HYUNJOON PARK

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About Me

M.S. student at Hanyang University HYU CVLab under the supervision of Prof. Donghyeon Cho. My research interests include 3D Scene Understanding by 3D Gaussian Splatting, and Conditional Generative Models.

Patents and Publications

C=Conference, W=Workshop, U=Under Review

[C.2] Junha Kim, **Hyunjoon Park**, and *Donghyeon Cho. (2026). **"High-Resolution Artwork Outpainting with Global Blueprint Guidance and Layout Control"**. In *19th European Conference on Computer Vision (ECCV), Malmö, Sweden*. **[Project Page]** **[Paper]**

[P.1] **Hyunjoon Park**, Donghyeon Cho (2026). **다중 단서 기반 3차원 장면 이해 장치 및 방법**. Korean Patent Application No. 10-2026-0105246 (Patent Pending).

[C.1] **Hyunjoon Park**, *Donghyeon Cho. (2026). **"Consistent Scene Understanding in 3D Gaussian Splatting via Multi-Cue Mask Refinement"**. In *38th International Conference on Pattern Recognition (ICPR), Lyon, France*. **[Project Page]** **[Paper]**

[W.2] **Hyunjoon Park**, *Donghyeon Cho. (2026). **"3DGS에서 2D SAM을 활용할 때 발생하는 한계점 극복 및 효과적인 3차원 공간 이해를 위한 방법에 관한 연구"**. In *38th workshop on Image Processing and Image Understanding (IPIU), Jeju, South Korea*.

[W.1] **Hyunjoon Park**, *Donghyeon Cho. (2025). **"3DGS를 활용한 Point Cloud 합성 및 3차원 합성 공간 복원에 대한 연구"**. In *37th workshop on Image Processing and Image Understanding (IPIU), Jeju, South Korea*.

Projects

- **Scene GraphRAG-based Video Understanding** *May 2026 - Current*
  Consortium: PIASPACE, Hanyang Univ., Yonsei Univ., CAU, Sejong Univ.
  - Developing a Scene Graph-based Video Understanding framework under the national IITP-GenAI research initiative.
  - Implementing GraphRAG (Retrieval-Augmented Generation) pipelines to extract multi-modal relational structures and temporal semantics from complex video sequences.

- **Conditional Video Generation: Music-to-Dance Sequence Synthesis** *Feb. 2025 - Current*
  Cowork: SKTelecom, Hanyang Univ. CVLab, Sungkyunkwan Univ. AIMLab
  - Developing a conditional human dance video generation pipeline built upon the U-Net framework, integrating 3D human parametric models (SMPL) and latent diffusion architectures.
  - Enhancing identity-preserving mechanism to maintain high-fidelity human characteristics, textures, and structural consistency across highly dynamic dance sequences.
  - The ultimate goal of this project is to propose a model that receives music as a condition and generates dance videos that match the music.

- **Advanced Computer Vision Final Project** *Sep. 2025 - Dec. 2025*
  2025 Fall Semester Advanced Computer Vision (AUE 8090, Prof. Soonmin Hwang) [Github]
  - This project was carried out to solve the problems I felt working on the graduation project and to improve the overall performance of segmentation in the domain of 3D.
  - Addressed the critical over-segmentation and multi-view inconsistency bottlenecks of 2D foundation models (SAM) when lifting 2D masks to a 3D Gaussian Splatting scene.
  - Designed a two-stage mask refinement pipeline incorporating a depth-stratified hierarchical merging algorithm that utilizes monocular depth as both a hard geometric constraint and a soft co-planarity reward.
  - Established globally consistent 3D object identities by implementing a cross-view mask matching framework driven by agglomerative clustering of dense DINOv2 semantic features.

- **HYU Graduation Capstone Project: 3D Synthesize Space Reconstruction using 3DGS** *Feb. 2025 - Nov. 2025*
  Cowork: Dohyun Lim, Prof. Sungyoon Lee [Github]
  - Developed an end-to-end 3D scene reconstruction pipeline leveraging 3D Gaussian Splatting (3DGS) to reconstruct highly realistic synthetic and real-world spaces.
  - Refined a 3D editable Gaussian Splatting framework based on Gaussian Grouping to composite distinct background and object point clouds from different source scenes into a single, unified 3D space.

Experience

- **CVLab @ Hanyang University [🔗]** *Jul. 2024 - Aug. 2025*
  Undergraduate Research Intern Seoul, Sourth Korea
  - Advisor: Prof. Donghyeon Cho
  - Thesis: 3D Editable Gaussian Splatting, Conditional Generative Model, 3D Human Reconstruction
  - Publication: "3DGS를 활용한 Point CLoud 합성 및 3차원 합성 공간 복원에 대한 연구" (IPIU, 2025)

- **LG Aimers 7th** *Jul. 2025 - Aug. 2025*
  AI Hackerthon

- **LG Aimers 5th** *Jul. 2024 - Aug. 2024*
  AI Hackerthon

- **NAVER CONNECT AI Boostcourse** *Jan. 2024 - Feb. 2024*
  Online Bootcamp

Education

- **Hanyang University**
  M.S. Computer Software Engineering Seoul, South Korea
- **Hanyang University**
  B.S. Computer Software Engineering Seoul, South Korea
- **Hwanil High School**
  Seoul, South Korea

TA Experience

- **Creative Software Programming** *Sep. 2025 - Dec. 2025*
  Dept. Computer Software Engineering, Hanyang University
  - Assisting with lectures for weeks 13-15 and conducting practical sessions on STL (Standard Template Library)
  - Creating and grading assignments and exam questions

- **Creative Computing for Engineers** *Mar. 2026 - Jun. 2026*
  Dept. Computer Software Engineering, Hanyang University
  - Assisting with practical sessions on C and Python programming

Skills

- **Programming Languages:** Python, C, C++, Java, Bash
- **Machine Learning & Vision:** PyTorch, NumPy, OpenCV, Matplotlib
- **Tools:** Git, Docker, Conda, LaTex, Markdown

Additional Information

Languages: Korean (Native), English (Working Proficiency, TOEIC: 910), Japanese (Amateur level)
Military Service: Completed mandatory military service as a Sergeant and Signal Corpsman in the ROK Army (Jun. 2020 – Dec. 2021)

References

1. **Donghyeon Cho**
   Associate Professor
   Department of Computer Science
   Email: doncho@hanyang.ac.kr
   Relationship: Thesis Advisor