

Interests

Computer vision based on deep learning related to 3D humans (e.g., 3D avatar reconstruction, 3D scene reconstruction, 3D human motion generation, and interacting 3D human-object motion generation), robot pose estimation, humanoid motion generation, text-guided 2D image editing, and audio-driven talking head synthesis.

Education

Ulsan National Institute of Science and Technology

Combined MS/PhD. at Artificial Intelligence Graduate School

Supervisor: Professor Seungryul Baek

Ulsan, South Korea

Mar. 2021 - Feb. 2025

Ulsan National Institute of Science and Technology

Bachelor at Department of Mechanical Engineering

Sergeant, Republic of Korea Army, Honorably Discharged (Jan. 2018 – Sep. 2019)

Ulsan, South Korea

Mar. 2015 - Feb. 2021

Work Experience

Postdoc at KAIST, Daejeon, Republic of Korea

Egocentric Humanoid Control (Perception & Planning), Multiple human-object interaction, Robot Pose Estimation, Non-line-of-sight

PI: Tae-Hyun Oh

Aug. 2025 - Aug. 2026

InnoCORE Research Group for

Bio-Embodied Physical AI, led by DGIST

Postdoc at KETI, Pangyo, Republic of Korea

OpenFS: Multi-Hand-Capable Fingerspelling Recognition with Implicit Signing-Hand Detection and Frame-Wise Letter-Conditioned Synthesis (CVPR 2026)

PI: Han-Mu Park

Mar. 2025 - Jul. 2025

Research intern at Inria, Nice, France

EmoTalkingGaussian: Continuous Emotion-conditioned Talking Head Synthesis (arxiv 2025)

Collaborators: Seongro Yoon, Valeriya Strizhkova, Francois Bremond

Sep. 2024 - Nov. 2024

Research intern at Adobe Research, San Jose, CA, USA

Text2Relight: Creative Portrait Relighting with Text Guidance (AAAI 2025)

Collaborators: Jae Shin Yoon, Mengwei Ren, He Zhang, Krishna Kumar Singh, Yannick Hold-Geoffroy, David Seunghyun Yoon, HyunJoon Jung

Feb. 2024 - May 2024

Skills

Programming Python (PyTorch, NumPy, Pandas, etc.), C/C++.

Miscellaneous Isaac Gym, Isaac Sim, Linux, Shell (Bash/Zsh), $\LaTeX$ (Overleaf/R Markdown), Git, Docker.

Soft Skills Time Management, Teamwork, Problem-solving, Documentation, Self-Motivation, Eager Learner.

Publications (International)

- **OpenFS: Multi-Hand-Capable Fingerspelling Recognition with Implicit Signing-Hand Detection and Frame-Wise Letter-Conditioned Synthesis**
Junuk Cha, Jihyeon Kim, Han-Mu Park.
in Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), Denver, USA, 2026.
- **CoT-Pose: Chain-of-Thought Reasoning for 3D Pose Generation from Abstract Prompts**
Junuk Cha*, Jihyeon Kim*.
in Proc. of IEEE Conf. on International Conference on Computer Vision (ICCV) workshop, Honolulu, USA, 2025.
- **BIGS: Bimanual Category-agnostic Interaction Reconstruction from Monocular Videos via 3D Gaussian Splatting**
Jeongwan On, Kyeonghwan Gwak, Gunyoung Kang, Junuk Cha, Soohyun Hwang, Hyein Hwang, Seungryul Baek.
in Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), Nashville, USA, 2025.

- **EmoTalkingGaussian: Continuous Emotion-conditioned Talking Head Synthesis**
Junuk Cha, Seongro Yoon, Valeriya Strizhkova, Francois Bremond, Seungryul Baek.
arxiv 2025.
- **Text2Relight: Creative Portrait Relighting with Text Guidance**
Junuk Cha, Mengwei Ren, Krishna Kumar Singh, He Zhang, Yannick Hold-Geoffroy, Seunghyun Yoon, HyunJoon Jung, Jae Shin Yoon*, Seungryul Baek*.
in Proc. of Association for the Advancement of Artificial Intelligence (AAAI), Philadelphia, USA, 2025.
- **3DGS-based Bimanual Category-agnostic Interaction Reconstruction**
Jeongwan On, Kyeonghwan Gwak, Gunyoung Kang, Hyein Hwang, Soohyun Hwang, Junuk Cha, Jaewook Han, Seungryul Baek.
in Technical Report of European Conference on Computer Vision (ECCV), Milan, Italy, 2024.
- **Text2HOI: Text-guided 3D Motion Generation for Hand-Object Interaction**
Junuk Cha, Jihyeon Kim, Jae Shin Yoon*, Seungryul Baek*.
in Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), Seattle, USA, 2024.
- **VLM-PL: Advanced Pseudo Labeling Approach for Class Incremental Object Detection via Vision-Language Model**
Junsu Kim, Yunhoe Ku, Jihyeon Kim, Junuk Cha, Seungryul Baek.
in Proc. of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR) workshop, Seattle, USA, 2024.
- **3D Reconstruction of Interacting Multi-Person in Clothing from a Single Image**
Junuk Cha, Hansol Lee, Jaewon Kim, Bao Truong, Jaeshin Yoon*, Seungryul Baek*.
IEEE/CVF Winter conference on Applications of Computer Vision (WACV), Waikoloa, USA, 2024.
- **Dynamic Appearance Modeling of Clothed 3D Human Avatars using a Single Camera**
Hansol Lee, Junuk Cha, Yunhoe Ku, Jaeshin Yoon*, Seungryul Baek*.
arxiv 2023.
- **HOReeNet: 3D-aware Hand-Object Grasping Reenactment**
Changhwa Lee, Junuk Cha, Hansol Lee, Seongyeong Lee, Donguk Kim, Seungryul Baek.
arxiv 2022.
- **Multi-Person 3D Pose and Shape Estimation via Inverse Kinematics and Refinement**
Junuk Cha, Muhammad Saqlain, GeonU Kim, Mingyu Shin, Seungryul Baek.
in Proc. of European Conference on Computer Vision (ECCV), Tel Aviv, Israel, 2022.
- **Learning 3D Skeletal Representation From Transformer for Action Recognition**
Junuk Cha, Muhammad Saqlain, Donguk Kim, Seungeun Lee, Seongyeong Lee, Seungryul Baek.
in IEEE Access 2022 (IF: 3.367).
- **3DMesh-GAR: 3D human body mesh-based method for group activity recognition**
Muhammad Saqlain, Donguk Kim, Junuk Cha, Changhwa Lee, Seongyeong Lee, Seungryul Baek.
in Sensors 2022 (IF:3.576).
- **Towards Single 2D Image-level Self-supervision for 3D Human Pose and Shape Estimation**
Junuk Cha, Muhammad Saqlain, Changhwa Lee, Seongyeong Lee, Seungeun Lee, Donguk Kim, Won-Hee Park, Seungryul Baek.
in Journal of Applied Sciences 2021 (IF:2.679).

Patents

- **Video-based 3D mesh restoration method and system therefor, 2024.**
영상 기반의 3차원 메쉬 복원 방법 및 이를 위한 시스템
Applicant: CJ Olive Networks and UNIST
Korean Patent Application No. 1020240169695, Filed Nov. 25, 2024, 출원
DOI: [10.8080/1020240169695](https://doi.org/10.8080/1020240169695)
- **Method for restoring interaction of multiple objects expressed in a 2D image to 3D, 2024.**
2차원 이미지에 표현된 복수 객체의 상호작용을 3차원으로 복원하는 방법
Applicant: UNIST
Korean Patent No. 1029495260000, Registered Apr. 2, 2026, 등록
DOI: [10.8080/1020240050701](https://doi.org/10.8080/1020240050701)
- **Artificial intelligence based worker detection device and method using thermal imaging, 2023.**
열화상 영상을 이용한 인공지능 기반 작업자 검출 장치 및 방법
Applicant: Hyundai and UNIST
Korean Patent Application No. 1020230100243, Filed Aug. 1, 2023, 출원
DOI: [10.8080/1020230100243](https://doi.org/10.8080/1020230100243)

Projects

Development of vision recognition module for ARTG control

Ministry of Oceans and Fisheries

UNIST, Ulsan, South Korea

Jun. 2023 - Dec. 2023

- Detecting object and predicting multi agent's future trajectory with velocity.

Development of an optimized human detection system algorithm for production factory environments

Hyundai

UNIST, Ulsan, South Korea

Jun. 2022 - Dec. 2023

- Detecting human segmentation masks and bounding boxes.
- Improving performance for corner cases such as occluded people.

Awards

- **Industry-Academia Best Paper Award, LG Electronics**, 2026 Summer Annual Conference of the Institute of Electronics and Information Engineers (IEIE), Jeju, Korea, 2026.
산업체 관심논문상(LG 전자), 2026년도 대한전자공학회 하계종합학술대회, 제주, 2026.
- The 8th Workshop on Observing and Understanding Hands, **ECCV 2024, 1st place in HANDS workshop challenge**
- The 7th Workshop on Observing and Understanding Hands, **ICCV 2023, 3rd place in HANDS workshop challenge**

Academic Activities

- **Outstanding Reviewer at CVPR 2026**
- **Program Committee (Reviewer) at CVPR 2025, 2026**
- **Program Committee (Reviewer) at ICCV 2025**
- **Program Committee (Reviewer) at ECCV 2026**
- **Program Committee (Reviewer) at ICLR 2025, 2026**
- **Program Committee (Reviewer) at AAAI 2023, 2024, 2025, 2026, 2027**
- **Program Committee (Reviewer) at NIPS 2024, 2026**
- **Program Committee (Reviewer) at BMVC 2023, 2024, 2025, 2026**
- **Program Committee (Reviewer) at CoRL 2026**

Talks

- **Multi-Person 3D Pose and Shape Estimation via Inverse Kinematics and Refinement**, CV/ML Session, 2022 Fall Conference of the Korean Artificial Intelligence Association (KAIA), Nov. 18, 2022.

Teaching Assistant & Mentoring

- **Mentoring**
 - 2nd Ulju AI 4.0 Studio at UNIST, Ulsan, South Korea, Mar. 2022 - Nov. 2022.
 - Mentored an undergraduate student on a non-line-of-sight perception task at KAIST, Deajeon, South Korea, Dec. 2025 - Present.
- **TA**
 - Navy AI professionals training process TA, Jinhae, South Korea, 12 Sep. 2023.
 - 5th AI Novatus Academia PBL (Computer Vision part) at UNIST AI Innovation Park, Ulsan, South Korea, Mar. 2023 - Jun.2023.
 - 1st Gyeongnam AI Novatus Academia (Computer Vision part) at UNIST AI Innovation Park, Masan, South Korea, 15 Apr. 2022.
 - 3rd AI Novatus Academia (Computer Vision part) at UNIST AI Innovation Park, Ulsan, South Korea, 25 Feb. 2022.
- **Lecture TA**
 - 2023 Fall AI51601 Computer Vision.
 - 2021 Fall ITP11701 Introduction to AI Programming 2.