MACH 0105 - Lathe Operator *Jan. 2023 - Feb. 2023*

Technical Experience

MineSense Technologies, *Sensors Co-op* *Sep. 2023 - May. 2024*

- Analog and digital PCB designs using KiCAD and LTSpice for motor controls and watchdog
- Processing signal and camera data for use in classical and machine learning algorithms
- Debugging electrically with oscilloscopes, multimeters, and serial interfaces

Marginally Clever Robotics, *Troubleshooter* *Feb. 2021 - Apr. 2021*

- Software feature testing on Windows, Linux, and Raspberry Pi systems with Java
- Prototyping new mechanisms Makelangelo with 3D printers and Fusion 360
- Creating and modifying testing records and operational instructions

A&K Robotics, *Hardware Team Member* *Jan. 2020 - Mar. 2020*

- Design and modeling of structural components with Fusion 360
- Manufacturing and installation of power delivery systems, modems, and manual safeguards
- Creating inventories of current and alternative components

Engineering Design Team

Mars Colony, University of British Columbia

Mars Atmospheric Simulation Chamber, *Mechanical Lead* *Nov. 2022 - Present*

- Designed and simulating vacuum chamber with Solidworks
- Generated P&ID diagrams for tubing fabrication
- Lead design to define project requirements and timeline

Sabatier Reactor, *Mechanical Team Member* *Oct. 2021 - Oct. 2022*

- Fabrication and leak testing of pressurized tubing systems
- Designed heating system and programmed RTOS PID controls on Arduino
- Performed HAZOP analysis to create safe operating procedures

Publications

“Design and Validation of a Lab-scale Methalox Fuel Plant for In-situ Propellant Production on Mars", *International Astronautical Congress, 2022*