



DONGWOOK KIM

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Tech blog

donguk071

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Interest

I'm AI researcher interested in dataset distillation and model training efficiency, focusing on improving data utilization and learning stability in dynamic environments through continual and federated learning. I'm also engaged in 3D vision and scene reconstruction, where I explore efficient representations and neural rendering techniques for robust multi-view and point-cloud understanding. Recently, I have been working on lightweight multimodal large language models (MLLMs) that incorporate point cloud understanding, as well as developing intelligent agent systems that integrate visual information with language-based reasoning.

Education

UNIST.

Ulsan, S.Korea

Graduate School of Artificial Intelligence, AI core

Jan 2024 – Current

- Total GPA 4.2/4.3
- Visual Information Processing Lab (Prof.Jae-Young Sim)

Qualcomm Institute, UC San Diego.

SanDiego, CA, US

Qualcomm Institute AI Development Projects

Jul 2022 – Aug 2022

- International Researcher

Kwangwoon Univ.

Seoul, S.Korea

B.S in Information Convergence, Major in Data Science

Jan 2018 – 2024

- Total GPA 3.98/4.5, Major GPA 4.16/4.5 (Credits taken: 116/133)
- Deep Imaging and Graphics Lab (Prof.Dongjoon Kim)

Publications

International

[Under Review] ICLR 2026

May 2026

Parameterization-Based Dataset Distillation of 3D Point Clouds through Learnable Shape Morphing (1st author)

Dong-Wook Kim, Jae-Young Yim and Jae-Young Sim

NeurIPS 2025

Nov 2025

Dataset Distillation of 3D Point Clouds via Distribution Matching (1st author, [link](#))

Jae-Young Yim, Dong-Wook Kim and Jae-Young Sim

ICIP-W 2025

Sep 2025

Class-Aware Coreset Selection for 3D Point Clouds Classification (2nd author)

Jae-Young Yim, Dong-Wook Kim and Jae-Young Sim

Domestic

IPIU 2024

Jun 2024

Controllable Classification via Negative-Context-Aware Learning (2nd author, [link](#))

Jae-Young Yim, Dong-Wook Kim and Jae-Young Sim

IEIE 2024

Jun 2024

Enhancing Quality of Gaussian Splatting in Few Shot Condition by Multi-Scale Augmentation (1st author, [link](#))

Dong-Wook Kim, Jae-Young Yim and Jae-Young Sim

HCI Academy of Korea 2023

Feb 2023

Synthesized training data for a ship 3D surround view learning model based on user evaluations (1st author, [link](#))

Dongwook Kim, Jonghun Kim, Taemin Jeong and Dongjoon Kim

Experience

Qualcomm Institute, UC San Diego

San Diego, CA, USA

AI Development Project Intern

Jul. 2022 – Aug. 2022

- Developed a user classification model using the KNIME framework.
- Conducted research on preventing abusive behavior by analyzing and classifying user characteristics on Instagram.

Kwangwoon University, Visual Informatics Lab

Seoul, South Korea

Undergraduate Research Assistant

Jul. 2021 – Feb. 2024

- Conducted research on implicit modeling (NeRF, LiIF) and GAN-based 3D graphics.
- Led multiple projects involving LiDAR super-resolution, depth estimation, and 3D scene reconstruction.

Projects

Generative AI for Multimodal Transportation Analytics (with MSIT)

Nov. 2025

- Developing an explainable multimodal chatbot for traffic analysis integrating CCTV video, sensor data, and LLM-RAG pipeline
- Building robust vision models for adverse-weather traffic scenes and constructing synthetic datasets via Unreal Engine simulation
- Designing a multimodal traffic knowledge graph and spatio-temporal GNNs for traffic prediction and anomaly detection

Distortion-Free SVM Generation Project (with Avicus)

Jun. 2023

- Built a real-time digital twin of a marine environment using Unreal Engine 5, generating synthetic data from virtual LiDAR and RGB sensors.
- Developed deep learning models for sensor data enhancement, including LiDAR super-resolution and image segmentation.
- Integrated a 3D geometry reconstruction pipeline using calibrated sensor data to achieve a distortion-free Surround View Monitoring (SVM) system.

VR : Anchorage Simulation with Unreal Engine 5

Dec. 2022

- Built boat navigation/docking simulator using Unreal Engine 5 (C++/Blueprints), Oculus SDK/OpenXR.
- Implemented hand-gesture steering via UE Motion Controller.

AR : Distortion-Free SVM Generation Project (with Avicus)

Jun. 2022

- Real-time face capture & avatar rigging with MediaPipe Face Mesh, Three.js/WebGL, blendshape mapping(landmark)
- Optimized animation with inverse kinematics (IK) and temporal smoothing for stable expression control

ML/DL : Dementia Prediction Project

Jul. 2022

- Predicted dementia risk using tabular data and wearable signal features via ensemble ML models
- Applied DL-based signal classification and feature engineering for multimodal health data

Computer Vision : OpenCV Camera Calibration & Panda3D XR Project

Current

- Implementing camera calibration, pose estimation, and XR visualization using OpenCV & Panda3D
- Developing real-time calibration pipeline for stereo vision XR systems

Competition & Awards

2nd Prize, 2025 Samsung AI Challenge

Oct. 2025

- Developed an AI co-researcher agent integrating MCP and RAG architectures.
- Implemented context management using ChromaDB for efficient information retrieval and dialogue grounding.

1st Prize, SKT FLY AI Competition

Feb. 2024

- Developed a motion-synchronized meta character that reacts dynamically to conversation using rigging, retargeting, and TTS.
- Designed and trained an emotion classification network through conversational text data.

1st Prize (Minister's Award), AI Contest for Software-Centered Universities

Oct. 2022

- Competed in an OCR task for signage image recognition.
- Enhanced model performance through advanced data augmentation and ensemble learning strategies.

3rd Prize, Student Creative Design Competition

Jun. 2022

- Developed *Coverist*, an AI-based book cover generation service.
- Led the end-to-end development process, including AI modeling, web backend, and mobile deployment.

Technologies

Programming Languages: Python, C++, JavaScript, Unreal Blueprints

Deep Learning & Vision: TensorFlow, PyTorch, OpenCV

Simulation & Graphics: Unreal Engine, Three.js, Panda3D