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-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

- Task-Oriented Channel Attention for Fine-Grained Few-Shot Classification
  [Under review] Submitted on *IEEE Transactions on Pattern Analysis and Machine Intelligence* (TPAMI)
  SuBeen Lee, WonJun Moon, **Hyun Seok Seong**, 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 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 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 in total)
- Role: Project leader (2021), Project member (2019 - 2020)
- Keywords: Object detection / Super-resolution / Person re-identification (Demo)

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**
- 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