Minjung Kim

Ph.D. Candidate @ Yonsei University

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Interests

Computer Vision

Image/Video Person Re-Identification, 2D Image-3D Shape Retrieval, Video Temporal Grounding

Machine Learning & Deep Learning

Feature-level Augmentation, Self-supervised Learning, Multimodal Learning

Education

Yonsei University, Seoul, South Korea **Mar. 2020 – Present**
M.S./ Ph.D. Course in Electrical and Electronic Engineering, **GPA: 4.28/4.3**
Advisor: Professor Sangyoun, Lee
Expected Graduation Date: Feb. 2025

Hanyang University, Seoul, South Korea **Mar. 2016 – Feb. 2020**
B.S. in Department of Electronic Engineering

Research Experience

Yonsei University, Seoul, South Korea

Graduate Student Researcher, Image and Video Pattern Recognition Lab. **Mar. 2020 – Present**

- Development of Surveillance Camera-based Mask Wearer Re-Identification (with Institute for Information & Communications Technology Promotion) **Mar. 2021 – Dec. 2023**
  - Developed robust feature extraction algorithms for occlusion (Facilitated technology transfer)
  - Proposed dataset labeling system (reducing labeling time required by 60%) and provided guidelines for dataset construction
- 2D-3D Feature Correspondence Learning for Virtual Scene Reconstruction (with **LG Electronics Business Solution Research Center**) **Jun. 2022 – Jun. 2023**
  - Conceptualized algorithm framework for reconstructing 3D scenes using a single image and large-scale 3D mesh datasets
  - Developed Image-based 3D Shape Retrieval technology for real-world application (13% performance improvement) and analyzed results from demo using smartphone camera
- Road Conditions and Autonomous Bus AI Data (with National Information Society Agency) **Sep. 2020 – Feb. 2021**
  - Developed road crack segmentation algorithm and provided guidelines for dataset construction for detection of obstacles and cracks on roads during autonomous driving

Publications

1. **M.Kim,** M. Cho, H. Lee, and S. Lee, "FAViT: Feature-Level Augmentation Vision Transformer for Video-based Person Re-Identification", Pattern Recognition **(PR)**, **[Under Review]**, **(IF=8.0)**
2. C. Park, D. kim, M. Cho, **M. kim**, M. Lee, S. Park and S. Lee, "Fast Video Anomaly Detection via Context-aware Shortcut Exploration and Abnormal Feature Distance Learning", Pattern Recognition **(PR)**, **[Under Review]**, **(IF=8.0)**

3. S. Woo, **M. Kim**, D. Kim, S. Jang, and S. Lee, "FIMP: Future Interaction Modeling for Multi-Agent Motion Prediction", IEEE International Conference on Robotics and Automation (**ICRA**), 2024
4. H. Lee, **M. Kim**, S. Jang, H. Bae, and S. Lee, "Multi-Granularity Aggregation with Spatiotemporal Consistency for Video-Based Person Re-Identification", MDPI, **Sensors**, 2024
5. M. Cho, **M. Kim**, S. Hwang, C. Park, and S. Lee, "Look around for Anomalies: Context-Motion Relational Learning via Weakly Video Anomaly Detection", IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023 **(2360/9155=25.78% Acceptance Rate)**
6. **M. Kim**, M. Cho, and S. Lee, "Feature Disentanglement Learning with Switching and Aggregation for Video-based Person Re-Identification", IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2023 **(199/895=22.2% Acceptance Rate)**
7. **M. Kim**, M. Cho, H. Lee, S. Cho, and S. Lee, "Occluded Person Re-Identification via Relational Adaptive Feature Correction Learning", IEEE International Conference on Acoustics, Speech and Signal Processing (**ICASSP**), 2022
8. S. Cho, H. Lee, M. Lee, C. Park, S. Jang, **M. Kim**, and S. Lee, "Tackling Background Distraction in Video Object Segmentation", IEEE/CVF European Conference on Computer Vision (**ECCV**), 2022
9. S. Cho, H. Lee, **M. Kim**, S. Jang, and S. Lee, "Pixel-Level Bijective Matching for Video Object Segmentation", IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2022
10. **M. Kim**, H. Lee, T. Kim, and S. Lee, "Semantic Segmentation Using Class Distribution Information", 2021

Patents

1. "Adaptive convolutional graph module for multi-object tracking", Korea Patent Application, 10-2023-0164740
2. "Apparatus and Methods for Video Person Re-Identification", Korea Patent Application, 10-2022-0163962
3. "Methods and Apparatus for Tracking Objects in Video", Korea Patent Application, 10-2021-0148720

Technology Transfer

- Multi-camera based mask wearer human re-recognition technology (USD $28,996) **Nov. 2023**

Awards

- **LG Electronics Research Scholarship (USD $14,781/1 year)** **Sep. 2023 – Present**
- Brain Korea Four 21 Scholarship from National Research Foundation of Korea **Feb. 2023**
- Academic Research Fellowship Idea Incubation Fund **Jan. 2023, Sep. 2022**
- Brain Korea Four 21 Scholarship from National Research Foundation of Korea **Dec. 2020**

Service

Reviewer

- IEEE Transactions on Information Forensics and Security (Q1 Journal)
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2024)

Skills and Languages

- Python, C/C++, MATLAB / PyTorch
- Korean: Native, English: Professional fluency