Ian Tsang

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Education

Pennsylvania State University — University Park, PA
B.S. Electrical Engineering and Computer Engineering — May 2026
GPA: 3.64/4.00

Experience

Penn State School of Electrical Engineering and Computer Science — University Park, PA
Undergraduate Research Assistant; Advisor: Dr. Daniel Lopez — Aug. 2024 - Present

- Simulated Piezoelectric Micro Electro Mechanical Systems (MEMS) micromirrors and sensors for projection of RGB laser beams in COMSOL for data to be analyzed in MATLAB and Excel
- Conducted literature review on latest digital twin technology and MEMS development to be implemented
- Assisting on paper on the design and characterization of 3D miniature VR/AR projectors using MEMS

Hong Kong Applied Science Research and Technology Research Institute (ASTRI) — Hong Kong
Summer Intern - Advanced Electronic Component Systems — June 2024 - Aug. 2024

- Researched on latest machine learning techniques in digital power control for use in ASIC designs
- Simulated and validated PWM-controller using Verilog then wrote firmware on STM32 for power control
- Conducted literature review on latest neural network pathing algorithms and LiDAR-based SLAM robots
- Developed an AI model with reinforced learning to be used for path finding in Automated Guided Vehicles

The Walt Disney Company — Hong Kong
Disneyland Engineering Intern - Maintenance Planning and Services — May 2024 - June 2024

- Provided consultation for the implementation of IoT LoRa sensor technology across the entire 310-acre resort
- Validated and implemented IoT solution using MQTT in Debian-based LoRaWAN Gateway for two rides
- Debugged and optimized existing sensor solution with updated ESP32 firmware, increasing range by 34%
- Developed UI and solution on PowerApps to digitize quality assurance records and migration to SharePoint
- Designed PowerApps solution for safety protocol changes, reducing response time for changes by 23%

The Hong Kong and China Gas Company Limited (Towngas) — Hong Kong
Industrial Trainee - Construction & Project Installation — Jan 2024 - May 2024

- Prototyped and designed PCB in KiCad for ESP32-based IoT digital manometer, with C++ firmware integrating Azure and MQTT protocol to improve accuracy by 28% and accountability of 500+ technicians
- Developed an automation system using Power Automate (PA) and Python OpenCV algorithm to streamline inputs into the Siebel system for meter reading purposes, cutting down required operation time by 15+ hours
- Designed and implemented solution with PA and VBA to track a 500+ tech. database reducing errors by 80%
- Collaborated closely with engineers during construction site visits, contributing to the optimization and sustainability of general building plans, updates, and gas pipe work

Leadership & Activities

IEEE Student Chapter — University Park
Corporate Communications Executive — Sept. 2023 - Present

- Cultivated corporate relationships with corporate partners through regular conversation and events
- Secured significant sponsorships and donations, totaling over 5,000 USD to support chapter initiatives

Skills

Technical: C, C++, VHDL, Verilog, MATLAB, MIPS Assembly, Python, Java, LabVIEW, Linux Kernel, VBA
Softwares: Multisim, Altium, KiCad, MPLAB, CubeMX, Vivado, COMSOL, AutoCAD, Power Platform, Excel
Language: English, Cantonese, Mandarin