

Yi-Jing Sie

☎ 0934385646

✉ yijing319@gmail.com

in www.linkedin.com/in/yijing-sie

🌐 https://yijing-sie.github.io

Education

Carnegie Mellon University

Pittsburgh, PA, USA

05/2022

- Master of Science in Electrical and Computer Engineering
- QPA: 3.70/4.00

National Taiwan Ocean University

Keelung, Taiwan

06/2020

- Bachelor of Science in Electrical Engineering
- GPA: 4.0/4.0

Clarkson University

Potsdam, NY, USA

08/2018 – 05/2019

- Foreign Study and Exchange Program
- Electrical Engineering
- GPA: 3.964/4.000

Professional Experience

Neuchips

Hsinchu, Taiwan

Senior Deep Learning Algorithm Engineer

01/2025 – Present

Deep Learning Algorithm Engineer

12/2022 – 12/2024

- Designed and developed a tailored AI solution in **6 months** that surpassed a world-leading semiconductor foundry's in-house defect inspection system for rare lithography-stage wafer defects, achieving a **6x** boost in inference speed and a **36%** increase in accuracy, with projected savings of **~70%** in server space requirements and **70%** in power consumption
- Turned the one-off project of building tailored AI solutions for semiconductor defects into an official company product, *NeuSight™*, by successfully securing **2 subsequent project contracts** with the world-leading semiconductor foundry in **1 year** as a result of consistent outstanding AI performance, fostering expanded partnerships with other major semiconductor foundries in the market, significantly contributing to the company's revenue growth and profitability
- Developed high-performance web APIs to deploy AI solutions, enabling parallel request handling and real-time defect monitoring; achieved a peak throughput of **1.5 requests/second** and successfully processed **35k+ wafers/day** across multiple semiconductor fabs for **7 days**
- Achieved a **2x** boost in inference speed through multithreading, pipeline parallelism, and *NVIDIA® TensorRT™*, while maintaining equivalent accuracy
- Promoted to senior engineer in **2 years** due to exceptional performance and organizational impact - ahead of schedule by **12 months**
- Cultivated a new major client relationship within the semiconductor market by securing **3 consecutive** project contracts for various semiconductor defects within **1 year**
- Shipped tailored AI solutions into production via **Docker**, passing customer stress tests with real-time data from semiconductor fabs
- Authored a **patent** on effective and efficient mechanisms specifically designed to detect semiconductor defects that occur during the manufacturing process (under internal review)

Academic Research Projects

On Detecting Rare Patterns - Python

Clarkson University

Advisor: Dr. Christino Tamon

08/2018 – 05/2019

- Studied the paper *Finite Sample Complexity of Rare Pattern Anomaly Detection* to reproduce the results by implementing the algorithms from scratch
- Diagnosed algorithm limitations on imbalanced categorical datasets and devised an improved algorithm that outperformed other established outlier detection algorithms including GMM, PPCA, LSA, LOF, and Isolation Forest

Automatic Fish Detection and Tracking in Underwater Videos - Python

National Taiwan Ocean University

Advisor: Dr. Jung-Hua Wang

09/2017 – 08/2018

- Trained a Faster R-CNN with Inception-V2 model to detect all fish and track a target fish in complex, changeable underwater environments from recorded video footage, contributing to a government-subsidized research project, *Applying Artificial Intelligence (AI) Techniques to Implement a Practical Smart Cage Aquaculture Management System* (AI 技術應用於智慧化養殖系統的建置), funded by the Ministry of Science and Technology of Taiwan
- Designed a robust and efficient tracking mechanism to continuously track the target in real-time even under occlusion

Programming Skills

Languages: Python, C, Java, C++, Haskell | **Libraries:** PyTorch, scikit-learn, FastAPI | **Tools:** Docker, Git, Android Studio

Yi-Jing Sie