Ji Woo Hong

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Research Interest:

I am a researcher specialized in Generative AI for images and videos. My current research focuses on developing advanced generative models to enhance visual content creation. In addition, I have experience in 3D instance segmentation, 3D human pose estimation, and video moment retrieval, contributing to a broader understanding of vision-based AI applications.

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST). Daejeon, Republic of Korea Aug. 2022 - present

Ph.D. candidate in Electrical Engineering (Artificial Intelligence & Machine Learning). Advisor: Prof. Chang D. Yoo

Korea Advanced Institute of Science and Technology (KAIST). Daejeon, Republic of Korea Graduation: Aug. 2022

Master's degree in Robotics Program (Artificial Intelligence & Machine Learning). Advisor: Prof. Chang D. Yoo

Thesis: Temporal Procrustes Alignment Framework for 3D Human Pose and Shape Estimation from Video

Michigan State University (MSU). Michigan, US Graduation: May 2019

Bachelor of Science in Mechanical Engineering, Minor in Computer Science

WORK EXPERIENCE

Artificial Intelligence & Machine Learning Lab. (U-AIM) of **KAIST**, Daejeon, Republic of Korea Aug. 2020 – present

Research Assistant for:

Development and Study of AI Technologies to Inexpensively Conform to Evolving Policy on Ethics (Operator)

IITP grant funded by the Korea Government (MSIT) Mar. 2022 - present

Development of Causal AI through Video Understanding and Reinforcement Learning, and Its Applications to Real Environments (Supporter)

IITP grant funded by the Korea Government (MSIT) Mar. 2021 - present

Development of framework for analyzing, detecting, mitigating of bias in AI model and training data (Operator)

IITP grant funded by the Korea Government (MSIT) Jan. 2021 – Dec. 2022

MSU Department of Math, Michigan, US Aug. 2018 – Dec. 2018

Undergraduate TA for Calculus 1

Republic of Korea Army, Cheorwon, Republic of Korea June 2014 – Mar. 2016

Sergeant, Honorable discharge

PUBLICATIONS

* denotes equal contribution

[13] ITA-MDT: Image-Timestep-Adaptive Masked Diffusion Transformer Framework for Image-Based Virtual Try-On

Ji Woo Hong, Tri Ton, Trung X. Pham, Gwanhyeong Koo, Sunjae Yoon, Chang D. Yoo. CVPR 2025.

[12] Dilutional Noise Initialization for Diffusion Video Editing

Sunjae Yoon, Gwanhyeong Koo, **Ji Woo Hong**, Chang D. Yoo. ECCV 2024.

[11] FlexiEdit: Frequency-Aware Latent Refinement for Enhanced Non-Rigid Editing

Gwanhyeong Koo, Sunjae Yoon, **Ji Woo Hong**, Chang D. Yoo, ECCV 2024.

[10] Zero-shot Dual-Path Integration Framework for Open-Vocabulary 3D Instance Segmentation

Tri Ton*, **Ji Woo Hong***, SooHwan Eom, Jun Yeop Shim, Junyeong Kim, Chang D. Yoo. CVPRW 2024.

[9] Causal Localization Network for Radar Human Localization with micro-Doppler signature

Sunjae Yoon, Gwanhyeong Koo, Jun Yeop Shim, Soohwan Eom, **Ji Woo Hong**, Chang D. Yoo. IEEE Access 2024

[8] Counterfactual Two-stage Debiasing for Video Corpus Moment Retrieval

Sunjae Yoon, **Ji Woo Hong**, SooHwan Eom, Hee Suk Yoon, Eunseop Yoon, Daehyeok Kim, Junyeong Kim, Chanwoo Kim, Chang D. Yoo. ICASSP 2023 (Oral)

[7] Self-Supervised Visual Representation Learning via Residual Momentum

Trung Pham, Axi Niu, Zhang Kang, Tee Joshua Tian Jin, **Ji Woo Hong**, and Chang D. Yoo. IEEE Access 2023.

[6] Joint Path Alignment Framework for 3D Human Pose and Shape Estimation from Video

Ji Woo Hong, Sunjae Yoon, Junyeong Kim, Chang D. Yoo. IEEE Access 2023.

[5] Selective Query-guided Debiasing for Video Corpus Moment Retrieval

Sunjae Yoon, **Ji Woo Hong**, Eunseop Yoon, DaHyun Kim, Junyeong Kim, Hee Suk Yoon, Chang D. Yoo. ECCV 2022.

[4] Semantic Association Network for Video Corpus Moment Retrieval

Dahyun Kim, Sunjae Yoon, **Ji Woo Hong**, Chang D. Yoo. ICASSP 2022.

[3] CE-BART: Cause-and-Effect BART for Visual Comonsense Generation.

Junyeong Kim, **Ji Woo Hong**, Sunjae Yoon, Chang D. Yoo. Sensors 2022.

[2] Dual-scale Doppler Attention for Human Identification.

Sunjae Yoon, Dahyun Kim, **Ji Woo Hong**, Junyeong Kim, Chang D. Yoo. Sensors 2022

[1] WEAKLY-SUPERVISED MOMENT RETRIEVAL NETWORK FOR VIDEO CORPUS MOMENT RETRIEVAL

Sunjae Yoon*, Dahyun Kim*, Ji Woo Hong, Junyeong Kim, Kookhoi Kim, Chang D. Yoo. ICIP 2021.

AWARDS & HONOR

1st place. 2024 Seoul National University Bundang Hospital (SNUBH) Datathon. Seoul, Republic of Korea Oct. 2024

Best Paper Award. Winter Conference of Korean Artificial Intelligence Association (KAIA) Nov. 2023

National Government Scholarship (full scholarship for Ph.D. program). Republic of Korea Aug. 2022 – present

Dean's list. Michigan State University, Michigan, US Fall 2018, Spring 2018, Fall 2017, Spring 2013, Fall 2012

Academic Services

Reviewer

Conference on Computer Vision and Pattern Recognition (CVPR): 2025

European Conference on Computer Vision (ECCV): 2024

International Conference on Acoustics, Speech & Signal Processing (ICASSP): 2023, 2024

Teaching Assistant

Statistical Learning Theory: 2024 Spring, 2024 Fall

Introduction to Machine Learning: 2023 Fall

Signals and Systems: 2022 Fall, 2023 Spring

Seongnam-KAIST Next Generation ICT Research Center. EE Co-op+ Joint Research Program: 2023 Fall, 2024 Spring, 2024 Fall

SKILLS

Languages: Korean (Native), English (Fluent)

Programming Languages: Proficient in Python and MATLAB

Operating Systems: Experienced with Linux (Ubuntu)