

Po-Hao Huang

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EDUCATION

University of Illinois Urbana-Champaign

Master of Computer Science (MCS)

Champaign, IL

Aug 2024 – Dec 2025 (*Expected*)

National Taiwan University

Bachelor of Science in Computer Science and Information Engineering (CSIE)

Taipei, Taiwan

Sep 2017 – Jun 2021

- **Honors:** Dean's List Award - 1st semester of 2020-2021 at EECS CSIE
- **Last Two Year GPA:** 4.02 / 4.3

EXPERIENCE

Esri

Software Development Intern

Redlands, CA

May 2025 – Aug 2025

- **Responsibilities:** Accelerated the ArcGIS Python API with Rust and co-designed a new Rust core for geometry primitives from scratch
- Designed a unified geometry I/O architecture with a zero-copy parsing/building framework in Rust; laid groundwork for bidirectional builders/readers
- Restored lazy imports to cut import time by **66%** and vectorized NaN checks for **250×** faster large-DataFrame handling
- Identified critical logic errors and duplicated, inconsistent geometry-conversion paths; refactored and unified implementations to ensure reliable conversions between different geometry formats
- **Relevant Skills:** Python, Rust, PyO3, Python profiling, Git

Quantrend Technology

Machine Learning Engineer

Taipei, Taiwan

Jun 2021 – Aug 2023

- Designed **over 30%** of the Machine Learning infrastructure in Rust and Python, including data preprocessing and model training
- Independently designed the company's proprietary Rust implementation of TensorFlow Models
- Developed **20%** of the features used in our models
- Designed **over 70%** of the company's Machine Learning metrics
- **Relevant Skills:** Rust, Python, Git, OOP, Software Design Principles, Machine Learning, Linear Algebra, Stochastic Processes

OmniEyes

Undergraduate Research Assistant

Taipei, Taiwan

Sep 2020 – Jun 2021

- Collaborated with senior engineers to enhance their computer vision-based mapping system by detecting newly emerged signboards using Metric Learning techniques
- Surveyed and experimented with Metric Learning techniques (Siamese, Triplet) for fine-tuning purposes
- Designed a data augmentation mechanism to synthesize new signboards data and improve model scores
- **Relevant Skills:** Python, PyTorch, Machine Learning, Contrastive Learning, Object Detection

PROJECTS

Final Project - Convolution Kernel Optimizations | *CUDA, C++, Parallel Programming*

Aug 2024 – Dec 2024

- Fused im2col + GEMM + permutation into a single CUDA kernel to cut global-memory traffic and launch overhead while preserving accuracy for any batch size.
- Leveraged Tensor Cores (WMMA) with shared-memory tiling, register blocking, `__restrict__`, and manual loop-unrolling; handled edge tiles and mixed layouts.
- Profiled with Nsight Systems/Compute to drive changes in occupancy, memory coalescing, L2 reuse, and shared-memory bank-conflict avoidance.
- Parameter-swept block sizes for best throughput.

SKILLS

Languages: C/C++, CUDA(C++), Python, Java, Rust, HTML/CSS, JS, php, SQL

Software Design: Object-Oriented Programming (OOP), Design Pattern, Open-Closed Principle, Git, Docker

Security: Reverse Engineering in Windows and Linux, overflow, stack pivoting, GOT hijack, ROP chain, use-after-free

DS/ML: PyTorch, TensorFlow, NumPy, Pandas, Matplotlib, seaborn