Sungyeon Kim

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Employment

Applied Scientist II, Amazon 08/04/2025 – Current
Applied Scientist, Amazon *Palo Alto, CA*

- Conducting research on cutting-edge multimodal retrieval frameworks.

Postdoctoral Researcher 02/16/2025 – 03/25/2025
Computer Vision Lab, POSTECH *Pohang, S.Korea*

- Advised by Prof. Suha Kwak.
- Researched on generative multimodal retrieval framework.

Research Intern 06/03/2024 – 09/20/2024
Applied Scientist Intern, Amazon *Palo Alto, CA*

- Researched with Xinliang Zhu, Xiaofan Lin, and Muhammet Bastan.
- Managed by Douglas Gray.
- Researched on generative multimodal retrieval framework.

Education

POSTECH (Pohang University of Science and Technology) Pohang, South Korea
Ph.D. in Computer Science and Engineering *Sep. 2018 – Feb. 2025*

- Advised by Prof. Suha Kwak.
- Dissertation: Towards Retrieval at Scale via Compact Embeddings and Generative Modeling
- Committee: Prof. Suha Kwak, Prof. Minsu Cho, Prof. Seungyong Lee, Prof. Jungseul Ok, and Prof. Bohyung Han
- Research focuses on deep metric learning, image retrieval, representation learning, and computer vision tasks.

DGIST (Daegu Gyeongbuk Institute of Science and Technology) Daegu, South Korea
B.S. in Undergraduate Studies *Mar. 2014 – Feb. 2018*

Publications

[1] **Sungyeon Kim**, Xinliang Zhu, Xiaofan Lin, Muhammet Bastan, Douglas Gray, Suha Kwak
GENIUS: A Generative Framework for Universal Multimodal Search
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2025

[2] Boseung Jeong, Jicheol Park, **Sungyeon Kim**, Suha Kwak
Learning Audio-guided Video Representation with Gated Attention for Video-Text Retrieval
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2025
(Oral Presentation, 3.3%)

[3] **Sungyeon Kim**, Donghyun Kim, Suha Kwak
Learning Unified Distance Metric Across Diverse Data Distributions with Parameter-Efficient Transfer Learning
IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2025

[4] **Sungyeon Kim**, Boseung Jeong, Donghyun Kim, Suha Kwak
Efficient and Versatile Robust Fine-Tuning of Zero-shot Models
European Conference on Computer Vision (**ECCV**), 2024

[5] Sohyun Lee, Namyup Kim, **Sungyeon Kim**, Suha Kwak
FREST: Improving Robustness of Semantic Segmentation via Source-free Domain Adaptation with Feature Restoration
European Conference on Computer Vision (**ECCV**), 2024

[6] Junhyeong Cho, Gilhyun Nam, **Sungyeon Kim**, Hunmin Yang, Suha Kwak
PromptStyler: Prompt-driven Style Generation for Source-free Domain Generalization
IEEE/CVF International Conference on Computer Vision (**ICCV**), 2023

[7] **Sungyeon Kim**, Boseung Jeong, Suha Kwak
HIER: Metric Learning Beyond Class Labels via Hierarchical Regularization
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023

[8] Kyungmoon Lee, **Sungyeon Kim**, Suha Kwak
Cross-Domain Ensemble Distillation for Domain Generalization
European Conference on Computer Vision (**ECCV**), 2022

[9] Sehyun Hwang, Sohyun Lee, **Sungyeon Kim**, Jungseul Ok, Suha Kwak
Combating Label Distribution Shift for Active Domain Adaptation
European Conference on Computer Vision (**ECCV**), 2022

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

[11] Kyungmoon Lee, **Sungyeon Kim**, Seunghoon Hong, Suha Kwak
Learning to Generate Novel Classes for Deep Metric Learning for Improved Metric Learning
British Machine Vision Conference (**BMVC**), 2021

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

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

[14] **Sungyeon Kim**, Minkyo Seo, Ivan Laptev, Minsu Cho, Suha Kwak
Deep Metric Learning Beyond Binary Supervision
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019
(Oral Presentation, 5.58%)

Honors & Awards

- **Winner**, Alumni Award, POSTECH, 2025
- **Winner**, Qualcomm Innovation Fellowship Korea, Qualcomm Technologies Inc., 2024
- **Winner**, Google PhD Fellowship Program, Google LLC, 2023
- **Winner**, BK21 Best Paper Award, Dept. CSE, POSTECH, 2023
- **Winner**, Qualcomm Innovation Fellowship Korea, Qualcomm Technologies Inc., 2022
- **Winner**, BK21 Best Paper Award, Dept. CSE, POSTECH, 2022
- **Gold Prize**, IPIU Best Paper Award, Workshop on Image Processing and Image Understanding (IPIU), 2022
- **Outstanding Reviewer**, CVPR, IEEE, 2022
- **2nd Place**, ICT Paper Contest, Etnews, Webcash Group, and KSFC, 2021
- **Winner**, SKT AI Fellowship, SK Telecom Co., Ltd, 2021

- **Winner**, POSTECHIAN Fellowship, POSTECH, 2021
- **Grand Prize**, IPIU Best Paper Award, Workshop on Image Processing and Image Understanding (IPIU), 2021
- **Winner**, Naver Ph.D Fellowship, NAVER Corp., 2020
- **Winner**, Qualcomm Innovation Fellowship Korea, Qualcomm Technologies Inc., 2020

Academic Service

- Have been served as a reviewer for international conferences, such as **CVPR, ICCV, ECCV, ICLR, ICML, NeurIPS, AAAI, BMVC, ACCV, WACV**, and so on.
- Have been served as a reviewer for international journals, such as **TPAMI, IJCV, and TIP**.

Talks

- GENIUS: A Generative Framework for Universal Multimodal Search, **Google**, Mountain View, CA, 2025
- Towards Retrieval at Scale via Compact Embeddings and Generative Modeling, **CVPR Doctoral Consortium**, Nashville, TN, 2025
- Efficient and Versatile Robust Fine-Tuning of Zero-shot Models, **Amazon**, Palo Alto, CA, 2025
- Transcending Binary Supervision for Improved Metric Learning, **Artificial Intelligence Graduate School (AIGS) Symposium**, Pohang, Republic of Korea, 2023
- Hierarchical Regularization for Metric Learning Applications, Qualcomm Innovation Fellowship Korea, **Qualcomm**, Seoul, Republic of Korea, 2022
- Efficient Label Relaxation Techniques for Deep Metric Learning, Qualcomm Innovation Fellowship Korea, **Qualcomm**, Seoul, Republic of Korea, 2020
- Structured and Continuous Labels for Deep Metric Learning, **Korea Computer Congress**, Jeju, Republic of Korea, 2019
- Implementing Triplet Loss and Contrastive Loss in Metric Learning, **Samsung Advanced Institute of Technology**, Suwon, Republic of Korea, 2019
- Metric Learning: From Distance Metric Learning to Deep Metric Learning, **Samsung Advanced Technology Training Institute**, Suwon, Republic of Korea, 2018
- C Programming Tutorial for Beginners, **Daegu Software High School**, Daegu, Republic of Korea, 2017

Patents

- Rehabilitation program creation method for muscle treatment and rehabilitation program providing apparatus for performing the method, KR101648638B1, Republic of Korea

Other Working Experience

Research Assistant Apr. 2018 – Aug. 2018
Computer Vision Lab, POSTECH *Pohang, S.Korea*
- Advised by Prof. Suha Kwak.
- Focused on deep metric learning research.

Undergraduate Intern Dec. 2016 – Jan. 2018
Vision and Learning Group, DGIST *Daegu, S.Korea*
- Researched deep metric learning and pose estimation.

Undergraduate Intern Jun. 2016 – Aug. 2016

Future Automotive Technology Research Center, DGIST *Daegu, S.Korea*

- Researched pedestrian detection in video for autonomous vehicles.
- Implemented an API for pedestrian detection using PyCaffe and PyQt.

Undergraduate Intern Mar. 2014 – Jun. 2014

Communication and Signal Processing Lab, DGIST *Daegu, S.Korea*

- Researched Muscle-computer connection systems and signal processing.
- Developed an Electromyography (EMG) signal processing tool to reduce signal noise.
- Contributed to a patent for a rehabilitation program using measured EMG signals.