PIN-YING WU

1(858)319-7580 | pinying567@gmail.com | Personal Website | LinkedIn | GitHub

EXPERIENCE

Machine Learning Engineer, TSMC, San Jose, CA *Apr. 2024 - Present*

- Developing LLM-based solutions for data-driven business decisions that enhance decision-making efficiency.
- Leading an interactive chatbot project for internal pricing decisions, leveraging cutting-edge information retrieval and summarization techniques (such as RAG and CoT), which achieves 92.1% average recall on the internal data.
- Coordinating across teams to refine project requirements, address challenges, and ensure continuous alignment between technical deliverables and strategic business goals.

Graduate Research Intern, Statistical Visual Computing Lab, UCSD *Apr. 2023 - Mar. 2024*
Advised by Prof. Nuno Vasconcelos

- Addressed the reliability of LLMs in the context of 3D visual question answering and curated 100,000 questions regarding the potential risks in the given scenes that require high-level reasoning.

Undergraduate Researcher, Vision and Learning Lab, NTU *Sep. 2020 - Jun. 2022*
Advised by Prof. Yu-Chiang Frank Wang

- Developed an Audio-Visual Transformers model to learn cross-modal contextual features for locating sounding sources in an image, and conducted thorough experimental studies with MIT-MUSIC dataset.
- Addressed the challenge of the fully unsupervised scenario by leveraging self-supervised training of CNNs, along with short-time Fourier transform (STFT) for extracting serial features for audio signals.

EDUCATION

University of California San Diego (UCSD), USA *Sep. 2022 - Mar. 2024*
Master of Science in Electrical and Computer Engineering
Selected Courses: Machine Learning, Digital Image Processing, Recommender Systems

National Taiwan University (NTU), Taiwan *Sep. 2018 - Jun. 2022*
Bachelor of Science in Electrical Engineering
Selected Courses: Deep Learning for Computer Vision, Algorithms, Data Structures, Data Science

PUBLICATION

Chih-Hui Ho, SungBal Seo, NaYeon Kim, **Pin-Ying Wu**, YouSuk Bae, Nuno Vasconcelos, "Unsupervised PCB Anomaly Segmentation with Foundational Models", Electronic Imaging (EI), Intelligent Robotics and Industrial Applications using Computer Vision, **Oral**, 2024.

SELECTED PROJECTS

Unveiling the Efficacy of Foundation Models for Depth Estimation | *Python*

- Explored the potential of large foundation models, including CLIP and Segment Anything, for depth estimation under self-supervised and supervised settings with the NYU-Depth v2 Dataset.
- Leveraged CLIP's semantic language tokens for initial depth prediction and incorporated adapter networks to study whether these refinement modules can further improve the CLIP predictions.

Shallow-PPGNet: A Simple yet Effective Network for Hypertension Detection | *Python*

- Proposed Shallow-PPGNet, a CNN for detecting hypertension with PPG signals, and achieved **over 10% improvement** on PPG-BP and MIMIC-II datasets than state-of-the-art approaches.
- Enhanced the diabetes prediction by transferring the knowledge learned from the hypertension prediction and conducted comprehensive ablations on different prediction models and with various metrics.

Face Anti-Spoofing | *Python*

- Utilized feature pretraining and sequential modeling techniques to address the face anti-spoofing challenge, resulting in an impressive recognition accuracy of **99.3**% on the Oulu-NPU and SiW datasets.
- Dedicated to brainstorming ideas for model development, encouraging group discussions, setting the project milestones and summarizing the outcomes as a project leader with 3 group members.

SKILLS

Programming Python, SQL, C/C++, MATLAB, HTML
Library PyTorch, TensorFlow, HuggingFace, OpenCV, Scikit-learn, NumPy, SciPy, Matplotlib, Pandas, PIL
System & Tool Linux, Git, Kubernetes, AWS EC2