

Kai-Siang Wang

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RESEARCH INTERESTS

AI Ops, Systems for ML, Distributed Systems, Internet of Things, Edge Computing, Cloud Computing, Algorithmic optimization

EDUCATION

- **University of Illinois Urbana-Champaign (UIUC)** Urbana, IL, USA
Ph.D. in Computer Science
Aug 2023 – Present
Advised by Professor Indranil (Indy) Gupta
- **National Tsing Hua University** Hsinchu, Taiwan
Master's degree - CS
Sep 2021 - Jan 2023
Advised by Professor Jerry Chou
- **National Tsing Hua University** Hsinchu, Taiwan
Bachelor's degree - EECS
Sep 2017 - Jun 2021
Advised by Professor Jang-Ping Sheu

PUBLICATIONS

- **Kai-Siang Wang, Jerry Chou. "A Reservation-Based List Scheduling for Embedded Systems with Memory Constraints."**: In *PDCAT*, 2022.
- **Kai-Siang Wang, Cheng-Han Hsieh and Jerry Chou. "Optimal Static Bidding Strategy for Running Batch Jobs with Hard Deadline Constraints on Spot Instances."**: In *CLOSER*, 2023
- **Chen-Chun Chen, Kai-Siang Wang, Yu-Tung Hsiao, Jerry Chou. "ALBERT: An automatic learning based execution and resource management system for optimizing Hadoop workload in clouds."**: in *Journal of Parallel and Distributed Computing*, vol. 168, pp. 45-56, Oct 2022

RESEARCH EXPERIENCE

- **DPRG Research Group, University of Illinois Urbana-Champaign** Urbana, IL, USA
Graduate Research Assistant
Aug 2023 – Present
 - **AI Ops user study**: Lead a user study investigating the disparity between the popularity of AI Ops and its actual adoption in industry
 - **Smart Home**: Design a new abstraction for smart home environments to provide better observability
 - **LLM Orchestration**: Analyze the performance of different parallelism techniques for cluster-level optimization
- **LSA Lab, National Tsing Hua University** Hsinchu, Taiwan
Graduate Research Assistant
Mar 2021 - Jan 2023
 - **ML task scheduling**: Design and implement a reservation-based scheduling algorithm to reduce the makespan of a schedule under memory constraints
 - **Cloud provisioning**: Analyzed Spot Instances price history and proposed an optimal bidding strategy to reduce the cost.
- **HSCC Lab, National Tsing Hua University** Hsinchu, Taiwan
Undergraduate Research Assistant
Sep 2020 - Jan 2021
 - **CNN Parallelization**: Work on the project, *Parallelize CNN inference on multiple Raspberry Pi devices*. We build a system that provides end-to-end and automatic framework for parallel image inferencing.

INDUSTRY EXPERIENCES

- **Skymizer Inc.** Taipei, Taiwan
Software engineer Part-time
May 2021 - March 2023
 - **Forest Runtime - Runtime that can execute executables provided by ONNC**: Participated in the runtime implementation in C and provided Python API.
 - **DL Pipeline Implementation**: Based on Pipedream, implement an asynchronous pipeline for DNN inference with ONNX.
- **Industrial Technology Research Institute** Hsinchu, Taiwan
System Architect Intern
Jul 2018 - Dec 2018
 - **Implementation**: Implement NVDLA using C++.
- **Twister5 Inc.** Taipei, Taiwan
Full-stack developer Part-time
Dec 2021 - May 2022
 - **Admin Panel**: Use Vuejs to build the admin panel monitor the status of servers
 - **Backend Development**: Build a REST api with NEST.js and MongoDB.

TEACHING EXPERIENCE

- **Computer Science Department, University of Illinois Urbana-Champaign** Urbana, IL, USA
Graduate Teaching Assistant Fall 2024
 - CS425 Distributed Systems
- **Computer Science Department, National Tsing Hua University** Hsinchu, Taiwan
Graduate Teaching Assistant Fall 2022
 - CS542200 Parallel Programming

SKILLS

- **Languages:** Python, C++, SQL, Java, JavaScript
- **Frameworks:** TensorFlow, PyTorch, NodeJS
- **Tools:** Kubernetes, Docker, Git, PostgreSQL, MongoDB
- **Platforms:** Linux, Web, Windows, AWS, GCP