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# Chun-Kai Yang

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## Education

**National Taiwan University** Sep 2021 – Present
B.S. in Electrical Engineering (GPA: 4.17/4.3)

- **Coursework:** Robot Sensing and Control, Reinforcement Learning, Deep Learning in Computer Vision, Machine Learning, Operating System, Computer Network, Algorithm, Web Programming, Cryptography and Network Security

## Experience

**Lasertec Taiwan Inc.** Taipei, Taiwan
***Data Scientist Intern*** May 2025 – Sep 2025

- Improved production precision to 98.9% by designing a data synthesis, model training (U-Net, ViT), and evaluation pipeline to correct camera parameter mismatches across ~500K images
- Accelerated inference by 23.4x through parallel data processing and caching; expanded metric analysis scale by 500x (from 1K samples to 500K data points), enabling relational review across 30+ metrics
- Reduced human review time by 4.4x and improved data analysis efficiency by 10x by developing 3 internal web tools, including a labeling platform, a config-driven image viewer, and a metrics visualization dashboard

**Instill AI** London, UK
***AI Engineering Intern*** Jun 2024 – Aug 2024

- Integrated 3 vendor APIs into production using Golang; supported 20+ functionalities including OAuth2 authentication and improving workflow efficiency and coverage
- Developed a scalable, generalized unit testing framework with a mock server for HTTP functions, enabling robust multi-module testing and reducing external dependencies
- Built a logger to convert complex Golang classes into human-readable formats, reduced debugging time by ~50%

## Publications

**Learning Skills from Action-Free Videos** ICLR (Under Review), 2025
*Hung-Chieh Fang, Kuo-Han Hung, Chu-Rong Chen, Po-Jung Chou,* ***Chun-Kai Yang****, Po-Chen Ko, Yu-Chiang Frank Wang, Yueh-Hua Wu, Min-Hung Chen, Shao-Hua Sun*

Designed experiments and ablation studies; evaluated feasibility of real-robot deployment; built a data collection pipeline for real-world testing

**Diffusion Imitation from Observation** NeurIPS, 2024
*Bo-Ruei Huang,* ***Chun-Kai Yang****, Chun-Mao Lai, Dai-Jie Wu, Shao-Hua Sun*

Implemented 3 baseline methods, designed experiment and ablation studies that provided insights into reward distribution and hyperparameter trade-offs

## Projects

**Multimodal Perception and Comprehension in Autonomous Driving** Nov 2024 – Dec 2024

- Developed a 2-stage RAG-enhanced LLaVA system for autonomous driving perception; used segmentation and depth features to improve spatial understanding and scene comprehension
- Achieved 5x training speedup by optimizing multi-GPU workflows and integrating DeepSpeed with Liger kernels for memory, communication, and throughput efficiency

**Google 2023 Hardware Product Sprint - Fire Guardian** Jun 2023 – Aug 2023

- Designed a real-time fire escape system with Raspberry Pi, integrating web interfaces for remote monitoring and control; developed dynamic escape routing algorithms that adapt to online environmental condition changes
- Established robust device communication infrastructure using MQTT for reliable data transmission between edge devices; implemented user notification system with Line Bot API for instant alerts and status updates

**NTUEE Light Dance** Oct 2022 – Mar 2024

- Refactored monolithic program into modular CLI components, significantly improving maintainability and enabling rapid feature extension; integrated parallel processing to achieve 2x frame rate performance
- Redesigned data storage architecture and efficient serialization methods for LED control system, reducing storage usage by 30% while maintaining fast access and scalability for large-scale performances

## Skills

C/C++, Python, Go, TypeScript, React, Pytorch, MongoDB, PostgreSQL, git, Docker, ROS2, ALOHA, RPi, Arduino