Chiao-Jo (Tonia) Tung

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EDUCATION

University of Michigan, Ann Arbor, MI ***Sept. 2025 — Present***
Master of Science in Engineering in Mechanical Engineering

National Taiwan University, Taipei, Taiwan ***Sept. 2021 — Jun. 2025***
Bachelor of Science in Biomechatronics Engineering

- Overall GPA: 3.57/4.30, Last 2-year GPA: 3.69/4.30
- Relevant Coursework: Multivariate Data Analysis, Data Structures & Algorithms, Automatic Control, Microcontrollers, Machine Design

RESEARCH EXPERIENCE

National Taiwan University, Taipei, Taiwan ***Mar. 2024 — Jul. 2025***
Research Assistant, Lab of Machine Learning and Machine Vision, Advisor: Prof. Yan-Fu Kuo

- Developed a two-stage deep learning pipeline (YOLOv7 + ResNet18) for parasitoid wasp detection and gender classification.
- Achieved **98.9%** detection mAP@0.5 and **95.2%** classification accuracy; reduced processing time by **91%** using a semi-automated Jupyter-based workflow.
- Presented at **ASABE 2025** (full paper and lightning talk); shared research outcomes at KU Luven Lab Exchange.

Teaching Assistant, BME 5939 Introduction to Data Science, Instructor: Prof. Yan-Fu Kuo ***Jun. 2024 — Aug. 2024***

- Supported students in understanding ML concepts and data analysis techniques.
- Delivered feedback on assignments and resolved technical questions via email and online forums.

PDF Solutions Inc. ***Jun. 2024 — Feb. 2025***
Part-time Research Assistant, Full-Chip Voltage Contrast Inference Using Deep Learning; YOLO-VC

- Developed a scalable Python-based layout-to-image conversion pipeline that transforms GDS/OASIS layouts into rectangle-based multi-channel tiles and indexes nth-layer geometries for downstream use.
- Designed and implemented a robust SEM voltage-contrast image registration framework in Python that aligns images to layout tiles and computes per-geometry gray-level statistics for handoff to the labeling/training stage, as part of the YOLO-VC research project.

Publications:

- **Tung, C. J.**, Wu, Y. H., Lee, S. Y. & Kuo, Y. F. (2025). Application of deep learning in counting and gender identification of parasitoid wasps: a case study of *Trissolcus* sp. (Hymenoptera: Scelionidae). Paper presented at the 2025 ASABE AIM: the 2025 American Society of Agricultural and Biological Engineers Annual International Meeting, July 13-16, 2025, Toronto, ON, Canada.

PROJECTS

Running J.P. Morgan's Software Engineering Simulation, Side Project ***Jul. 2024 — Aug. 2024***

- Optimized 200 lines of Python code to enhance AI functions and data processing, increasing efficiency by 30%.
- Integrated JavaScript with JPMorgan Chase's Perspective framework to create real-time stock price visualizations, enhancing traders' ability to monitor market trends.
- Implemented automatic retry logic and data validation to prevent system crashes from real-time data anomalies, improving stability by 20%.

Developing BCG's GenAI Simulation, Side Project ***Jul. 2024 — Aug. 2024***

- Analyzed 10-K filings from major companies (e.g., Microsoft, Tesla, Apple) using Python and R, extracting financial insights for AI-driven analysis.
- Developed a financial chatbot prototype using Python and Flask, capable of responding to predefined queries and demonstrating AI's role in automating financial data analysis.
- Preprocessed and cleaned large datasets, ensuring accuracy and consistency for analysis and chatbot functionality.

Designing and Building with 3D Printing, Machine Design ***Feb. 2024 — Jun. 2024***

- Engineered and 3D-printed a gearbox and truss bridge, optimizing structural integrity and weight to meet load-bearing specifications.
- Constructed a triathlon robot using 3D-printed parts, applying machine design principles to achieve balance beam traversal, slope climbing, and water navigation tasks.

Designing A Maze-Navigating Vehicle, Mechatronics – Microcontrollers ***Feb. 2022 — Jun. 2022***

- Developed an Arduino-based autonomous vehicle for maze navigation using sensor integration and control algorithms.
- Optimized sensor layout and control logic, improving navigation accuracy and success rate.

SKILLS

Programming: Python, C++, Java
ML & Data Analysis: PyTorch, TensorFlow, scikit-learn, Pandas, OpenCV
Tools & Prototyping: Git, Jupyter Notebook, AutoCAD, 3D Printing, Arduino