Gyusam Chang

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Research Interests

Autonomous Driving, Robotics
Machine learning, Deep learning, Computer vision
Domain Generalization, Multi-modal Representation Learning
LLM, VLM, Retrieval-Augmented Generation, Multi-modal Knowledge Graph
3D Object Detection, 3D Reconstruction, Parameter-Efficient Fine-Tuning

Education

Integrated MS / Ph.D. @ Korea University — South Korea
Department of Artificial Intelligence (Advisor: Sangpil Kim) — *Sep. 2022 –*

Bachelor of Engineering @ Korea University — South Korea
Electronics and Information Engineering — *Mar. 2015 – Aug. 2021*

Experience

Visiting Graduate Researcher @ University of California, Los Angeles — USA
Advisor: M. Khalid Jawed (Mechanical and Aerospace Engineering) — *Sep. 2024 – Jun. 2025*

- 3D Reconstruction in Agriculture
- Multi-modal 3D Data Collection
- Multi-modal 3D Gaussian Splatting

Research Internship @ Samsung Advanced Institute of Technology — South Korea
Advisor: Sujin Jang (Computer Vision Technical Unit) — *Jun. 2023 – Sep. 2023*

- Autonomous Driving
- Domain Adaptation for Multi-view 3D Object Detection
- Parameter-Efficient Fine-tuning for Autonomous Driving

Visiting Student Researcher @ Samsung Advanced Institute of Technology — South Korea
Advisor: Sujin Jang (Computer Vision Technical Unit) — *Sep. 2022 – Apr. 2024*

- Autonomous Driving
- Unsupervised Domain Adaptation for LiDAR-based 3D Object Detection
- Domain Generalization for Multi-view 3D Object Detection

Undergraduate Internship @ Korea University — South Korea
Advisor: Sangpil Kim (Computer Vision Lab) — *Sep. 2021 – Aug. 2022*

- 3D Object Detection
- Recommender system

Software Engineer @ Rootee Health Corp. — South Korea
Jun. 2021 – Dec. 2021

- Fundus Camera Development
- Auto Focus System Development
- Pupil Detection Using Fundus Camera

Conference Publications

[**C6**] **VAT-KG: Knowledge-Intensive Multimodal Knowledge Graph Dataset for Retrieval-Augmented Generation** — H. Park, M. Jang, H. Baek, **G. Chang**, J. Seo, J. Park, H. Park, S. Kim† (*Under Review*) [PDF]

[**C5**] **Reconstruction Using the Invisible: Intuition from NIR and Metadata for Enhanced 3D Gaussian Splatting** — **G. Chang**, T. Vu, V. Alumootil, H. Song, D. Pham, S. Kim†, M. K. Jawed† (***CVPRW 2025*** *- 2nd Workshop on Neural Fields Beyond Conventional Cameras*) [Paper]

[**C4**] **Unified Domain Generalization and Adaptation for Multi-View 3D Object Detection** — **G. Chang***, J. Lee*, D. Lee, D. Ji, J. Kim, S. Jang†, S. Kim† (*The Thirty-eighth Annual Conference on Neural Information Processing Systems,* ***NeurIPS 2024***) [Paper]

[**C3**] **CMDA: Cross-Modal and Domain Adversarial Adaptation for LiDAR-Based 3D Object Detection** — **G. Chang***, W. Roh*, S. Jang, D. Lee, D. Ji, G. Oh, J. Park, J. Kim†, S. Kim† (*The 38th Annual AAAI Conference on Artificial Intelligence,* ***AAAI 2024***) [Paper]

[**C2**] **ORA3D: Overlap Region Aware Multi-view 3D Object Detection** — W. Roh, **G. Chang**, S. Moon, G. Nam, C. Kim, Y. Kim, S. Kim†, J. Kim† (*British Machine Vision Conference,* ***BMVC 2022***) [Paper]

[**C1**] **GRU-based Activity Recognition from Early-stage Motion** — K. Kim, **G. Chang**, S. Lim, I. Ahn, J. Park, H. Oh† (*The Institute of Electronics and Information Engineers,* ***IEIE 2020 Summer***) [Paper]

Journal Publications

[**J2**] **Cross-Modal Domain Generalization for Multi-view 3D Object Detection** — **G. Chang**, W. Ryoo, S. Jang, J. Kim, D. Lee, D. Ji, S. Kim (*Under Review*)

[**J1**] **Self-Supervised Multimodal Graph Neural Network** — S. Kim, S. Yun, J. Lee, **G. Chang**, W. Roh, D. Sohn, J. Lee, H. Park†, S. Kim† (***Information Sciences, 2024***) [Paper]

Patents

[**P3**] **Method and apparatus for 3D object detection** — *In progress.*

[**P2**] **Method and apparatus with object detection model training** — *US Patent App. 18/897,759, 2025*

[**P1**] **Method and apparatus with object detector training** — *US Patent App. 18/451,287, 2024*

Skills

Programming

- Fluent in Python, Pytorch, Tensorflow, Scikit-Learn, C/C++, Go, MATLAB, Verilog, LaTeX