Kai-Siang Wang

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Research Interests

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*
  - **Smart Home**: Design a new abstraction for smart home environments to provider better observability
  - **LLM Orchestration**: Analyze the performance of different parallelism techniques for cluster-level optimization
- **LSA Lab, National Tsing Hua University** — Hsichu, 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** — Hsichu, 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++.
  - **Version Control**: Work with collaborators and use Git for version control.
- **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