




# Sungyeon Kim

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## EDUCATION

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### 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

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- [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
- [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**, Minkyoo 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%)

## RESEARCH EXPERIENCE

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### Postdoctoral Researcher

Feb. 2025 – Present

*Computer Vision Lab, POSTECH*

*Pohang, S.Korea*

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

### Research Intern

Jun. 2024 – Sep. 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.

### Research Collaboration

Dec. 2022 – Sep. 2023

*MIT-IBM Watson AI Lab*

*Cambridge, MA (Remote)*

- Collaborated with Dr. Donghyun Kim.
- Researched parameter-efficient learning and deep metric learning.

### Research Intern

Apr. 2022 – Jul. 2022

*Vision Team, Naver*

*Seongnam, S.Korea (Remote)*

- Researched with Geonmo Gu and Byungsoo Ko.
- Research on self-supervised representation learning.

## HONORS & AWARDS

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- **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

## TALKS

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- 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

## REVIEWER

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- 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**.

## PATENTS

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

## OTHER WORKING EXPERIENCE

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<b>Research Assistant</b> <i>Computer Vision Lab, POSTECH</i> <ul style="list-style-type: none"> <li>• Advised by Prof. Suha Kwak.</li> <li>• Focused on deep metric learning research.</li> </ul>	Apr. 2018 – Aug. 2018 <i>Pohang, S.Korea</i>
<b>Undergraduate Intern</b> <i>Vision and Learning Group, DGIST</i> <ul style="list-style-type: none"> <li>• Researched deep metric learning and pose estimation.</li> </ul>	Dec. 2016 – Jan. 2018 <i>Daegu, S.Korea</i>
<b>Undergraduate Intern</b> <i>Future Automotive Technology Research Center, DGIST</i>	Jun. 2016 – Aug. 2016 <i>Daegu, S.Korea</i>

- 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.