Cheng-Wei Lin

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Education

National Taiwan University Sep. 2021 – Jun. 2023
Master of Science in Computer Science and Information Engineering; GPA: 4.01/4.30 *Taipei, Taiwan*

- **Thesis**: LinAlign: X-Ray Image Alignment before and after Total Hip Arthroplasty
- **Research**: Computer Vision, Deep Learning
- **Laboratory**: Digital Camera and Computer Vision Lab
- **Advisor**: Chiou-Shann Fuh

Yuan-Ze University Sep. 2017 – Jun. 2021
Bachelor of Science in Electrical Engineering *Taoyuan, Taiwan*

- **Laboratory**: Multimedia Information System Lab
- **Advisor**: Duan-Yu Chen

Experience

MediCapture Inc. Jan. 2023 - Dec. 2023
Software Engineer Internship *New Taipei City, Taiwan*

- Development of deep learning-based medical image processing algorithms.
- Deployed the DL model on the medical recording device.
- Front-end development and deployment of desktop application and web application.

Chernger Tec. Oct. 2021 - Sep. 2022
Software Engineer Internship *Taipei, Taiwan*

- Development and research of the computer vision solutions for automatic optical inspection.

Projects

Toric IOL Implant Digital Alignment
MediCapture Inc., Bausch + Lomb

- Augment graphic overlay over the live video of an eye from the surgical microscope to assist the surgeon with the alignment of the toric intraocular lens implant.
- Perform iris registration to identify the center of the eye and iris diameter on pre-operational image, then identify the location and rotation of iris on the video frame during surgery.

X-Ray Image Alignment before and after Total Hip Arthroplasty
MediCapture Inc.

- Developed the automatic image alignment algorithm for radio-graphs taken before and after total hip arthroplasty.
- Proposed a method to apply stricter alignment on interested part, and achieves better alignment result.
- Developed the desktop application and web application to make it clinical useful, and reduce the risks after surgery.

Object Detection and Recognition with Its Application to Smart Homecare
Yuan-Ze University, Industrial Technology Research Institute, and Taipei Veterans General Hospital.

- Developed a Real-time Recognition System (OD-RASH) to obtain blood pressure values and trigger emergency notifications.
- Developed an Android application that deploys the DL models through PyTorch Mobile to assist users in capturing high-quality images, and communicate with the server system to receive emergency notifications.

Programming Skills

- **Programming Languages**: Python, C/C++, Java, HTML/CSS, JavaScript, Matlab
- **Frameworks/Tools**: Tensorflow, Pytorch, Kornia, MediaPipe, Scikit-learn, Flask, OpenCV, Streamlit, Git, Bash

Publicatoin

- **C. W. Lin**, A. Yurusov, and C. S. Fuh, LinAlign: X-Ray Image Alignment before and after Total Hip Arthroplasty. In *36th IPPR Conference on Computer Vision, Graphics, and Image Processing (CVGIP)*, 2023.
- **C. W. Lin** and C. S. Fuh, Detection of Operators' Inspection Quality in Car Factory. In *20th Conference on Information Technology and Applications in Outlying Islands (ITAOI)*, 2022.