Minkuk Kim

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CONTACT INFORMATION

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EDUCATION

Kyung Hee University — Aug. 2024 - Current
Ph.D. in Department of Artificial Intelligence — *Yongin, Republic of Korea*
· Advisor: Prof. Seong-Tae Kim

Kyung Hee University — Aug. 2022 – Aug. 2024
M.S. in Department of Artificial Intelligence — *Yongin, Republic of Korea*
· Advisor: Prof. Seong-Tae Kim

Kyung Hee University — Mar. 2016 - Aug. 2022
B.S. in Department of Computer Science and Engineering — *Yongin, Republic of Korea*
· Advisor: Prof. Seong-Tae Kim

RESEARCH KEYWORDS

Computer Vision and Language

Multi-Modal AI
Dense Video Captioning, Long Video Understanding

Memory Augmented AI
Memory Retrieval, Memory-based Video Object Segmentation

RESEARCH EXPERIENCE

Long-form Video Understanding June. 2024 - Current

- We are working toward submission to the 2025 ICCV conference.
- We explore video localization and description for long-form video that can be considered with context.

Dense Video Captioning June. 2023 - Current

M. K. Kim, H. B. Kim, J. Y. Moon, J. W. Choi†, and S. T. Kim†. "Do You Remember? Dense Video Captioning with Cross-Modal Memory Retrieval." ***2024 CVPR***, published.

- We propose a new dense video captioning model with cross-modal memory retrieval.
- We propose a novel structure that can learn cross-modal correlation.
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M. K. Kim, H. B. Kim, J. Y. Moon, J. W. Choi†, and S. T. Kim†. "HiCM ^{2}: Hierarchical Compact Memory Modeling for Dense Video Captioning" ***2025 AAAI***, published.

- We propose a new dense video captioning model with hierarchical memory retrieval.
- We propose a novel hierarchical compact memory structure that can save compact information in hierarchy.

Video Object Segmentation June. 2022 - June. 2023

E . K. Cho, **M. K. Kim**, H. I. Kim, J. Y. Moon and S. T. Kim†. "Exploiting recollection effects for memory-based video object segmentation." ***Image and Vision Computing***, published

- We propose a novel strategy for constructing and managing memory for video object segmentation.
- We proposed the method can be used as a plug-in-play manner.

PUBLICATIONS

International Conference Papers

[1] **M. K. Kim**, H. B. Kim, J. Y. Moon, J. W. Choi† and S. T. Kim†

"Do You Remember? Dense Video Captioning with Cross-Modal Memory Retrieval."
Computer Vision and Pattern Recognition (CVPR), Seattle, U.S.A., Jun. 2024.

[2] **M. K. Kim**, H. B. Kim, J. Y. Moon, J. W. Choi† and S. T. Kim†

"HiCM ^{2}: Hierarchical Compact Memory Modeling for Dense Video Captioning"
Association for the Advancement of Artificial Intelligence (AAAI), Philadelphia, U.S.A., Feb. 2025.

[3] S.H.Kim, **M. K. Kim**, H. B. Kim, J. W. Choi† and S. T. Kim†

"Retrieval-Augmented Natural Language Reasoning for Explainable Visual Question Answering"
International Conference on Image Processing Workshop (ICIPW), Abu Dhabi, U.A.E., Oct. 2024.

International Journal Papers

[1] E. K. Cho, **M. K. Kim**, H. I. Kim, J. Y. Moon and S. T. Kim†
"Exploiting recollection effects for memory-based video object segmentation."
Image and Vision Computing, 140, 2023.

PATENTS

[1] **M. K. Kim**, E. K. Cho, J. U. Kim and S. T. Kim
"Deep neural network uncertainty prediction device and method."
Korean Patent Application (10-2023-0110754), Aug. 23, 2023.

RESEARCH PROJECTS

Video spatio-temporal localization for long-term memory analysis 2023 - Current
Participating Researcher *Supervision:* ***ETRI***

EXPERIENCES

2023 - 2024
GPU Server System Administrator
· Management of Cluster servers that has 370 GPUs with DeepOps and Slurm.

Teaching Assistant 2022 - Current
· Web and Python Programming (SWCON104)
· Image Processing and Pattern Recognition (SWCON494-00)

SKILLS

Language Skills
· Korean(native), English

Programming Skills
· Python, C/C++, Shell script, Linux

Deep Learning Libraries
· PyTorch, TensorFlow

REFEREES

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