



Chih-Hsuan Tsai (Zane)

EXPEIRENCE

Senior Software Design Engineer

Delta Electronics Inc.

📅 2023 - 2025 📍 Taipei, Taiwan

- Collaborated on the software architecture and WPF UI design of a smart manufacturing platform, ensuring a scalable and user-friendly interface through cross-functional technical discussions.
- Developed and optimized hardware component APIs to streamline the integration between software layers and machining equipment.
- Executed end-to-end testing and calibration for precision applications, specifically in automatic screw-driving and dispensing processes.
- Enhanced machining precision by developing a CV-based visual alignment system to correct feeding point offsets automatically.
- Authored technical documentation and SDK tutorials to support secondary development and facilitate client integration.

HMI Software Engineer

Syntec Technology Inc.

📅 2021 - 2023 📍 Hsinchu, Taiwan

- Collaborated with PMs to define functional requirements and developed robot teaching pendant WinForm UIs using C# on WinCE, including PLC logic integration for industrial applications.
- Conducted on-site validation and debugging on physical robot arms to verify software performance and ensure operational stability in real-world production environments.
- Integrated a 2D vision-based workpiece tracking system by designing user interfaces and orchestrating API communications between vision sensors and robot controllers.
- Maintained and optimized automated click-testing software for robot controllers, utilizing Batch scripts and log analysis to improve testing efficiency and reliability.
- Authored customer-facing operation manuals and internal technical documentation to ensure an intuitive user experience and facilitate long-term system maintenance.

PROJECT

Dynamic SLAM for Teleoperation

📅 2021

- Developed a mask-based image preprocessing algorithm to filter out moving objects, enhancing SLAM robustness and localization accuracy in dynamic, unmapped environments.
- Implemented the proposed module within the RTAB-Map framework using ROS (C++/Python) to achieve real-time 3D reconstruction.
- Validated system performance with Intel RealSense RGB-D cameras, demonstrating a marked reduction in trajectory drift compared to standard SLAM solutions.

Inchworm Bio-Robot

📅 2017

- Designed stepping and climbing motion models using inverse-kinematics
- Conducted simulations of robot movements and performed physical tests on the inchworm robot

CONTACT

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EDUCATION

Master of Science

Mechanical Engineering

National Taiwan University

📅 2018 - 2021 📍 Taipei, Taiwan

Bachelor of Science

Mechanical Engineering

National Taiwan University

📅 2013 - 2017 📍 Taipei, Taiwan

SKILLS

C++	●●●○○
C#	●●●●○
Python	●●●○○
ROS/ROS2	●●●○○
Linux	●●●○○
Git	●●●○○
Qt6 / WPF / WinForm	●●●○

LANGUAGES

English — TOEIC 900	●●●●○
Japanese — JLPT N1	●●●○○
Mandarin Chinese	●●●●●