

# Hee Jae Kim

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## 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**, and Eshed Ohn-Bar, Motion Diversification Networks, *CVPR*, 2024.
- [2] 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](#)]
- [3] Gyu-Lee Jeon, **Hee Jae Kim**, Eun Yeo, and Je-Won Kang, CNN Based Multi-View Image Quality Enhancement, *ICFUN*, 2022. [[pdf](#)]
- [4] **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](#)]
- [5] **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](#)]
- [6] **Hee Jae Kim**, Je-Won Kang, and Byung-Uk Lee, CNN-based Multi-view 360-Degree Video Super-resolution, *IPIU*, 2020.
- [7] **Hee Jae Kim** and Byung-Uk Lee, Comparison of Saturated Image Restoration Methods, *IPIU*, 2019.

## RESEARCH PROJECTS

### Realistic Driving Simulation in a 3D Reconstructed World

*Boston University*

Sep. 2023 –

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

#### Electronics and Telecommunications Research Institute (ETRI) [↗](#)

Daejeon, South Korea

Full-Time Undergraduate Researcher, AI Research Laboratory [↗](#)

Jun. 2018 – Aug. 2018

- Researched on real-time object detection algorithm (YOLOv3) 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

Research Grant of \$7,000 for Outstanding Female Engineering Research Team | WISSET 2020

Student Assistant Scholarship | Ewha Womans University

2019, 2020

Dean's List | Ewha Womans University

2017, 2018

## TEACHING

#### Boston University

2024

- Smart and Connected Systems (EC444)

#### Ewha Womans University

2019 – 2020

- Digital Image Processing (36515-01), Signals and Systems (30272-01), Circuit Theory (34298-01)

## 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 Multi-view 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).