

Junha Hyung

PH.D. CANDIDATE

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About

I work on and am interested in Robotics, World Models, and World Action Models.

Education

Korea Advanced Institute of Science and Technology (KAIST)

PH.D. IN ARTIFICIAL INTELLIGENCE

Sep. 2021 - present

- Advisor: Prof. Jaegul Choo

Korea Advanced Institute of Science and Technology (KAIST)

B.S. IN SCHOOL OF COMPUTING, ELECTRICAL ENGINEERING (DOUBLE MAJOR)

Mar. 2016 - Aug. 2021

- GPA: 3.93 / 4.3

Professional Experience

- Jun. 2025-Sep. 2025 **Microsoft Research**, AI Research Intern
- Jun. 2024-Dec. 2024 **NVIDIA**, AI Research Intern
- Feb. 2024-Jun. 2024 **Naver**, AI Research Intern
- Jul. 2022-Dec. 2022 **Kakao Enterprise**, AI Research Intern
- Mar. 2021-Aug. 2021 **Mindslab**, AI Research Intern
- Jun. 2019-Jun. 2020 **SKT**, AI Fellowship
- Sep. 2018-Feb. 2019 **Kakao**, AI Research Intern

Publications

Geometry-Aware Mid-Training for World-Action Models

Junha Hyung^{*}, Hyojin Jang^{*}, Jaegul Choo (^{*} equal contribution)

Under Review

Generative Failure-to-Success Bridging for Robot Learning

Junha Hyung^{*}, Hyojin Jang^{*}, Jaegul Choo (^{*} equal contribution)

Under Review

Towards Data-Efficient and Real-Time World Models

Raluca Stevenson, David Bignell, Jennifer C. White, Tabish Rashid, Emanuele Aiello, Mariya Hendriksen, Junha Hyung,
Sadeh Aliakbarian, Abdelhak Lemkhenter, Marko Tot, Katja Hofmann, Sarah Parisot

Under Review

EgoX: Egocentric Video Generation from a Single Exocentric Video

Taewoong Kang^{*}, Kinam Kim^{*}, Dohyeon Kim^{*}, Minho Park, Junha Hyung, Jaegul Choo (^{*} equal contribution)

The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2026

ACG: Action Coherence Guidance for Flow-based VLA models

Minho Park*, Kinam Kim*, Junha Hyung, Hyojin Jang, Hoiyeong Jin, Jooyeol Yun, Hojoon Lee, Jaegul Choo (* equal contribution)

IEEE International Conference on Robotics & Automation (ICRA), 2026

Probability-Conserving Flow Guidance

Parsa Esmati*, Junha Hyung*, Amirhossein Dadashzadeh, Jaegul Choo, Majid Mirmehdi (* equal contribution)

Under Review

InsertAnywhere: Geometrically Grounded and Optics-Aware Video Object Insertion

Hoiyeong Jin*, Hyojin Jang*, Junha Hyung*, Jeongho Kim, Kinam Kim, Dongjin Kim, Huijin Choi, Hyunji Kim, Jaegul Choo (* equal contribution)

The 19th European Conference on Computer Vision (ECCV), 2026

Infinite-Homography as Robust Conditioning for Camera-Controlled Video Generation

Min-Jung Kim, Jeongho Kim, Hoiyeong Jin, Junha Hyung, Jaegul Choo

The 19th European Conference on Computer Vision (ECCV), 2026

ReDesign: Recovering Editable Design Structures from Images via Agentic Decomposition

Jooyeol Yun, Jintae Park, Hyesu Lim, Junha Hyung, Hyungjin Chung, Jaegul Choo

The 19th European Conference on Computer Vision (ECCV), 2026

Temporal In-Context Fine-Tuning for Versatile Control of Video Diffusion Models

Kinam Kim*, Junha Hyung*, Jaegul Choo (*equal contribution)

The Thirty-Ninth Annual Conference on Neural Information Processing Systems (NeurIPS), 2025

Reward-Weighted Sampling: Enhancing Non-Autoregressive Characteristics in Masked Diffusion LLMs

Daehoon Gwak*, Minseo Jung*, Junwoo Park, Minho Park, ChaeHun Park, Junha Hyung, Jaegul Choo

The 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP), 2025

Spatiotemporal Skip Guidance for Enhanced Video Diffusion Sampling

Junha Hyung*, Kinam Kim*, Susung Hong, Min-Jung Kim, Jaegul Choo (*equal contribution)

IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025

SurFHead: Affine Rig Blending for Geometrically Accurate 2D Gaussian Surfel-based Head Avatars

Jaeseong Lee*, Taewoong Kang*, Marcel Buehler, Min-Jung Kim, Sungwon Hwang, Junha Hyung, Hyojin Jang, Jaegul Choo

The Thirteenth International Conference on Learning Representations (ICLR), 2025

Effective Rank Analysis and Regularization for Enhanced 3D Gaussian Splatting

Junha Hyung, Susung Hong, Sungwon Hwang, Jaeseong Lee, Jaegul Choo, Jin-Hwa Kim

The Thirty-Eighth Annual Conference on Neural Information Processing Systems (NeurIPS), 2024

SelfSwapper: Self-Supervised Face Swapping via Shape Agnostic Masked AutoEncoder

Jaeseong Lee*, Junha Hyung*, Sohyun Jeong, Jaegul Choo (* equal contribution)

The 18th European Conference on Computer Vision (ECCV), 2024

MagiCapture: High-Resolution Multi-Concept Portrait Customization

Junha Hyung*, Jaeyo Shin*, Jaegul Choo (* equal contribution)

The Association for the Advancement of Artificial Intelligence (AAAI), 2024

Local 3D Editing via 3D Distillation of CLIP Knowledge

Junha Hyung, Sungwon Hwang, Daejin Kim, Hyunji Lee, Jaegul Choo

IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023

FaceCLIPNeRF: Text-driven 3D Face Manipulation using Deformable Neural Radiance Fields

Sungwon Hwang, Junha Hyung, Daejin Kim, Min-Jung Kim, Jaegul Choo

Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), 2023

Injecting Inductive Bias to 3D Gaussian Splatting for Geometrically Accurate Radiance Fields

Sungwon Hwang, Soohyun Ryu, Jaeseong Yun, Jaeseong Lee, Junha Hyung, Min-Jung Kim, Taewoong Kang, Joohyun Park, Jaegul Choo, Suyong Yeon

Under Review

Text2Control3D: Controllable 3D Avatar Generation in Neural Radiance Fields using Geometry-Guided Text-to-Image Diffusion Model

Sungwon Hwang, Junha Hyung, Jaegul Choo

arXiv preprint (<https://arxiv.org/abs/2309.03550>)

PixelHuman: Animatable Neural Radiance Fields from Few Images

Gyumin Shim, Jaeseong Lee, Junha Hyung, Jaegul Choo

arXiv preprint (<https://arxiv.org/abs/2307.09070>)

Awards, Fellowships, & Grants

2023	Google Cloud Award, Google
2023	Kakao Research Grant, Kakao
2020	Qualcomm-KAIST Kaggle 1st Prize, Qualcomm
2019	KAIST Dean's List, KAIST

Teaching Experience

Fall 2023	KAIST, Generative Models, Teaching Assistant
Spring 2023	SK, Deep Learning, Instructor
Spring 2023	SK, CVPR review, Instructor
Fall 2023	MNC, Deep Learning, Instructor
Fall 2022	FastCampus, 3D Deep Learning, Instructor