Yong-Zhe Zhang

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EDUCATION

National Taiwan University **Sep. 2025 — Now**
M.S. *in Biomedical Electronics and Bioinformatics* *Taipei, Taiwan*
National Yang Ming Chiao Tung University, **Sep. 2020 — Jun. 2025**
B.S. Double Major *in Computer Science and Biotechnology* *Hsinchu, Taiwan*

Relevant courses: Machine Learning, Computer Vision, Deep Learning in Computer Vision, Digital Image Processing, Parallel Programming, Perception and Decision Making in Intelligent Systems, System Administration, Algorithm

EXPERIENCE

CAD Lab at National Taiwan University **Sep. 2025 — Now**
Graduate Student, Advisor: Prof. Ruey-Feng Chang *Taipei, Taiwan*

- Currently engaged in foundational research training on deep learning in medical imaging and computer-aided diagnosis, including paper review, and preliminary dataset analysis to support upcoming thesis research.

HCIS Lab at National Yang Ming Chiao Tung University **Sep. 2023 - Jun. 2025**
Undergrad Student, Advisor: Prof. Yi-Ting Chen *Hsinchu, Taiwan*

Collision-free Trajectory Planning and Peg-hole Pose Estimation for Peg Insertion

- Developed a robot-arm framework for 4-DOF hole pose estimation and collision-free trajectory planning, using 3D computer vision and digital image processing techniques.
- Collaborated with graduate students on an industry-academia project, contributing algorithm design.

PROJECTS

TAS-LayerD | Deep Learning, Computer Vision, Python, Digital Image Processing
Deep Learning in Computer Vision final project **(Link)**

- Developed a framework for graphic-design image layer decomposition and reconstruction, enabling reliable separation of text, objects, and backgrounds with high visual coherence.

Video Enhancer | Digital Image Processing, Python
Digital Image Processing final project **(Link)**

- Implemented a framework to improve the image quality and to develop new functionalities of a USB camera. Including barrel distortion adjustment, under- and over-exposure correction, white balance, image super-resolution.

Medical Image Segmentation | Deep Learning, Computer Vision, Python
Machine Learning assignment **(Link)**

- Developed a medical image segmentation model using a UNet-Transformer architecture with Masked Autoencoder self-supervised pretraining to improve feature representation and segmentation performance.

Coarse pose Insertion with Keypoint Detection | Robotics, Computer Vision, Python
Perception and Decision Making in Intelligent Systems final project **(Link)**

- Developed a vision-based peg insertion framework for complex geometries by keypoint prediction and integrating a corner prediction algorithm for precise hole pose estimation.

TECHNICAL SKILLS

Languages: C, C++, Python
Tools & Frameworks: PyTorch / TensorFlow / OpenCV / Linux / Git