

Gyeongsu (Bob) Cho

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Research Interests

Animatable 3D/4D reconstruction of humans and animals; neural rendering and Gaussian representations; geometry-aware generative modeling and video understanding.

Education

Ulsan National Institute of Science and Technology (UNIST) 2022–Present
Integrated M.S.–Ph.D. Program in Artificial Intelligence — Expected Ph.D. graduation: February 2028
Advisor: Prof. Kyungdon Joo, 3D Vision & Robotics Lab.

Chung-Ang University 2018–2021
B.Eng. in Mechanical Engineering — Early graduation.

Research Experience

University of Texas at Austin — Research Intern 2026–Present
Advisors: Prof. Georgios Pavlakos and Dr. Hezhen Hu.

- Develop model designs and research pipelines for animatable 4D animal and human reconstruction from monocular videos.
- Work on animal reconstruction and multi-person dance research, connecting articulated geometry with dynamic motion modeling.

UNIST — Graduate Researcher, 3D Vision & Robotics Lab 2022–Present
Advisor: Prof. Kyungdon Joo.

- Lead author of DogRecon (IJCV 2025), WildAni4D (CVPR 2026 Findings), and AniGauss (CVPR 2026 CV4Animals Workshop), spanning single-image animatable reconstruction and video-based 4D animal modeling.
- Develop synthetic-video pipelines, SMAL-based animal models, and PyTorch3D renderers for training and evaluation.
- Explore generative pipelines that connect text/video outputs with animatable 3D/4D representations.

Samsung Electronics — Research Collaboration 2024–2025
Video anomaly detection for industrial display inspection.

- Co-developed a reference-guided video anomaly detection framework using real manufacturing data; contributed to dataset design, model architecture, and experiments.

42dot (Hyundai Motor Group) — Research Collaboration 2022–2023
Autonomous driving and depth estimation.

- Collaborated on autonomous-driving research contributing to SlaBins, an ICCV 2023 paper on fisheye depth estimation with slanted bins.

Selected Project

Real-Time 3D Human Pose Estimation — Startup Project 2024
KIC & George Washington University entrepreneurship program.

- Built a three-camera system with motion smoothing for real-time 3D human pose analysis in gyms.
- Conducted 50+ interviews with fitness and healthcare professionals across U.S. cities to refine the product direction; ranked first in the program track.

Selected Publications

DogRecon: Canine Prior-Guided Animatable 3D Gaussian Dog Reconstruction From a Single Image

Gyeongsu Cho, C. Kang, D. Soon, K. Joo.

International Journal of Computer Vision (IJCV), 2025.

WildAni4D: Towards 4D Animal Mesh Reconstruction

Gyeongsu Cho, H. Hu, D. Soon, C. Kang, K. Joo.

CVPR 2026 Findings.

AniGauss: Toward Animatable Animal Reconstruction from Single In-the-Wild Images via Topology-Aware Gaussians

Gyeongsu Cho, Changwoo Kang, Donghyeon Soon, Hezhen Hu, Kyungdon Joo.

CV4Animals Workshop at CVPR 2026.

Pose-Diverse Multi-View Virtual Try-on from a Single Frontal Image

S. Han*, M. Chung*, **Gyeongsu Cho**, K. Joo, T. Kim.

WACV 2026.

Avatar++: Fast and Pose-Controllable 3D Human Avatar Generation from a Single Image

S. Han*, M. Chung*, **Gyeongsu Cho**, K. Joo, T. Kim.

Wild3D Workshop at ICCV 2025.

SlaBins: Fisheye Depth Estimation using Slanted Bins on Road Environments

J. Lee, **Gyeongsu Cho**, J. Park, K. Kim, S. Lee, J. H. Kim, S.-G. Jeong, K. Joo.

ICCV 2023.

Manuscripts & Ongoing Research

- **AniGauss++** — Manuscript submitted to the International Journal of Computer Vision (IJCV).
- **Multi-Dancer Generation** — Research collaboration with Sony and the University of Texas at Austin. Manuscript in preparation for submission to CVPR.
- **Animal Agent** — Manuscript in preparation for submission to CVPR.
- **Animal Motion** — Manuscript in preparation for submission to CVPR.

Awards & Patents

- AI Tech Open Workshop, UNIST — Startup Track, 1st Place (2025). Research funding: KRW 30,000,000 for lightweight 3D animal reconstruction.
- Method and apparatus for reconstructing a 3D dog Gaussian model from a single image — Korean Patent Application 10-2025-0107831; PCT/KR2025/019381.
- Method and apparatus for generating a depth map of an image — Korean Patent Application 10-2023-0125078, with 42dot.

Technical Experience

Python; PyTorch; PyTorch3D; SMAL-based articulated modeling; synthetic-data and rendering pipelines; multi-camera 3D pose estimation.

Teaching & Mentoring

Teaching assistant: Linear Algebra (Chung-Ang University), Computer Graphics and Introduction to AI Programming 2 (UNIST). Tutor: Hyundai Motor Company internal Python and data-analysis program.