Hee Jae Kim

Boston, MA • hjkim37@bu.edu • github ↗ personal website ↗

RESEARCH INTERESTS

Computer Vision, Robotics, and Machine Learning
- Autonomous and assistive systems

EDUCATION

Boston University ↗   Boston, MA, USA

    Ph.D., Department of Electrical and Computer Engineering   Sep. 2022 –
    Advisor: Eshed Ohn-Bar ↗

Ewha Womans University ↗   Seoul, South Korea

    M.S., Department of Electronic and Electrical Engineering   Mar. 2019 – Feb. 2021
    Advisors: Byung-Uk Lee ↗ , Je-Won Kang ↗

    B.S. in Engineering, Department of Electronics Engineering   Mar. 2014 – Feb. 2019

PEER-REVIEWED PUBLICATIONS

[1] **Hee Jae Kim**, Kathakoli Sengupta, Masaki Kuribayashi, Hernisa Kaccori, Eshed Ohn-Bar. Text to Blind Motion. *NeurIPS*, 2024. [project]

[2] **Hee Jae Kim**, Kathakoli Sengupta, Masaki Kuribayashi, Hernisa Kaccori, Eshed Ohn-Bar. A Multi-Modal Dataset for Urban Navigation by Blind Individuals. *UrbanAccess Workshop*, 2024.

[3] **Hee Jae Kim**, and Eshed Ohn-Bar, Motion Diversification Networks, *CVPR*, 2024. [pdf] [project]

[4] **Hee Jae Kim**, and Eshed Ohn-Bar, Motion Diversification Networks, *Women in Computer Vision (WiCV) Workshop*, 2024.

[5] Doyi Kim, **Hee Jae Kim**, and Yong-Sang Choi, Unsupervised Clustering of Geostationary Satellite Cloud Properties for Estimating Precipitation Probabilities of Tropical Convective Clouds, *JAMC*, 2023. [pdf]

[6] Gyu-Lee Jeon, **Hee Jae Kim**, Eun Yeo, and Je-Won Kang, CNN Based Multi-View Image Quality Enhancement, *ICFUN*, 2022. [pdf]

[7] **Hee Jae Kim**, Je-Won Kang, and Byung-Uk Lee, 360° Image Reference-Based Super-Resolution Using Latitude-Aware Convolution Learned from Synthetic to Real, *IEEE Access*, 2021. [pdf] [code] [project]

[8] **Hee Jae Kim**, Je-Won Kang, and Byung-Uk Lee, Super-resolution of Multi-view ERP 360-Degree Images with Two-Stage Disparity Refinement, *APSIPA*, 2020. [pdf]

RESEARCH PROJECTS

Realistic Driving Simulation in a 3D Reconstructed World
Boston University   Sep. 2023 –
- Developed a novel rendered-based simulation framework for a scalable collection of diverse and realistic driving demonstrations

3D Human Motion Generation and Behavior Modeling for Accessibility
Boston University   Sep. 2022 –
- Developed a novel framework for learning to generate realistic and diverse 3D human motion in dynamic real-world settings

Super-Resolution of Multi-View 360-Degree Imagery

Ewha Womans University   Mar. 2019 – Feb. 2021

- Developed a reference-based super-resolution network and adaptive disparity estimator for 360-degree images in unstructured multi-camera systems

Quality Enhancement of Blurry and Saturated Endoscopic Images

Full-Time Undergraduate Researcher, Ewha Womans University   Oct. 2018 – Feb. 2019

- Developed a saturation-compensated Richardson-Lucy's deconvolution algorithm to reduce artifacts during endoscopic image restoration

WORK EXPERIENCE	**RainbirdGEO** ⬀	Seoul, South Korea

Full-Time Researcher   Jul. 2021 – Feb. 2022

- Developed a machine learning framework to cluster geostationary satellite cloud properties and estimate precipitation probabilities of tropical convective clouds
- Keywords: *instance/semantic segmentation, self-organizing map*

ETRI ⬀   Daejeon, South Korea

Full-Time Undergraduate Researcher, AI Research Laboratory ⬀   Jun. 2018 – Aug. 2018

- Researched real-time object detection algorithms for autonomous driving
- Member of the Autonomous Driving System Research Group in the Intelligent Robotics Research Division
- Keywords: *autonomous driving, real-time object detection*

HONORS AND AWARDS

Doctoral Research Fellowship | Boston University	2023-2024
Distinguished Electrical Engineering Fellowship | Boston University	2022-2023
Research Grant for Outstanding Female Engineering Research Team | WISET	2020
Student Assistant Scholarship | Ewha Womans University	2019-2020
Dean's List | Ewha Womans University	2017-2018

TEACHING

Boston University   2024
- Robot Learning (EC518), Smart and Connected Systems (EC444)

Ewha Womans University   2019 – 2020
- Digital Image Processing (36515-01), Signals and Systems (30272-01), Circuit Theory (34298-01)

Service

CVPR2024 AVA Accessibility Vision and Autonomy Challenge   2024
- Challenge Organizer

PATENTS

[1] **Hee Jae Kim**, Je-Won Kang, Jin Heo, Seung Wook Park, Method for Camera Parameter Grouping and Updating for MPEG Immersive Video, Korea Patent Application, filed on April 05, 2023 (Application no.10-2023-0044499).

[2] **Hee Jae Kim**, Je-Won Kang, and Byung-Uk Lee, Super-Resolution Method and Image Processing Apparatus for Equirectangular Projection Format 360-Degree Image, Korea Patent Application, filed on December 31, 2020 (Application no.10-2020-0188790), issued on September 7, 2022 (Patent no. 10-2442980).

[3] **Hee Jae Kim**, Je-Won Kang, and Byung-Uk Lee, Super-Resolution Method for Multiview 360-Degree Image and Image Processing Apparatus, Korea Patent Application, filed on July 29, 2019 (Application no.10-2019-0162738), issued on December 9, 2019 (Patent no. 10-2141319).