

Yidi Wang

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Research Interests — My primary research interests are in the field of real-time embedded and cyber-physical systems. The core objective of my work is to advance the design of energy-efficient, preemptive, and responsive computing systems, particularly when confronted with dynamic timing constraints.

Employment

Santa Clara University

Assistant Professor in Department of Computer Science and Engineering

Santa Clara, CA, USA

Sept 2024 – Present

University of California, Riverside

Postdoc-Interim in Department of Electrical and Computer Engineering

Riverside, CA, USA

Aug 2023 – Jul 2024

Education

University of California, Riverside

Ph.D. in Electrical Engineering

Riverside, CA, USA

Sept 2019 – Jun 2023

- Area of Expertise: Real-time Systems, Embedded Systems, GPUs
- Dissertation: Advancing Real-Time GPU Scheduling: Energy Efficiency and Preemption Strategies
- Advisor: Prof. Hyoseung Kim

University of California, Riverside

M.S in Electrical Engineering

Riverside, CA, USA

Sept 2018 – Jun 2019

Huazhong University of Science and Technology

Bachelor in Electrical Engineering

Wuhan, China

Sept 2014 – Jun 2018

Peer-Reviewed Publications

- Mohsen Karimi, **Yidi Wang**, Youngbin Kim, Yoojin Lim, and Hyoseung Kim. CARTOS: A Charging-Aware Real-Time Operating System for Intermittent Batteryless Devices. In *IEEE Transactions on Emerging Topics in Computing (TECS)*, 2025.
- Haopeng Gao, Hyunjong Choi, and **Yidi Wang**. Work-in-Progress: Modeling and Analysis of Inference Latency on USB Edge TPUs. In *Brief Presentation Session of IEEE Real-Time Systems Symposium (RTSS)*, 2025.
- Marcus Chen, Pascal Reich, **Yidi Wang**, and Hyunjong Choi. Work-in-Progress: A Practical Linux Framework for Weakly-Hard Tasks with Constant Bandwidth Server. In *Brief Presentation Session of IEEE Real-Time Systems Symposium (RTSS)*, 2025.
- Ryan Quach, **Yidi Wang**, Ali Jahanshahi, Daniel Wong, and Hyoseung Kim. ECLIP: Energy-efficient and Practical Co-Location of ML Inference on Spatially Partitioned GPUs. In *IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)*, 2025.
- **Yidi Wang**, Cong Liu, Daniel Wong, and Hyoseung Kim. GCAPS: Analyzable GPU Context-Aware Preemptive Scheduling Approach for Real-Time Tasks. In *Euromicro Conference on Real-Time Systems (ECRTS)*, 2024.
- **Yidi Wang**, Mohsen Karimi, and Hyoseung Kim. Towards Energy-Efficient Real-Time Scheduling of Heterogeneous Multi-GPU Systems. In *IEEE Real-Time Systems Symposium (RTSS)*, 2022.
- Mohsen Karimi, **Yidi Wang**, and Hyoseung Kim. An Open-Source Power Monitoring Framework for Real-Time Energy-Aware GPU Scheduling Research. In *Open Demo Session of IEEE Real-Time Systems Symposium (RTSS@Work)*, 2022.
- Mohsen Karimi, **Yidi Wang** and Hyoseung Kim. Energy-Adaptive Real-time Sensing for Batteryless Devices. In *IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA)*, 2022.
- **Yidi Wang**, Mohsen Karimi, Yecheng Xiang, and Hyoseung Kim. Balancing Energy Efficiency and Real-Time Performance in GPU Scheduling. In *IEEE Real-Time Systems Symposium (RTSS)*, 2021.

- Yecheng Xiang, **Yidi Wang**, Hyunjong Choi, Mohsen Karimi and Hyoseung Kim. AegisDNN: Dependable and Timely Execution of DNN Tasks with SGX. In IEEE Real-Time Systems Symposium (RTSS), 2021.
- Mohsen Karimi, Hyunjong Choi, **Yidi Wang**, Yecheng Xiang, Hyoseung Kim. Real-Time Task Scheduling on Intermittently Powered Batteryless Devices. In IEEE Internet of Things Journal, 2021.
- **Yidi Wang** and Hyoseung Kim. Work-in-Progress: Understanding the Effect of Kernel Scheduling on GPU Energy Consumption. In Brief Presentation Session of IEEE Real-Time Systems Symposium (RTSS), 2019.

Papers Under Review

- **Yidi Wang**, Cong Liu, Daniel Wong, and Hyoseung Kim. GPU Context-Aware Real-Time Scheduling: New Approaches and Improved Analysis. In submission to TPDS.

Grants and Awards

Artificial Intelligence Scholarship Awards (Internal)

2025

Role: Lead PI

- Title: Real-Time Scheduling for AI Inference on Heterogeneous Devices
- Acceptance rate: 14.7%

Teaching Experience

Santa Clara University

Santa Clara, CA, USA

CSEN20: Introduction to Embedded Systems

- Fall 2024

CSEN283: Operating Systems

- Winter 2025, Spring 2025, Fall 2025

University of California, Riverside

Riverside, CA, USA

EE128: Sensing and Actuation for Embedded Systems

- Spring 2023 (Instructor), Spring 2021 (TA), Fall 2020 (TA)

Peer Reviewer

- ACM/IEEE Design Automation Conference (DAC) 2026
- IEEE Real-Time System Symposium (RTSS) - Brief Presentations 2025
- IEEE Real-Time System Symposium (RTSS) 2025
- ACM Transactions on Architecture and Code Optimization (TACO) 2025
- ACM Transactions on Internet of Things (TIOT) 2025
- IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) - Brief Presentations 2024
- IEEE Transactions on Computers (TC) 2024
- ACM Transactions on Embedded Computing Systems (TECS) 2023 – 2024
- ACM Transactions on Cyber-Physical Systems (TCPS) 2023 – 2024
- IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems (TCAD) 2023 – 2024
- IEEE Transactions on Parallel and Distributed Systems (TPDS) 2022 – 2023
- Real-Time Systems Journal 2023
- IEEE Real-Time Systems Symposium (RTSS), Secondary Reviewer 2021

Professional Experience

TuSimple Inc.

San Diego, CA, USA

Software Development Engineer - Intern

Jun 2022 – Nov 2022

- Analyzed GPU bottlenecks in self-driving applications and proposed improvements.
- Integrated the improvements into self-driving system to reduce critical path delays.

Wuhan Tianyu Information Industry Co., LTD

Wuhan, China

Embedded Software Engineer - Intern

Jul 2018 - Aug 2018

- Migrated essential drivers from a previous embedded system to a new IC card device.
- Worked with the test team to thoroughly test the device, ensuring performance standards and product quality.