

Gyuseong Lee

ASSOCIATE, LG ELECTRONICS

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Experience

LG Electronics

RESEARCH SCIENTIST

- Generative AI Task

Seoul, S.Korea

Feb. 2024 -

Education

Korea University

M.S. IN COMPUTER SCIENCE AND ENGINEERING

- Advisor: Prof. Seungryong Kim

Seoul, S.Korea

Mar. 2022 - Feb. 2024

Korea University

B.S. IN ELECTRICAL ENGINEERING

Seoul, S.Korea

Mar. 2016 - Feb. 2022

Research Interest

Diffusion-based generative models

- Sampling guidance and controllable generation for diffusion models

Domain generalization, Transfer learning, Robust fine-tuning of large models

Visual correspondence

Semi- & self- supervised learning

Publications

PUBLISHED

Domain Generalization Using Large Pretrained Models With Mixture-of-Adapters

WACV 2025

GYUSEONG LEE*, WOOSEOK JANG*, JIN HYEON KIM, JAEWOO JUNG, SEUNGRYONG KIM

- Domain Generalization, Transfer Learning, Image Classification

Depth-Aware Guidance with Self-Estimated Depth Representations of Diffusion Models

Pattern Recognition

GYEONGNYEON KIM*, WOOSEOK JANG*, **GYUSEONG LEE***, SUSUNG HONG, JUNYOUNG SEO, SEUNGRYONG KIM

- Diffusion Generative Models, Sampling Guidance, Monocular Depth Estimation

Diffusion Model for Dense Matching

ICLR 2024 (Oral Presentation)

JISU NAM, **GYUSEONG LEE**, SUNWOO KIM, HYEONSU KIM, HYOUNGWON CHO, SEYEON KIM, SEUNGRYONG KIM

- Diffusion Generative Models, Image Matching

Improving Sample Quality of Diffusion Models Using Self-Attention Guidance

ICCV 2023

SUSUNG HONG, **GYUSEONG LEE**, WOOSEOK JANG, SEUNGRYONG KIM

- Diffusion Generative Models, Sampling Guidance

* Equal contribution.

MIDMs: Matching Interleaved Diffusion Models for Exemplar-based Image Translation

AAAI 2023

JUNYOUNG SEO*, GYUSEONG LEE*, SEOKJU CHO, JIYOUNG LEE, SEUNGRYONG KIM

- Diffusion Generative Models, Image-to-Image Translation

Towards Flexible Inductive Bias via Progressive Reparameterization Scheduling

ECCV 2022 VIPriors Workshop

YUN Sung LEE*, GYUSEONG LEE*, KWANGROK RYOO*, HYOJUN GO*, JIHYE PARK*, SEUNGRYONG KIM

- Model Architecture, Vision Transformer

ConMatch: Semi-supervised Learning with Confidence-Guided Consistency Regularization

ECCV 2022

JIWON KIM, YOUNGJO MIN, DAEHWAN KIM, GYUSEONG LEE, JUNYOUNG SEO, KWANGROK RYOO, SEUNGRYONG KIM

- Image Classification, Semi-Supervised Learning

Semi-Supervised Learning of Semantic Correspondence with Pseudo-Labels

CVPR 2022

JIWON KIM*, KWANGROK RYOO*, JUNYOUNG SEO*, GYUSEONG LEE*, DAEHWAN KIM, HANSANG CHO, SEUNGRYONG KIM

- Image Matching, Semi-Supervised Learning

IN PREPRINT

AggMatch: Aggregating Pseudo Labels for Semi-Supervised Learning

arXiv preprint

JIWON KIM, KWANGROK RYOO, GYUSEONG LEE, SEOKJU CHO, JUNYOUNG SEO, DAEHWAN KIM, HANSANG CHO, SEUNGRYONG KIM

Jan. 2022

- Image Classification, Semi-Supervised Learning

Awards & Scholarships

2023 **Best Paper Award**, 33th Artificial Intelligence and Signal Processing, IEIE

Seoul, S.Korea

2022 **Best Paper Award**, 32nd Joint Conference of Signal Processing, IEIE

2021 **Semester High Honors**, Korea University

2020 **Dean's List**, Korea University

National Science & Technology Scholarship, Korea Student Aid Foundation

2017 **Semester High Honors**, Korea University

2016 **Semester High Honors**, Korea University

Software Skill

Languages Python3 C MATLAB Verilog

Libraries PyTorch NumPy

Tools Docker Git LaTeX

Industrial Projects

Development of multi-domain generalizable anomaly classification model

SAMSUNG ELECTRO-MECHANICS

DOMAIN GENERALIZATION & LABEL EFFICIENT DOMAIN ADAPTATION FOR ANOMALY CLASSIFICATION

Sep. 2022 - Apr. 2023

- Analyzing the effect of model bias on out-of-distribution performance.
- Development of domain generalization algorithm by utilizing knowledge from a largely pre-trained model.
- Efficiently fine-tuning large models to improve out-of-distribution generalization performance.

Context and activity analysis-based solution for safe childcare

IITP

HUMAN POSE ESTIMATION AND TRACKING

Oct. 2022 - Jan. 2023

- Application of human pose estimation and tracking algorithm to preschool CCTV data.

*Equal contribution.

Automatic update of anomaly classification model using unlabeled data

SAMSUNG ELECTRO-MECHANICS

SEMI-SUPERVISED & CONTINUAL LEARNING FOR ANOMALY CLASSIFICATION

July. 2021 - May. 2022

- Fine-grained, long-tailed semi-supervised learning.
- Propose a contrastive learning based loss function to improve the classification accuracy of defective samples.
- Using a knowledge distillation to maintain performance over time in continual learning settings.

Extracurricular Activities

PEER REVIEW

- Selected as an Outstanding Reviewer at ECCV 2024
- Reviewer for CVPR, ICCV/ECCV, AAAI since 2023

ACTIVITIES

HandS (Electrical engineering society of Korea University)

Seoul, S.Korea

CORE MEMBER AT 2020, 2021

Feb. 2020 - Feb. 2022

- Participated in Cansat Competition Korea (Jun. 2020 - Aug. 2020).
- Conducted PyTorch & deep learning seminar (Jun. 2021 - Aug. 2021).