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 — **Santa Clara, CA, USA**
Assistant Professor in Department of Computer Science and Engineering — *Sept 2024 – Present*

University of California, Riverside — **Riverside, CA, USA**
Postdoc-Interim in Department of Electrical and Computer Engineering — *Aug 2023 – Jul 2024*

Education

University of California, Riverside — **Riverside, CA, USA**
Ph.D. in Electrical Engineering — *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 — **Riverside, CA, USA**
M.S in Electrical Engineering — *Sept 2018 – Jun 2019*

Huazhong University of Science and Technology — **Wuhan, China**
Bachelor in Electrical Engineering — *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 (TETC), 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.