Changwoo Kang

kangchangwoo@unist.ac.kr | branden.c.w.kang@gmail.com

Introduction

I am broadly interested in 3D vision, with a particular focus on 3D shape generation of objects, humans, and animals. Recently, my research has focused on multimodal fusion, where I study how different modalities relate to one another and how diverse form of data can be interconnected and made complementary. Thus, I am working on event camera–based vision, leveraging RGB-trained models to achieve accurate and low-latency 3D perception under challenging conditions.

Education

Ulsan National Institute of Science and Technology (UNIST) — Mar. 2021 – Present
Integrated M.S. & Ph.D., Artificial Intelligence (Advisor: Prof. Kyungdon Joo) — *Ulsan, South Korea*

Experience

3D Vision & Robotics Lab @ UNIST — Mar. 2021 – Present
Integrated M.S. & Ph.D. Student, Artificial Intelligence — *Ulsan, South Korea*

Visiting Ph.D. Student @ NTU — June 2025 – Aug. 2025
Nanyang Technological University (NTU) — *Nanyang, Singapore*

Publications

C=Conference, J=Journal, U=Under review, T=Thesis

Abbreviations

CVPR	*IEEE Conf. on Computer Vision and Pattern Recognition*
AAAI	*AAAI Conference on Artificial Intelligence*
IJCV	*International Journal of Computer Vision*

[U.1] **3D Human Generation for Partners**.

[U.2] **Visual Inertial Odometry**.

[U.3] **Event-based Calibration**.

[U.4] **Animal Video Dataset**.

[J.1] Gyeongsu Cho, Changwoo Kang, Donghyeon Soon, Kyungdon Joo, **"DogRecon: Canine Prior-Guided Animatable 3D Gaussian Dog Reconstruction From a Single Image"**, *IJCV*, 2025.

[C.4] Gyeongsu Cho, Changwoo Kang, Donghyeon Soon, Kyungdon Joo, **"Canine Prior-Guided Animatable 3D Gaussian Dog Reconstruction From a Single Image"**, *CVPR Workshop (CV4Animals)*, 2025.

[C.3] Dongjun Gu, Jaehyeok Shim, Changwoo Kang, Jaehoon Jang, Kyungdon Joo, **"ContactGen: Contact-Guided Interactive 3D Human Generation for Partners"**, *AAAI*, 2024.

[C.2] Jaehyeok Shim, Changwoo Kang, Kyungdon Joo, **"Diffusion-Based Signed Distance Fields for 3D Shape Generation"**, *CVPR*, 2023.

[C.1] Minseok Kim, Changwoo Kang, Jeongin Park, Kyungdon Joo, **"Pose-Guided 3D Human Generation in Indoor Scene"**, *AAAI*, 2023.

Projects

이벤트 카메라 기반 3D 공간인지 센서팩 개발 (NRF) Sep. 2024 – Aug. 2029
- Event Camera-Centric Fusion Sensor Pack for Transferable 3D Perception among Heterogeneous Agents.

상식 기반 사실 추론 인공지능 기술 개발 (IITP) Apr. 2022 – Dec. 2026
- Geometric and Physical Commonsense Reasoning based Behavior Intelligence for Embodied AI.

스테레오 기반 깊이방향 진동분석 장치 개발 (RIST) Nov. 2022 – May 2023
- Vision System for Vibration Analysis.

가상 촉각 피드백 모델 연구 (UNIST) Jan. 2022 – Dec. 2023
- Feedback Recommendation Using Virtual Tactile.

Grants & Awards

AI Tech Open Workshop, Creative Project in UNIST (Startup Track, 1st Place) Nov. 2025
Project: Lightweight camera system and inference for 3D animal model reconstruction.
- Awarded 30,000,000 KRW (20,000 USD); funding allocated as research budget for continued 3D animal reconstruction work.

Teaching & Mentoring

- Teaching Assistant: Computer Graphics (UNIST), Introduction to AI Programming 2 (UNIST).

Patents

- Method and apparatus for reconstructing a 3D dog Gaussian model from a single image.
  Korean Patent Application 10-2025-0107831 (2025-08-05); PCT Application PCT/KR2025/019381.

Reference

Prof. Kyungdon Joo, Professor, UNIST
Relationship: advisor
E-mail: kyungdon@unist.ac.kr