# JUNHO KIM

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## EDUCATION

KAIST, Daejeon, South Korea
-Ph.D. in Electrical Engineering
-Advisor: Prof. Yong Man Ro
Dongguk University, Seoul, South Korea
-B.S. in Electrical and Electronic Engineering

Sep. 2019 - Feb. 2025 (Expected)

Feb. 2012 - Feb. 2019

### **RESEARCH INTERESTS**

#### Machine Learning

- Reasoning & Generalization
- Model Robustness & Safety
- Causal Inference
- Interpretability & Explainability

#### **Deep Learning**

- Multi-modal Learning
- Large Multi-modal Models
- Large Language Models
- Image Segmentation

### PUBLICATION

## International Journal

1. Robust Perturbation for Visual Explanation: Cross-Checking Mask Optimization to Avoid Class Distortion

**Junho Kim**, Seongyeop Kim, Seong Tae Kim, and Yong Man Ro, IEEE Transactions on Image Processing (**TIP**), 2021, IF: 10.856.

#### **International Conference**

1. What if...?: Counterfactual Inception to Mitigate Hallucination Effects in Large Multimodal Models.

**Junho Kim**<sup>\*</sup>, YeonJu Kim<sup>\*</sup>, and Yong Man Ro, (\*: equally contributed) Under review, 2024.

- Causal Unsupervised Semantic Segmentation Junho Kim<sup>\*</sup>, Byung-Kwan Lee<sup>\*</sup>, and Yong Man Ro, (\*: equally contributed) Under review, 2024.
- Mitigating Adversarial Vulnerability through Causal Parameter Estimation by Adversarial Double Machine Learning Byung-Kwan Lee\*, Junho Kim\*, and Yong Man Ro, (\*: equally contributed)

IEEE/CVF International Conference on Computer Vision (ICCV), 2023.

4. Mitigating Dataset Bias in Image Captioning through CLIP Confounder-free Captioning Network

YeonJu Kim, Junho Kim, Byung-Kwan Lee, Sebin Shin, and Yong Man Ro

IEEE International Conference on Image Processing (ICIP), 2023.

5. Demystifying Causal Features on Adversarial Examples and Causal Inoculation for Robust Network by Adversarial Instrumental Variable Regression Junho Kim<sup>\*</sup>, Byung-Kwan Lee<sup>\*</sup>, and Yong Man Ro, (\*: equally contributed) IEEE / CVF Computer Vision and Pattern Recognition Conference (**CVPR**), 2023.

- 6. Masking Adversarial Damage: Finding Adversarial Saliency for Robust and Sparse Network Byung-Kwan Lee\*, Junho Kim\*, and Yong Man Ro, (\*: equally contributed) IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR), 2022.
- Distilling Robust and Non-Robust Features in Adversarial Examples by Information Bottleneck Junho Kim<sup>\*</sup>, Byung-Kwan Lee<sup>\*</sup>, and Yong Man Ro, (\*: equally contributed) Advances in Neural Information Processing Systems (NeurIPS), 2021.
- Interpretation of Lesional Detection via Counterfactual Generation Junho Kim, Minsu Kim, and Yong Man Ro, IEEE International Conference on Image Processing (ICIP), 2021.
- Unsupervised Disentangling of Viewpoint and Residues Variations by Substituting Representations for Robust Face Recognition Minsu Kim, Joanna Hong, Junho Kim, Hong Joo Lee, and Yong Man Ro, International Conference on Pattern Recognition (ICPR), 2020.
- Learning Style Correlation for Elaborate Few-Shot Classification Junho Kim, Minsu Kim, Jung Uk Kim, Hong Joo Lee, Sangmin Lee, Joanna Hong, and Yong Man Ro, IEEE International Conference on Image Processing (ICIP), 2020.

## **RESEARCH EXPERIENCE**

Research Engineer in Hyundai MOBIS	
- Research Engineer	
- Safety Electronic System Group	Jan. 2019 - Aug. 2019
- Developing an algorithm of airbags inflation estimating	
the magnitude and the type collision of an accident	
Research Internship in Samsung Electronics	
- Research Intern	
- Image Quality Development Group	Jun. 2018 - Aug. 2018
- Developing a super-resolution algorithm for flagship models	
Research Internship in Hyundai MOBIS	
- Research Intern	
- Driving Assistant System Group	Jan. 2018 - Feb. 2018
- Developing Lane Keeping Aid System (LKAS) algorithm	
REVIEWER ACTIVITIES	

## International Journal

- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)

- IEEE Transactions on Audio, Speech, and Language Processing (TASLP)

## International Conference

- Computer Vision and Pattern Recognition (CVPR)

- International Conference on Computer Vision (ICCV)

## **PROGRAMMING SKILLS**

### Languages

- C/C++, Python, and MATLAB

# Deep Learning Libraries

- Pytorch, Tensorflow, and Keras

## AWARDS & HONORS

KAIST Fellowship	2019 - Present
The World Embedded software Contest	2017
- Finalist with AI six-legged robot 'Homecoming'	