Dongwon Kim

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Cheongam-Ro 77, POSTECH, Pohang-Si, South Korea (37673)

Research objective

My work tackles key challenges in multi-modal learning through the development of compositional representations that address three critical issues in multi-modal AI: poor generalization, computational inefficiency, and semantic ambiguity.

Education

POSTECH Pohang, South Korea
Integrated M.S. and Ph.D. in Computer Science and Engineering; *Sep 2019 – Aug 2025 (Expected)*

- Supervised by Prof. Suha Kwak in the Computer Vision Lab.
- Thesis title: Learning Compositional Visual Representations for Vision-Language Understanding and Generation
- Research interest: Computer vision, multi-modal learning, representation learning

POSTECH Pohang, South Korea
B.S. in Computer Science and Engineering *Mar 2015 – Aug 2019*

Work experience

Bytedance Ltd. San Jose, California
Research Intern *June 2024 – Nov 2024*

- Developed efficient text-to-image generative model using compact text-aware 1D tokens
- First-authored paper "Democratizing Text-to-Image Masked Generative Models..." (accepted to ICCV 2025)
- Supervised by Liang-Chieh (Jay) Chen

Publications

[1] ***Democratizing Text-to-Image Masked Generative Models with Compact Text-Aware One-Dimensional Tokens*** | arXiv
Dongwon Kim*, Ju He*, Qihang Yu*, Chenglin Yang, Xiaohui Shen, Suha Kwak, and Liang-Chieh Chen
IEEE/CVF International Conference on Computer Vision (ICCV), Oct 2025

[2] ***1.58-bit FLUX*** | arXiv
Chenglin Yang, Celong Liu, Xueqing Deng, **Dongwon Kim**, Xing Mei, Xiaohui Shen, Liang-Chieh Chen
arXiv preprint, Dec 2024

[3] ***Bootstrapping Top-down Information for Self-modulating Slot Attention*** | arXiv
Dongwon Kim, Seoyeon Kim, Suha Kwak
Neural Information Processing Systems (NeurIPS), Dec 2024

[4] ***Text-based Person Search with Part Slot Attention for Corresponding Part Discovery*** | arXiv
Jicheol Park, **Dongwon Kim**, Boseung Jeong, Suha Kwak
European Conference on Computer Vision (ECCV), Oct 2024

[5] ***Extending CLIP's Image-Text Alignment to Referring Image Segmentation*** | arXiv
Seoyeon Kim, Minguk Kang, **Dongwon Kim**, Jaesik Park, Suha Kwak
Annual Conference on the North American Chapter of the Association for Computational Linguistics (NAACL), Jun 2024

[6] ***Shatter and Gather: Learning Referring Image Segmentation with Text Supervision*** | arXiv
Dongwon Kim*, Namyup Kim*, Cuiling Lan, Suha Kwak
IEEE/CVF International Conference on Computer Vision (ICCV), Oct 2023

[7] ***Improving Cross-Modal Retrieval With Set of Diverse Embeddings*** | arXiv
Dongwon Kim, Namyup Kim, Suha Kwak
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Jun 2023
Highlight (Top 2.5% = 235/9155)

[8] ***ReSTR: Convolution-Free Referring Image Segmentation Using Transformers*** | arXiv
Namyup Kim, **Dongwon Kim**, Cuiling Lan, Wenjun Zeng, Suha Kwak
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Jun 2022

[9] ***Self-Taught Metric Learning Without Labels*** | arXiv
Sungyeon Kim, **Dongwon Kim**, Minsu Cho, Suha Kwak
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Jun 2022

[10] ***Embedding Transfer With Label Relaxation for Improved Metric Learning*** | arXiv
Sungyeon Kim, **Dongwon Kim**, Minsu Cho, Suha Kwak
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Jun 2021

[11] ***Proxy Anchor Loss for Deep Metric Learning*** | arXiv
Sungyeon Kim, **Dongwon Kim**, Minsu Cho, Suha Kwak
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Jun 2020

Awards & Achievements

Postechian fellowship, POSTECH, 2023

BK21 Best Paper Award, POSTECH GSAI, 2023

- Self-Taught Metric Learning without Labels (CVPR 2022)

Qualcomm Innovation Fellowship Winner, Qualcomm Korea Corp., 2022

- Self-Taught Metric Learning without Labels (CVPR 2022)
- ReSTR: Convolution-free Referring Image Segmentation Using Transformers (CVPR 2022)

NAVER × POSTECH AI DAY The 2nd and 3rd Prize, 2022

- ReSTR: Convolution-free Referring Image Segmentation Using Transformers (CVPR 2022)

Qualcomm Innovation Fellowship Winner, Qualcomm Korea Corp., 2021

- Embedding Transfer with Label Relaxation for Improved Metric Learning (CVPR 2021)

IPIU Best Paper Award, 2021

- Embedding Transfer with Label Relaxation for Improved Metric Learning (CVPR 2021)

National Science & Technology Scholarship, Korea Student Aid Foundation, 2017-2018

Jigok Scholarship, POSTECH, 2015-2016

Professional Services

Reviewer, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI): 2022, 2023
Reviewer, IEEE/CVF International Conference on Computer Vision (ICCV): 2023
Reviewer, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR): 2022, 2023
Reviewer, European Conference on Computer Vision (ECCV): 2022
Reviewer, Winter Conference on Applications of Computer Vision (WACV): 2023
Reviewer, Asian Conference on Computer Vision (ACCV): 2022