SuBeen Lee

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Education

Ph.D. student in Artificial Intelligence   Sep 2022 - Present
- *Advisor: Prof. Jae-Pil Heo*
- Sungkyunkwan University (GPA: 4.25/4.50)

M.S. in Artificial Intelligence   Sep 2020 - Aug 2022
- *Advisor: Prof. Jae-Pil Heo*
- Sungkyunkwan University (GPA: 4.33/4.50)

B.S. in Statistics & Computer Science and Engineering   Mar 2014 - Feb 2020
- Jeonbuk National University (GPA: 4.39/4.50)

Publications

1. Temporal Alignment-Free Video Matching for Few-shot Action Recognition
   IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025
   SuBeen Lee, WonJun Moon, Hyun Seok Seong, and Jae-Pil Heo

2. Foreground-Covering Prototype Generation and Matching for SAM-Aided Few-Shot Segmentation arXiv GitHub
   Association for the Advancement of Artificial Intelligence (AAAI), 2025
   Suho Park*, **SuBeen Lee***, Hyun Seok Seong, Jaejoon Yoo, and Jae-Pil Heo (*: equal contribution)

3. Task-Oriented Channel Attention for Fine-Grained Few-Shot Classification Paper arXiv
   IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI, IF:20.8), 2025 (Accepted)
   SuBeen Lee, WonJun Moon, Hyun Seok Seong, and Jae-Pil Heo

4. Mutually-Aware Feature Learning for Class-Agnostic Counting Paper arXiv
   Pattern Recognition (IF: 7.5), 2025 (Accepted)
   Yerim Jeon, **SuBeen Lee**, Ji Hwan Kim, and Jae-Pil Heo

5. Progressive Proxy Anchor Propagation for Unsupervised Semantic Segmentation Paper arXiv GitHub
   European Conference on Computer Vision (ECCV), 2024
   Hyun Seok Seong, WonJun Moon, **SuBeen Lee**, and Jae-Pil Heo

6. Mitigating Background Shift in Class-Incremental Semantic Segmentation Paper arXiv GitHub
   European Conference on Computer Vision (ECCV), 2024
   GilHan Park, WonJun Moon, **SuBeen Lee**, Tae-Young Kim, and Jae-Pil Heo

7. Task-disruptive Background Suppression for Few-Shot Segmentation Paper arXiv GitHub
   Association for the Advancement of Artificial Intelligence (AAAI), 2024
   SuHo Park, **SuBeen Lee**, Sangeek Hyun, Hyun Seok Seong, and Jae-Pil Heo

8. Leveraging Hidden Positives for Unsupervised Semantic Segmentation Paper arXiv GitHub
   IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023
   Hyun Seok Seong, WonJun Moon, **SuBeen Lee**, and Jae-Pil Heo.

9. Task Discrepancy Maximization for Fine-grained Few-Shot Classification Paper arXiv GitHub
   IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022 [**Oral Presentation**]
   SuBeen Lee, WonJun Moon, and Jae-Pil Heo

10. Regularization with multiple feature combination for few-shot learning Paper
    IEEE International Conference on Big Data and Smart Computing (BigComp) 2021
    SuBeen Lee, Jun Ho Park, Ji Young Kim, Seung Yeol Lee, and Jae-Pil Heo

Under Review

1. Negative Visual Reference Prompts for SAM-Aided Few-Shot Segmentation
   SuBeen Lee*, Suho Park*, Hyun Seok Seong, Jaejoon Yoo, and Jae-Pil Heo (*: equal contribution)

2. Correlation-Guided Query-Dependency Calibration for Video Temporal Grounding arXiv GitHub
   WonJun Moon, Sangeek Hyun, **SuBeen Lee**, and Jae-Pil Heo

Projects

Development of Perception Technology for Autonomous Pallet Stacker Jun 2024 - Present
- Sponsored by Mobyus

Unknown Object Tracking and Algorithm for Perceiving Cart Sep 2022 - Dec 2022
- Sponsored by C-Lab of Samsung Electronics
- With the initial and the last location of the object, identifying whether a customer puts the product in or out of the cart
- Detecting and Tracking a hand-picked object among several objects located in the scene

Reconstruction of Non-Line-of-Sight Scene for VR/AR Contents Apr 2020 - Dec 2022
- Sponsored by Institute of Information & Communications Technology Planning & Evaluation (IITP)
- With multiple sensors (Laser, RF, and Wave), collecting information about a scene that humans cannot directly observe due to obstacles
- Based on the sensor data, detecting multiple objects in the scene, estimating the depth information of the scene, and reconstructing the scene

External Activities

Senior Reviewer
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024, 2025

The 14th European Summer School on Information Retrieval (ESSIR) Aug 2023

Oral Session
Related to "Task Discrepancy Maximization for Fine-grained Few-Shot Classification.
- Korea Software Congress (KSC) Dec 2022
- Korean Conference on Computer Vision (KCCV) Aug 2022
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Jun 2022

Honors and Awards

18th Scholarship student of the Kwanjeong Educational Foundation 2022 - 2024

Scholarship for outstanding Ph.D. students Sep 2022 - Aug 2024
- Supported by department of artificial intelligence, Sungkyunkwan University

AI Grand Challenge 5th Phase 1 Competition 2021
- Held by Institute of Information & Communications Technology Planning & Evaluation (IITP)

Scholarship for outstanding M.S. students Sep 2020 - Aug 2022
- Supported by department of artificial intelligence, Sungkyunkwan University

Work Experiences

Teaching Assistant of AI Intensive Course in Sungkyunkwan University
- LG Electronics Nov 2024, 2023, 2022 and 2020
- Samsung SDS Sep 2022

Military Service 2015 - 2016