# Di Wang

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## Education

**MCMASTER UNIVERSITY** — Hamilton, Canada
***Electrical Engineering*** — *Sep 2024 – Present*
***Automation and Engineering Technology*** | GPA: 11.7/12 — *Sep 2022 – Apr 2023*

**MIDDLEFIELD Collegiate Institute** — Markham, Canada
*Feb 2019 – Jun 2022*

## Projects

*Microcontroller-Based ToF Sensing & Python Visualization* — *Jan 2025 – Apr 2025*

- Course-led design of a 3D space mapping system using **MSP432E401Y microcontroller**, **VL53L1X Time of Flight** mounted on **stepper motor**.
- Captured radial distance at customizable angle transmitted through **I2C** communication and transmitted via UART for visualization.
- Developed backend logic using **C** (microcontroller control) and **Python** (data processing and visualization)
- Engineered a custom **3D-printed sensor mount** and manually increment linear movement to construct 3D models of rooms.
- Demonstrated embedded system design, real time communication, and point cloud visualization from hardware-level data acquisition

*Other Minor Projects* — *Jan 2025 – Apr 2025*

- **AC to DC Converter**: Designed and built a full-wave rectifier with a simple RC filter and Zener diode voltage regulator
- **Linear Voltage Buffer**: Constructed a common-collector BJT circuit with less than 10 % attenuation for signal buffering.

*Bluetooth-Controlled Four-Wheel Car* — *Jun 2025 – Jul 2025*

- Advanced wireless control system using **STM32F103C8T6 microcontroller** with HC-05 Bluetooth module.
- Sophisticated power management with 7.4V LiPo battery, LM2596 and AMS1117 voltage regulators.
- TB6612FNG motor driver for precise four-wheel control with independent motor control.
- ARM Cortex-M3 (72MHz) microcontroller with smartphone Bluetooth connectivity for intuitive control

*STM32-Based Quadcopter Flight Control System* — *Jul 2025 – Present*

- Developed complete flight control system using STM32F103C8T6 microcontroller with ARM Cortex-M3 architecture
- Implemented real-time 4-axis control algorithms with quadcopter mixing mathematics for motor coordination
- Designed dual joystick system with independent calibration and automatic voltage detection
- Integrated hardware PWM motor control, OLED display, NRF24L01 wireless communication, and flash memory
- Demonstrated embedded systems design, real-time control algorithms, and hardware-software integration

## Part Time Job Experience

Dim Sum House — Hamilton, Canada
**Server** — *May 2024 – Dec 2024*

- Served customers in a high-volume restaurant, strengthening communication, multitasking, and teamwork skills.