MyeongAh Cho

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01 EDUCATION

Mar 2018 — Aug 2023 **Yonsei University** *Seoul, Korea*

M.S./ Ph.D. Course in Electrical and Electronic Engineering

Image and Video Pattern Recognition Lab. supervised by Prof. Sangyoun Lee

Mar 2013 — Feb 2018 **Kyunghee University** *Gyeonggi, Korea*

B.S. in Electronic Engineering

02 RESEARCH INTERESTS

AI, Deep Learning
Computer Vision, Image Processing

Scene Understanding, Scene Analysis, Biometrics

Image/Video Anomaly Detection, Cross-Domain Data Learning, Metric Learning

Surveillance System, Autonomous Driving

Self/Un-supervised Learning, Weakly-supervised Learning

03 EXPERIENCES

Jan 2023 — Present **Naver Research Internship** *CLOVA, Video team*

Jun 2019 — Present **Hyundai Motor Company Research Scholarship** *Robotics Lab, Hyundai Motor Company*

Mar 2019 — Present **Global Ph.D. Fellowship Program Scholarship** *National Research Foundation of Korea (NRF)*

- "Anomaly Detection System with Relation Embedding and Contextual Understanding in Surveillance Videos" (Funding KRW 150 million for 5 years)

Mar 2018 — Present **Project Manager/ Researcher** *Yonsei Univ., Korea*

- 2D-3D Feature Correspondence Learning for Virtual Scene Reconstruction

- Development of Smart Signal Management System Customized for National Roads
- Deep Identification and Tracking of Missing Person in Heterogeneous CCTV
- Emotional Intelligence Technology to Infer Human Emotion and Carry on Dialogue
- Development of the High-precision Natural 3D View Generation Technology using Smart-car Multi Sensor and Deep Learning
- Road Conditions and Autonomous Bus AI Data

Jun 2017 — Aug 2017

Research Intern at ETRI

Daejeon, Korea

- Intelligent Convergence Research Laboratory

Aug 2016 — Feb 2017

Exchange Student

Linköping, Sweden

- Linköping university, Electrical Engineering, Faculty of Science and Engineering

Mar 2017 — Feb 2018

Undergraduate Intern

Kyunghee Univ., Korea

- Development of Improving Method for Virtual View Synthesis Technology

04 PROJECTS

Jun 2022 — Present

2D-3D Feature Correspondence Learning for Virtual Scene Reconstruction

LG Electronics

- Project manager
- 3D View Generation, Depth Estimation, 2D-3D Retrieval, 3D Object Detection

Jun 2021 — Nov 2021

Moving Object Detection and Anomaly Detection AI Algorithm Analysis and Dataset Construction

Dongbu ICT

- Abnormal Detection, Vehicle Speed Estimation

Sep 2020 — Dec 2020

Road Conditions and Autonomous Bus AI Data

National Information society Agency (NIA)

- Project manager
- Object Detection, Crack Segmentation

May 2019 — Dec 2022

Deep Identification and Tracking of Missing Person in Heterogeneous CCTV

National Research Foundation of Korea (NRF)

- Project manager
- Cross-Resolution/Domain Face Recognition, Representation Learning, Object Tracking

Mar 2019 — Feb 2024

Anomaly Detection System with Relation Embedding and Contextual Understanding in Surveillance Videos

National Research Foundation of Korea (NRF)

- Project manager
- Surveillance Anomaly Detection, Un/Weakly-supervised Learning

Jan 2019 — Aug 2020

Development of the High-precision Natural 3D View Generation Technology using Smart-car Multi Sensor and Deep Learning

Institute for Information & Communications Technology Promotion (IITP)

- Data Acquisition with Point Gray Camera for 3D View Creation

Jul 2018 — Aug 2019

Emotional Intelligence Technology to Infer Human Emotion and Carry on Dialogue

Institute for Information & Communications Technology Promotion (IITP)

- Face Recognition, Face Detection, Model Compression

05 PUBLICATIONS

International Journal

1. "Unsupervised Video Anomaly Detection via Normalizing Flows with Implicit Latent Features", Elsevier Pattern Recognition (PR, *IF: 8.52*). Sep., 2022.
MyeongAh Cho, Taeoh Kim, Ig-Jae Kim, Kyungjae Lee, and Sangyoun Lee

2. "Relational Deep Feature Learning for Heteroeneous Face Recognition", IEEE Trans. on Information Forensics and Security (TIFS, *IF: 7.18*). July, 2020.

MyeongAh Cho, Taeoh Kim, Ig-Jae Kim, Kyungjae Lee, and Sangyoun Lee

3. "SSAT: Self-Supervised Associating Network for Multi-Object Tracking", IEEE Trans. on Circuits and Systems for Video Technology (TCSVT, *IF: 5.86*). June, 2022.

Tae-young Chung, **MyeongAh Cho**, Heansung Lee, Sangyoun Lee

4. "Frame-to-Frame Visual Odometry Estimation Network with Drift Error Relaxation Method", IEEE Access (*IF: 3.48*). Oct., 2022.

Sangwon Hwang, **MyeongAh Cho**, Kyungjae Lee

International Conference

1. "Look Around for Anomalies: Weakly-supervised Anomaly Detection via Context-Motion Relational Learning", IEEE CVPR, 2023, **M Cho**, M Kim, S Hwang, C Park, K Kim, S Lee
2. "Feature Disentanglement followed by Switching and Aggregation for Video-based Person Re-Identification", IEEE WACV, 2023, M Kim, **M Cho**, S Lee
3. "Occluded Person Re-Identification via Relational Adaptive Feature Correction Learning", IEEE ICASSP, 2022, M Kim, **M Cho**, H Lee, S Cho, S Lee
4. "Saliency Detection via Global Context Enhanced Feature Fusion and Edge Weighted Loss", IEEE ICIP, 2022, C Park, M Lee, **M Cho**, S Lee
5. "FastAno: Fast Anomaly Detection via Spatio-temporal Patch Transformation", IEEE WACV, 2022, C Park, **M Cho**, M Lee, S Lee
6. "A Heterogeneous Face Recognition Via Part Adaptive And Relation Attention Module", IEEE ICIP, 2021, R Xu, **M Cho**, S Lee

7. "Learning Temporally Invariant and Localizable Features via Data Augmentation for Video Recognition", ECCVW, 2020, T Kim*, H Lee*, **M Cho***, H Lee, D Cho, S Lee
8. "CRVOS: Clue Refining Network for Video Object Segmentation", IEEE ICIP, 2020, S Cho, **M Cho**, T Chung, H Lee, S Lee
9. "N-RPN: Hard Example Learning for Region Proposal Networks", IEEE ICIP, 2019, **M Cho**, T Chung, H Lee, S Lee
10. "NIR-to-VIS Face Recognition via Embedding Relations and Coordinates of the Pairwise Features", IAPR ICB, 2019, **M Cho**, T Chung, T Kim, S Lee

Domestic Journal/ Conference

1. "Patch Rotation Task Combined Autoencoder for Abnormal Event Detection", IEIE 2021, C Park, **M Cho**, M Lee, S Lee
2. "Photorealistic Style Transfer with Adversarial Loss for Photo-to-Sketch Facial Image Synthesis", IEIE 2020, R Xu, **M Cho**, T Kim, S Lee
3. "Three-Dimensional Rotation Angle Preprocessing and Weighted Blending for Fast Panoramic Image Method", Journal of Broadcast Engineering, 2018, **M Cho**, J Kim, K Kim
4. "Preprocessing for performace improvement of Disparity Map Using Stereo Images", KISTI, 2017, **M Cho**, H Kang, S Kim, D Kang, K Kim

06 PATENTS & SOFTWARE COPYRIGHTS

Patents

1. "Object Tracking Apparatus and Method using Self-Attention", KR-Registration No.10-2359982, Feb., 2022
2. "Apparatus and Method for Recognizing Heterogeneous Face Based on Relationship Between Component", KR-Registration No.10-2356438, Jan., 2022
3. "Apparatus and Method for Tracking Pedestrians in Multiple CCTV Environment", KR-Registration No.10-2355006, Jan., 2022
4. "Apparatus And Method For Tracking Pedestrians In CCTV Environment", KR-Registration No.10-2519367, April, 2023
5. "Object Tracking Method and Feature Vector Extraction Method for Tracking Object", KR-Application No.10-2021-0165002, Nov., 2021
6. "Apparatus and Method for Detecting Anomalous Event", KR-Application No.10-2020-0153560, Nov., 2020
7. "{Video Anomaly Detection Apparatus and Method using Relational Embedding", KR-Application No.10-2022-0156968, Nov., 2022

Software Copyrights

1. "Cross-resolution and cross-domain face recognition system", C-2021-041681
2. "Efficient object tracking system using the appearance consistency of the tracking target", C-2021-041680
3. "Video Anomaly Detection with Appearance and Motion Latent Features", C-2020-039108
4. "Single object tracking system utilizing external memory", C-2022-039206
5. "Graph Convolutional Neural Network Using Hierarchical Decomposition", C-2022-039207
6. "Image-based training data video editor", C-2021-041679

7. "Visual Object Tracking Using Keypoint Prediction", C-2020-039110
8. "Single tracking system using online adaptation method", C-2020-008250
9. "Graph structured heterogeneous face recognition system", C-2020-008251
10. "Single Object Tracking System using Region Proposal Network", C-2019-008621
11. "Heterogeneous Face Recognition using Deep Learning", C-2019-008173

07 AWARDS

Aug 2020

1st Visual Inductive Priors for Data-Efficient Deep Learning Challenge

ECCV Workshop

4th place

08 SKILLS

C/C++, Python, MATLAB-
OpenCV, PyTorch, Tensorflow, Git

09 LANGUAGES

Korean ●●●●●

English ●●●●○