Po–Lin (Berlin) Chen

polinc@andrew.cmu.edu | (412) 608-5803 | polin-chen | polinchen | webpage

EDUCATION

Carnegie Mellon University (CMU), School of Computer Science Dec 2026
Master of Science in Computer Vision Pittsburgh, PA

- Current Coursework: Deep Learning Systems, Advanced Computer Vision, Robot Learning

National Taiwan University (NTU) Jan 2025
Bachelor of Science in Biomechatronics Engineering (AI Specialization) | GPA: 4.04/4.30, Rank: 1/66 Taipei, Taiwan

- Coursework: Deep Learning for Computer Vision, Digital Image Processing, Artificial Intelligence

WORK EXPERIENCE

AI Software Engineer Intern, Advantech Edge AI Inference Team Jun 2024 - Sep 2024

- **Optimized heterogeneous AI inference on Intel CPU/iGPU** by leveraging OpenVINO/VNNI acceleration; achieved **2.7× faster inference** and **2.2× E2E speedup,** establishing a new performance standard for a novel CNN architecture
- **Designed high-reliability anomaly detection** by augmenting vision models via multi-modal input channels; demonstrated mission-critical system reliability **(99% precision, 2% false alarm rate)** across **200+** production trials
- **Standardized edge deployment pipeline** by containerizing and delivering **10+ supporting modules** (APIs/debug/telemetry) into the C++ inference engine, enabling high-throughput API services and management for decentralized **6-8** device clusters

Applied ML Research Engineer, Biophotonics & Bioimaging Lab Jul 2022 - May 2024

- **Architected Edge-Cloud ML System** using **Flask** and **AWS (IoT Core, S3, Athena)**; built **CI/CD** pipeline with **GitHub Actions** for over-the-air (OTA) software updates and **IoT Core/MQTT** for automated performance profiling
- **Drove resource-constrained deployment** on Raspberry Pi with LiteRT/TFLite; **quantified performance tradeoffs** across inference optimization strategies, achieving **63% latency reduction** and **40% RAM cut** for real-time, low-power operation
- **Delivered QuickSight reporting framework** by collaborating with domain experts, **saving 84% operational labor overhead**

SKILLS

Programming: Python, C/C++, Java, C#, SQL, TypeScript, Shell, CUDA

AI/Machine Learning: PyTorch, TensorFlow, JAX, Numpy, OpenCV, Sklearn, LiteRT, ONNX, OpenVINO, TensorRT; Computer Vision, Reinforcement Learning, LLMs, VLMs, Multimodal ML, Generative Models, Edge ML Optimization

Software/Tools: Docker, Linux, Git, ROS2, Flask, React, REST APIs, CI/CD (GitHub Actions), Azure, AWS

PROJECTS

GPU-Accelerated 3D Perception Framework | HPC, 3D Vision, Robotics Systems Mar 2025 - Jun 2025

- Re-implemented ORB extractor and image pyramids with **custom CUDA kernels,** achieving **2.8× speedup in tracking**
- Performed **Nsight GPU profiling** on the custom implementation against OpenCV on autonomous driving datasets

Controllable & Personalized Text-to-Image Diffusion | Vision-Language Models, Generative AI Sep 2024 - Dec 2024

- Accelerated style-conditioned multimodal diffusion training by **44%** via **Image Prompt Adapters** and **ControlNet**
- **Enhanced PEFT/LoRA model fidelity** by introducing structural separation loss to resolve attribute leakage; outperformed SOTA LoRA-based diffusion by **1.4% on CLIP-I** and **2.2% on CLIP-T** in multi-concept text-to-image personalization

Real-Time Robot Perception & Navigation | Multimodality, Embedded ML, Robotics Systems Aug 2021 - Oct 2022

- Performed **multimodal sensor fusion (vSLAM + ultrasonic)** to enhance system resilience for near-range motion planning
- Optimized YOLO inference on Jetson TX2 using **TensorRT**, achieving **4.7× throughput speedup** and **92% success rate**

PUBLICATIONS

P. Chen, R. Liao, J. Hsu, T. Lin. "Efficient AIoT Framework for Vision-Based Behavior Monitoring in Livestock". In *11th International Symposium on Machinery and Mechatronics for Agriculture and Biosystems Engineering (ISMAB 2024),* Bali, Indonesia.

P. Chen, J. Hsu, T. Lin. "Video-Based Behavioral Assessment in Dairy Calves Based on Spatio-Temporal Convolutional Neural Networks". In *6th CIGR International Conference (CIGR 2024),* Jeju, Korea. Best Oral Presentation Award.