KuoWei Tseng

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EDUCATION

UNIVERSITY Of CALGARY **Calgary, CA**
Bachelor of Science in Electrical Engineering (Digital Engineering Minor) CGPA: 3.3/4.0
Expected Graduation: April 2026

CERTIFICATE & PROFESSIONAL DEVELOPMENT

PLC Technician Certificate I (In progress)

George Brown College, Toronto, ON (Online) Expected completion: April 2026

- Ladder Logic programming and industrial control fundamentals
- Industrial I/O interfacing, timers, counters, and sequencing logic
- Basic HMI integration and PLC troubleshooting practices

SKILLS

Programming:
Machine Learning, Model Optimization, Python (Numpy, Pandas, Matplotlib, Pytorch, Tensorflow, fastai), Java, C, System Verilog, MATLAB, Git.

Embedded & Control System:
PLC programming, Raspberry Pi, Arduino, PIC Microcontroller, Assembly language.

Hardware & Simulation:
Cadence, LTspice, Multism, Fusion 360.

WORK EXPERIENCE

Lision Technology Inc.
Taoyuan, Taiwan
R&D Assistant intern
06/2024 – 08/2024

- Tested and characterized discrete semiconductor devices including Zener, Schottky, TVS, and rectifier diodes.
- Collected and analyzed electrical measurement data using Python and Excel to support device validation.
- Assisted in verifying IC performance against design specifications and datasheets.

ACADEMIC PROJECTS

Project Name: Autonomous Surface Inspection & Coating Rover—Capstone Project

- In progress (Expected completion April, 2026)
- Designing and evaluate a self-supervised learning pipeline to pretrain a vision model on unlabeled datasets for general-purpose feature learning.

- Pretraining a shared visual backbone as a foundation model and fine-tuning it on limited labeled data for surface condition classification.
- Designed autonomous preset-path coverage algorithm to ensure full surface inspection using LiDAR and wheel encoder feedback.
- Implementing PID-based closed-loop motion control using wheel encoder and IMU feedback to improve positioning accuracy.
- Designed return-to-base strategy using vision-based homing.
- Integrated LiDAR sensing and wheel encoders on Raspberry Pi 5 for obstacle-aware navigation.
- Diagnosed serial communication delays and implemented robust timeout and buffer-management logic.

Project Name: TrashAuto—Autonomous Garbage Collection Rover

- Trained and developed a two-stage machine learning pipeline to classify garbage versus non-garbage objects.
- Designed and built an autonomous rover integrating LiDAR, ultrasonic sensors, IMU, wheel encoders, and camera.
- Implemented sensor-based object detection and distance tracking for navigation and obstacle avoidance.
- Optimized real-time inference on Raspberry Pi by event-driven triggering to reduce computation load.
- Designed a dual-rail power system (5V logic, 12V motors) to ensure electrical stability.

Project Name: DISCIPLINE AND FOCUS ALARM—Embedded System Design

- Designed an embedded alarm system using dual microcontrollers programmed in C.
- Integrated real-time clock, audio amplification, and MOSFET-based power control.
- Migrated from Arduino UNO to AVR128DB28 to improve compactness and efficiency.
- Designed a custom enclosure using Fusion 360.

Project Name: FPGA DESIGN

- Designed an FPGA-based reaction time game using SystemVerilog.
- Implemented FSM-based control logic, button debouncing, and clock division.
- Developed seven-segment display multiplexing for real-time visual feedback.

Project Name: AM Receiver System Design

- Designed and simulated an AM receiver system using Multisim.
- Selected RC time constants and diode characteristics for effective signal demodulation.
- Designed filtering and amplification stages for clear audio output.

PUBLICATION

1. Feasibility of recent peptide therapy for ischemic stroke. K.-F. Tseng, **K.-W. Tseng**, et al. Journal of Pharmacological Sciences, 2026. (Contribution: data analysis and computational methodology)