

Byungki Kwon

Ph.D. Candidate, POSTECH

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RESEARCH INTERESTS

My research focuses on visual generative modeling, particularly video generation and interactive world models. Building on motion modeling and 3D geometry, I aim to make visual generation more controllable, consistent, and reliable.

WORK EXPERIENCE

Research Internship, Sony AI

Developed interactive video world models with persistent 3D state dynamics

Tokyo, Japan

Apr. 2026 – Oct. 2026

Research Internship, NAVER Cloud

Developed a large-scale data curation pipeline for video foundation model training

Seoul, Korea

Oct. 2025 – Apr. 2026

Research Internship, Microsoft Research Asia

Developed a diffusion-based multimodal generative model for RGB-depth data (ICCV 2025)

Beijing, China

Sep. 2024 – Mar. 2025

EDUCATION

POSTECH

Ph.D. in Artificial Intelligence (Advisor: Tae-Hyun Oh)

Pohang, South Korea

Mar. 2023 – Feb. 2027 (Expected)

POSTECH

M.S. in Electrical Engineering (Advisor: Tae-Hyun Oh)

Pohang, South Korea

Sep. 2020 – Feb. 2023

POSTECH

B.S. in Mechanical Engineering

Pohang, South Korea

Mar. 2013 – Aug. 2019

PUBLICATIONS

NeurIPS

2026

Early Failure Detection and Intervention in Video Diffusion Models

[Kwon Byung-Ki](#), Sohwi Lim, Nam Hyeon-Woo, Moon Ye-Bin, Tae-Hyun Oh [Code]

ICML

2026

Zero-Shot Rankability: Revealing Latent Ordinal Structure in Multimodal Large Language Models via Language

Nam Hyeon-Woo, Moon Ye-Bin, Sohwi Lim, [Kwon Byung-Ki](#), Tae-Hyun Oh [Code]

TMLR

2026

Revisiting Deep Video Motion Magnification for Real-time Applications

Ha Hyunwoo, Oh Hyun-Bin, Kim Jun-Seong, [Kwon Byung-Ki](#), Kim Sung-Bin, Ji-Yun Kim, Sung-Ho Bae, Tae-Hyun Oh

ICLR

2026

HDR-NSFF: High Dynamic Range Neural Scene Flow Fields

Shin Dong-Yeon, Kim Jun-Seong, [Kwon Byung-Ki](#), Tae-Hyun Oh [Code]

ICCV

2025

JointDiT: Enhancing RGB-Depth Joint Modeling with Diffusion Transformers

[Kwon Byung-Ki](#), Qi Dai, Lee Hyoseok, Chong Luo, Tae-Hyun Oh [Code]

ICCV

Workshop

2025

Dynamic HDR Radiance Fields via Neural Scene Flow

Shin Dong-Yeon, Kim Jun-Seong, [Kwon Byung-Ki](#), Tae-Hyun Oh

AAAI

2025

Zero-shot Depth Completion via Test-time Alignment with Affine-invariant Depth Prior

Lee Hyoseok, Kyeong Seon Kim, [Kwon Byung-Ki](#), Tae-Hyun Oh [Code]

ECCV

2024

Learning-based Axial Video Motion Magnification

[Kwon Byung-Ki](#), Oh Hyun-Bin, Kim Jun-Seong, Hyunwoo Ha, Tae-Hyun Oh [Code]

ACCV 2024	The Devil is in the Details: Simple Remedies for Image-to-LiDAR Representation Learning Jo Won-jun, <u>Kwon Byung-Ki</u> , Kim Ji-Yeon, Hawook Jeong, Kyungdon Joo, Tae-Hyun Oh
RA-L 2024	Uni-DVPS: Unified Model for Depth-Aware Video Panoptic Segmentation Kim Ji-Yeon, Oh Hyun-Bin, <u>Kwon Byung-Ki</u> , Dahun Kim, Yongjin Kwon, Tae-Hyun Oh [Code]
TVCJ 2024	The Devil in the Details: Simple and Effective Optical Flow Synthetic Data Generation <u>Kwon Byung-Ki</u> , Kim Sung-Bin, Tae-Hyun Oh
ICLR 2023	DFlow: Learning to Synthesize Better Optical Flow Datasets via a Differentiable Pipeline <u>Kwon Byung-Ki</u> , Nam Hyeon-Woo, Kim Ji-Yun, Tae-Hyun Oh [Code] <u>Samsung HumanTech Paper Award</u>

AWARDS & HONORS

Best Paper Award, Asian Federation of Computer Vision, 2024.

Outstanding Reviewer Award, International Conference on Computer Vision (ICCV), 2023.

Bronze Prize (US\$5,000), Samsung HumanTech Paper Award, 2023 (for DFlow, ICLR 2023).

Best Paper Award, Workshop on Image Processing and Image Understanding (IPIU), 2023.

Best Paper Award, Workshop on Image Processing and Image Understanding (IPIU), 2021.

ACADEMIC SERVICE

Area Chair: CVPR 2027

Reviewer: CVPR 2024–2026; ECCV 2024, 2026; ICCV 2023, 2025 (**Outstanding Reviewer, 2023**); ICLR 2026; NeurIPS 2026; BMVC 2026

PATENTS

Method and Apparatus for Axial Motion Magnification in Video	2025
• U.S. Patent Application No. 19/355,924	
Method for Self-Teaching Using Synchronized and Asynchronized Sensor Data	2023
• Republic of Korea Patent Application No. 10-2023-0146900	
Image Change Data Generation Method and Apparatus	2023
• Republic of Korea Patent Application No. 10-2023-0113856	
Motion Magnification System and Training Data Generation Method	2021
• Republic of Korea Patent Application No. 10-2021-0185003	
Phase-Based Vibration Analysis Method and System	2020
• Republic of Korea Patent Application No. 10-2021-0044952	