Bing Han

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Website | LinkedIn | Github

Education

Ph.D candidate in Computer Science, *Stony Brook University*, GPA 3.89/4.00 — 09.2022 — 05.2027(Anticipated)
Bachelor of Electrical Engineering, *National Taiwan University*, GPA 3.85/4.30 — 09.2015 — 01.2020

Selected publications

- **[SoCC'24]** KACE: Kernel-Aware Colocation for Efficient GPU Spatial Sharing, **B.Han**, T.Paul, A.Gandhi, Z.Liu

Professional Experience

Research Assistant — **07.2023 — Present**
Stony Brook University, Advisor: Dr.Anshul Gandhi, Dr.Zhenhua Liu — *Stony Brook, NY*

- **Project: GPU performance analysis and prediction on DL serving**
- Enhanced cloud system efficiency by developing a workload-aware placement strategy for colocated GPU jobs, optimizing resource allocation and reducing completion time by 36%.
- Predicted optimal job colocation using fine-grained GPU kernel profiles from **NVIDIA Nsight Compute**. Analyzed over 20 GPU metrics to colocate workloads based on compute, memory, and cache usage.
- Trained a regression model with kernel metrics. Achieved 90% prediction accuracy with 30% of data as training set.
- Leveraged **NVIDIA MPS** for efficient job sharing with compute isolation. Achieved 1.5x increase in throughput.

- **Project: Optimize DL scheduling with Kubernetes**
- Optimized **AI systems** scheduling policies, enabling efficient resource allocation for colocating ML tasks like chatbot and document retrieval, resulting in a 20% reduction in task completion time.
- Designed an end-to-end machine learning deployment pipeline using **Kubernetes**, enhancing cloud scheduling efficiency by integrating **shortest-job-first** policy, which resulted in a 20% improvement in system performance.

Data Engineer Intern — **12.2018 — 07.2019**
Cathay Financial Holdings — *Taipei, Taiwan*

- Developed scalable machine learning pipelines using **Hadoop**, **Spark**, and **Kafka** microservices, leveraging Docker to ensure efficient distributed computing for high-volume data processing.
- Deployed an **automation pipeline** for configuration tuning, reducing configuration time by 50% in **Proof-of-Concepts**.

Technical sales Intern — **04.2021 — 04.2022**
Intel — *Taipei, Taiwan*

- Led **Xeon E server launch program** in Asia ($300M data center business). Strengthened cross-geographical **market relations** and engaged with 20+ **ODM supply manufacturers** to resolve platform enablement challenges.

Selected projects

Alcohol Advisor - Alcohol Consumption Analysis — **[D3/JavaScript/Flask]**
*Star project (**15 out of 58 teams**), Visualization* — *Stony Brook, NY*

Find Yourbike – a shared bike tracking website — **[MongoDB/Flask/Nginx/React/Docker]**
Cloud Computing and Cyber Security — *Taipei, Taiwan*

- Accomplished **full-stack web development**, with a backend composed of **MongoDB**, 2 **Flask** API servers, and **Nginx** as reverse proxy and load-balancer. Frontend designed using **React** and **Node.js**.
- Integrated **Google Maps JavaScript API** in the frontend to display nearby station recommendations. Enabled live location detection and station navigation, features unsupported by the official rental website.

AICUP 2021 - Chinese Medical Dialogue Analysis Competition — **[Pytorch/NLP]**
1st place, 81 teams in total — *Taipei, Taiwan*

- Trained **deep learning BERT** models to complete reading comprehension tasks based on medical dialogues of over 2000+ words. Utilized **BM25** to rank word cosine similarity under BERT's input length constraints.
- Performed **data augmentation** by including additional Chinese dialogues, improving accuracy by 20%.
- Implemented the **XLNet model** to assess patient risk levels, achieving 92% accuracy.

Skills

Languages(#years)	Python(>5), C++(4), JavaScript(4), Go(1)
Frameworks and tools	**Machine Learning Pytorch**, Keras, Nsight | **Cluster** Kubernetes | **Web** Node.js, React, Nginx, Flask | **Database** SQL, MongoDB | **Tools** Docker,Linux, Hadoop, AWS Lambda/EC2

Honors and Awards

- **Chairman's Fellowship**, 2022-2024
- **OSDI Travel Award**, 2024
- **AICUP - 1st place among 174 competitors** ,2021
- **Dean's List**, 2016