Jie-En (Matthew) Yao

jieenyao@usc.edu | (+1) 213-204-0534 | https://jnnnnyao.github.io/

Education

University of Southern California Aug 2023 – May 2028
PhD in Computer Science; GPA: 3.95/4.00 Los Angeles, CA

- Core Areas: Machine Learning, Deep Learning, Computer Vision, Image Processing, Generative Models, Medical AI

National Tsing Hua University Sep 2018 – Jun 2022
Bachelor of Science in Computer Science; GPA: 4.27/4.30; Class Rank: 1/142 Hsinchu, Taiwan

Research Experience

University of Southern California and China Medical University Hospital Jan 2025 – Jan 2026
Research Assistant Los Angeles, CA

- Developed a clinically interpretable computer vision pipeline for medical image analysis of coronary angiography
- Designed and implemented machine learning models for stenosis estimation to quantify vessel narrowing and support data-driven clinical decision-making for cardiologists

MediaTek, Intelligence Vision Processing Team Jan 2022 – Dec 2022
AI Research Intern Hsinchu, Taiwan

- Prototyped and optimized deep learning and generative models for image super-resolution, translating research ideas into high-quality experimental results
- Developed a novel arbitrary-scale super-resolution model, achieving improved performance on benchmark datasets and publication at CVPR

Publications

Jie-En Yao, et al., "HCL-FF: Hierarchical and Contrastive Learning for Forward-Forward Algorithm", CVPR, 2026

Jintang Xue, **Jie-En Yao**, et al., "Descrip3D: Enhancing Large Language Model-based 3D Scene Understanding with Object-Level Text Descriptions", WACV, 2026

Jie-En Yao, et al., "Local Implicit Normalizing Flow for Arbitrary Scale Image Super-Resolution", CVPR, 2023

Ting-Hsuan Liao, Huang-Ru Liao, **Jie-En Yao**, et al., "ELDA: Using Edges to Have an Edge on Semantic Segmentation Based UDA", BMVC, 2022

Work Experience

Industrial Technology Research Institute Jul 2020 – Sep 2020
Data Science Intern at Computational Intelligence Technology Center Hsinchu, Taiwan

- Performed data preprocessing, feature engineering, and trained predictive Machine Learning models to forecast production quality, enabling data-driven quality control

Teaching Experience

Teaching Assistant of Principles of Programming for Data Science (Graduate level) Fall 2025

- Led weekly lab sessions and office hours, supporting 50+ students develop Python and data science foundations

Teaching Assistant of Introduction to Programming (Undergrad level) Spring 2021

- Supported curriculum organization and provided TA session to help students strengthen their C++ programming proficiency

Skills

Machine Learning and Deep Learning: PyTorch, NumPy, Scikit-Learn, XGBoost, Pandas

Large Language Models (LLMs) and Generative Models: Hugging Face, Transformers, LoRA, vLLM, Diffusion Models

Programming Languages: Python, C++, C

Software Frameworks and Tools: Docker, Kubernetes, Git, Linux, CUDA