

Hyun Seok Seong

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I am Ph.D. candidate at Sungkyunkwan University, South Korea. My research interests include various tasks in machine learning and computer vision, with a particular focus on object categorization and semantic segmentation. Recently my interest has been in addressing segmentation tasks with limited labeled data, with a specific focus on unsupervised semantic segmentation which is a key task for solving real-world problems.

Education

Sungkyunkwan University (SKKU), South Korea

Sep. 2019 - Present

- Integrated M.S. and Ph.D., Artificial Intelligence
- Advisor: Prof. Jae-Pil Heo

Sungkyunkwan University (SKKU), South Korea

Mar. 2013 - Feb. 2019

- B.S., Electronic and Electrical Engineering

Publications

- ▶ Progressive Proxy Anchor Propagation for Unsupervised Semantic Segmentation ([Link](#))
European Conference on Computer Vision (ECCV), 2024
Hyun Seok Seong, WonJun Moon, SuBeen Lee, and Jae-Pil Heo
- ▶ Task-Oriented Channel Attention for Fine-Grained Few-Shot Classification
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2024
SuBeen Lee, WonJun Moon, **Hyun Seok Seong**, and Jae-Pil Heo
- ▶ Task-disruptive Background Suppression for Few-Shot Segmentation ([Link](#))
Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), 2024
Suho Park, SuBeen Lee, Sangeek Hyun, **Hyun Seok Seong**, and Jae-Pil Heo
- ▶ Leveraging Hidden Positives for Unsupervised Semantic Segmentation ([Link](#))
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023
Hyun Seok Seong, WonJun Moon, SuBeen Lee, and Jae-Pil Heo
- ▶ Minority-Oriented Vicinity Expansion with Attentive Aggregation for Video Long-Tailed Recognition ([Link](#))
Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), 2023 [**Oral presentation**]
WonJun Moon, **Hyun Seok Seong**, and Jae-Pil Heo
- ▶ TCX: Texture and Channel Swappings for Domain Generalization ([Link](#))
Pattern Recognition Letters, 2023
Jaehyun Choi, **Hyun Seok Seong**, Sanguk Park, and Jae-Pil Heo
- ▶ Difficulty-Aware Simulator for Open Set Recognition ([Link](#))
European Conference on Computer Vision (ECCV), 2022
WonJun Moon, Junho Park, **Hyun Seok Seong**, Cheol-Ho Cho, and Jae-Pil Heo
- ▶ Pivot-Guided Embedding for Domain Generalization ([Link](#))
IEEE Access, 2022
Hyun Seok Seong, Jaehyun Choi, Woojin Jeong, and Jae-Pil Heo

In-progress

- ▷ [Under review] Foreground-Covering Prototype Generation and Matching for SAM-Aided Few-Shot Segmentation
Suho Park*, SuBeen Lee*, **Hyun Seok Seong**, Jaejoon Yoo, and Jae-Pil Heo

Projects

Detection of AI-based Fake Investigation and Tip Videos ([Video](#)) **Jul. 2021 - Present**

- Supported by Korean national police agency & Ministry of Science and ICT (₩2,975M≈\$2.2M in total)
- Role: Project co-leader
- Keywords: Video forgery detection / Video inpainting / Video-to-video translation / Space-time video super-resolution

Reconstruction of Non-Line-of-Sight Scene for VR/AR Contents ([ppt](#)) **Jan. 2020 - Dec. 2020**

- Supported by Institute for Information & communication Technology Planning & evaluation (IITP) (₩2,800M≈\$2.1M in total)
- Role: Project member
- Keywords: Long-tailed classification / Image reconstruction

Developing Vision-based Crowd-enabled Intelligent Surveillance System ([Video](#)) **Feb. 2019 - Apr. 2021**

- Supported by Korean national police agency & Ministry of Science and ICT (₩1,375M≈\$1.0M in total)
- Role: Project leader (2021), Project member (2019 - 2020)
- Keywords: Object detection / Super-resolution / Person re-identification ([Demo](#))

Designing Optimal Domain Adaptation Model for Cost-saving in Data **Feb. 2019 - Nov. 2019**

- Supported by Electronics and Telecommunications Research Institute
- Role: Team member
- Keywords: Domain adaptation / Open-set recognition

External Activities

Korean Conference on Computer Vision (KCCV) 2023 **Aug. 2023**

- Organization: Korean Computer Vision Society (KCVS)
- Role: Poster presenter
- Presentation paper: Leveraging Hidden Positives for Unsupervised Semantic Segmentation, CVPR 2023

Korea Police World Expo **2019 | 2020 | 2022 | 2023 | 2024**

- Organization: Korean national police agency & Incheon Metropolitan City, South Korea
- Role: Exhibitor
- Keywords: Crowd-enabled intelligent surveillance system & Video forgery detection model

Teaching assistant at external institutions

- Military specialized AI education program from Ministry of National Defense **Apr. 2023 - Oct. 2023**
- AI Intensive Course for Samsung SDS **2019**

Honors and Scholarship

- Scholarship for outstanding students support from SKKU (₩22M in total) **Sep. 2019 - Aug. 2022**
- Served and discharged from ROK Army as Sergeant **Jan. 2015 - Oct. 2016**