

Woosung Kang

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DGIST, Daegu, South Korea



Research Interests

Real-Time Scheduling Framework for Multi-DNN Inference

- **On-device AI Systems**
Resource-constrained AI, Real-time DNN inference, System-level optimization for edge AI
- **Real-Time Scheduling**
Deadline-aware multi-DNN scheduling, Timing guarantees under resource contention

Education

DGIST (Daegu Gyeongbuk Institute of Science and Technology) 2019 – 2026
Ph.D. in Computer Science, Real-Time Computing Lab
Advisor: Prof. Hoon Sung Chwa

DGIST, School of Undergraduate Studies 2014 – 2019
B.S. in Computer Science

Research Experience

DGIST, Real-Time Computing Lab 2026 – Present
Postdoctoral Researcher
Advisor: Prof. Hoon Sung Chwa

Recognition

Best Paper Award, IEEE RTAS 2026 May 2026

DGIST Kyu-Young Whang Outstanding Research Award October 2025

Publications

- **LaLaRAND: Flexible Layer-by-Layer CPU/GPU Scheduling for Real-Time DNN Tasks**
W. Kang, K. Lee, J. Lee, I. Shin, and H. S. Chwa
IEEE Real-Time Systems Symposium (RTSS'21), Dortmund, Germany, Dec. 2021
- **DNN-SAM: Split-and-Merge DNN Execution for Real-Time Object Detection**
W. Kang, S. Chung, J. Y. Kim, Y. Lee, K. Lee, J. Lee, K. G. Shin, and H. S. Chwa

IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'22), Milano, Italy, May 2022

- **RT-Swap: Addressing GPU Memory Bottlenecks for Real-Time Multi-DNN Inference**

W. Kang, J. Lee, Y. Lee, S. Oh, K. Lee, and H. S. Chwa

IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'24), Hong Kong, China, May 2024

- **Mitigating Resource Contention for Responsive On-Device Machine Learning Inferences**

M. Kim, J. Lee, S. Chou, W. Chung, I. Kim, **W. Kang**, H. Kim, S. Oh, H. S. Chwa, and K. Lee

IEEE/ACM International Conference on Computer-Aided Design (ICCAD'25), Munich, Germany Nov. 2025

- **Timing Guarantees for Inference of AI Models in Embedded Systems**

S. Lee, **W. Kang**, M. Bertogna, H. S. Chwa, and J. Lee

Real-Time Systems Journal (RTSJ), pp. 1–9, 2025

- **(Best Paper Award) ZeroSwap: Minimizing Swap Overhead for Real-Time Multi-DNN Inference via SSD-based GPU Memory Extension**

W. Kang, F. Muzzini, G. Brilli, J.-C. Kim, J. Lee, and H. S. Chwa

IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS'26), Saint-Malo, France, May 2026

- **Paste-and-Cut: Collective Image Localization and Classification for Real-Time Multi-Camera Object Detection**

Y. E. Kang, **W. Kang**, T. Lee, and H. S. Chwa

International Conference on Information and Communication Technology Convergence (ICTC), Jeju, Korea, Oct. 2023

Patents

- **Real-Time Object Detection System and Method Using Dynamic Image Merging and Patching Technique** Republic of Korea

Patent Number: 10-2988385

Granted

Hoon Sung Chwa, **Woosung Kang**, Youngeun Kang, Taehoon Lee

- **Memory Management System and Method Using Memory Virtualization and Real-Time Scheduling** Republic of Korea

Application Number: 10-2024-0038877

Published

Hoon Sung Chwa, **Woosung Kang**

- **Memory Management System and Method Using Memory Virtualization and Real-Time Scheduling** PCT

Application Number: PCT/KR2024/011386

Published

Hoon Sung Chwa, **Woosung Kang**

Professional Service

Program Committee, ACM S3 Workshop (with **MobiCom'25**)

Program Committee, Junior Researcher Workshop on Real-Time Computing (with **RTNS'24**)

Secondary Reviewer, IEEE Real-Time Systems Symposium (**RTSS**), 2022–2024