Seunghyeon Seo

+82)10-5270-3998 ♦ zzzlssh@snu.ac.kr ♦ Research Page ♦ Google Scholar ♦ LinkedIn ♦ GitHub

EDUCATION

Seoul National University, Seoul, Korea Mar. 2021 ~ Aug. 2025
- Ph.D. Candidate in Artificial Intelligence

Seoul National University, Seoul, Korea Mar. 2014 ~ Feb. 2021
- B.A. in Economics / Data Sciences

Institut d'Études Politiques de Paris (Sciences Po), Paris, France Jan. 2019 ~ Jun. 2019
- Exchange Student Program

RESEARCH INTERESTS

I am deeply engaged in developing efficient deep learning models for training and inference, aimed at practical real-world applications. Primarily, my research interest focuses on **improving the performance of NeRF and Gaussian Splatting given sparse input data** by various regularization methods, such as exploiting input data distribution, augmenting training rays, designing an effective ray parameterization, etc. In addition, I have recently developed a growing interest in **synthetic data training using generative models**, which further enhances my research focus on data efficiency and model robustness.

PUBLICATIONS

[1] Shaojie Bai*, **Seunghyeon Seo***, Yida Wang, Chenghui Li, Owen Wang, Te-Li Wang, Tianyang Ma, Jason Saragih, Shih-En Wei, Nojun Kwak, Hyung Jun Kim, "Generative Head-Mounted Camera Captures for Photorealistic Avatars", Under Review.

[2] Yeonjin Chang, Erqun Dong, **Seunghyeon Seo**, Nojun Kwak, Kwang Moo Yi, "ROODI: Reconstructing Occluded Objects with Denoising Inpainters", Under Review.

[3] Ingyun Lee, Jae Won Jang, **Seunghyeon Seo**, Nojun Kwak, "DivCon-NeRF: Generating Augmented Rays with Diversity and Consistency for Few-shot View Synthesis", Under Review.

[4] **Seunghyeon Seo**, Yeonjin Chang, Jayeon Yoo, Seungwoo Lee, Hojun Lee, Nojun Kwak, "ARC-NeRF: Area Ray Casting for Broader Unseen View Coverage in Few-shot Object Rendering", ***CVPR 2025 Workshop***. **(Oral)**

[5] Donghoon Han*, **Seunghyeon Seo***, Eunhwan Park, SeongUk Nam, Nojun Kwak, "Unleash the Potential of CLIP for Video Highlight Detection", * indicates equal contribution, ***CVPR 2024 Workshop***.

[6] Yeonjin Chang, Yearim Kim, **Seunghyeon Seo**, Jung Yi, Nojun Kwak, "Fast Sun-aligned Outdoor Scene Relighting based on TensoRF", ***WACV 2024***.

[7] Donghoon Han, **Seunghyeon Seo**, DongHyeon Jeon, Jiho Jang, Chaerin Kong, Nojun Kwak, "ConcatPlexer: Additional Dim1 Batching for Faster ViTs", ***NeurIPS 2023 Workshop***. **(Oral)**

[8] **Seunghyeon Seo**, Yeonjin Chang, Nojun Kwak, "FlipNeRF: Flipped Reflection Rays for Few-shot Novel View Synthesis", ***ICCV 2023***.

[9] **Seunghyeon Seo**, Jaeyoung Yoo, Jihye Hwang, Nojun Kwak, "MDPose: Real-Time Multi-Person Pose Estimation via Mixture Density Model", ***UAI 2023***.

[10] Jaeyoung Yoo*, Hojun Lee*, **Seunghyeon Seo**, Inseop Chung, Nojun Kwak, "End-to-End Multi-Object Detection with a Regularized Mixture Model", * indicates equal contribution, ***ICML 2023***.

[11] **Seunghyeon Seo**, Donghoon Han*, Yeonjin Chang*, Nojun Kwak, "MixNeRF: Modeling a Ray with Mixture Density for Novel View Synthesis from Sparse Inputs", * indicates equal contribution, ***CVPR 2023***. **(Qualcomm Innovation Fellowship Korea 2023 Winner)**

[12] Jongmok Kim, Jooyoung Jang, **Seunghyeon Seo**, Jisoo Jeong, Jongkeun Na, Nojun Kwak, "MUM: Mix Image Tiles and UnMix Feature Tiles for Semi-Supervised Object Detection", ***CVPR 2022***.

WORK EXPERIENCE

Meta Reality Labs, Burlingame, CA | Research Scientist Intern May 2025 ~ Aug. 2025
- XRCIA, Datasets (Mentors: John Kim, Lei Xiao, Beibei Liu)
- Research about synthetic egocentric body image generation using temporal consistent multi-view flow models.

Meta Reality Labs, Burlingame, CA | Research Scientist Intern Jul. 2024 ~ Jan. 2025

- XRCIA, Datasets (Mentors: John Kim, Shaojie Bai, Tianyang Ma)
- Research about synthetic image generation using conditional multi-view diffusion models, and training framework of universal face encoder leveraging large-scale real+synthetic data.

ThinkforBL Consulting Group, Seoul, Korea | Laboratory Assistant Researcher Jun. 2020 ~ Nov. 2020

- Development of deep learning-based solutions for agriculture, addressing diverse client requests and implementing models such as posture detection in sows, crop weight classification, and recommendation systems.

Food and Agriculture Organization of the United Nations (FAO), Rome, Italy | Intern Sep. 2019 ~ Feb. 2020

- Committee on World Food Security (CFS) (Supervisor: Christopher Hegadorn)
- Research and report on datasets that are relevant to the proposed CFS workstream on <Data Collection and Analysis Tools>

AWARDS AND SCHOLARSHIPS

Outstanding Reviewer Award Sep. 2024

- ECCV 2024

Qualcomm Innovation Fellowship Korea 2023 Winner Nov. 2023

- Qualcomm AI Research

Youlchon AI Star Scholarship Aug. 2023

- Youlchon Foundation & AI Institute-Seoul National University

AI Fellowship (Fully Funded) Mar. 2022 ~ Feb. 2023

- Seoul National University

Overseas Agriculture Sector Intern Scholarship Sep. 2019 ~ Dec. 2019

- Ministry of Agriculture, Food and Rural Affairs

Exchange Student Scholarship Jan. 2019

- Mirae Asset Park Hyeon Joo Foundation

3rd Place as a Team, Agdata Lab (Service Development Field) Sep. 2018

- Entrepreneurship Competition Utilizing Agricultural Data / EPIS

PROJECTS

Research on Novel View Synthesis Using NeRF Trained with Sparse Viewpoint Data
Funded by Samsung Electronics | Main Researcher Jul. 2023 ~ Jul. 2024

- Few-shot NeRF

Artificial Intelligence Research about Cross-Modal Dialogue Modeling for One-on-One Multi-Modal Interactions
Funded by Ministry of Science and ICT of Korea | Assistant Researcher May 2022 ~ Jun. 2023

- Object Detection

Development of Real-Time Multi-Camera Object Tracking and Identification Technology
Funded by Electronics and Telecommunications Research Institute | Project Manager Jun. 2021 ~ Dec. 2021

- Multi-Object Tracking

Development of Multimodal Sensor-Based Intelligent Systems for Outdoor Surveillance Robots
Funded by Ministry of Science and ICT of Korea | Assistant Researcher Jan. 2021 ~ Aug. 2021

- Object Detection

PATENT

Method and Apparatus based on NeRF using Flipped Reflected Ray, Korea Patent, 10-2024-0022118

TALK

Novel View Synthesis from Sparse Inputs via NeRF Apr. 2025

- SNU Haedong Advanced Engineering Center

ACADEMIC SERVICE

Program Committee for AAAI 2025
Reviewer for CVPR 2023~2025, ECCV 2024, ICCV 2025, NeurIPS 2025, TCSVT