Geonu Lee

AI Research Engineer

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Work Experiences

Jul. 2024 - Present

Full-time – SNUAILAB

AI Research Engineer

- Conducting research and development of anomaly detection models and evaluation pipelines.
- Project Lead – Smartphone Cover Glass Defect Inspection System
  - Designed and deployed an AI-based anomaly detection system for micro-defect inspection.
  - Achieved robust performance with a False Negative Rate below 2%.
  - Delivered a C++ SDK integrating preprocessing, inference, and deployment for client production use.

Oct. 2023 - Apr. 2024

Full-time – ALCHERA

AI Research Engineer, Anomaly Analysis Team

- Developed object detection models tailored for real-time video surveillance systems.
- Conducted research and implemented FireScout, an AI-based wildfire detection solution deployed in production.

Mar. 2023 - Sep. 2023

Intern – Naver Cloud

AI Research Engineer, Image Vision Team

- Researched and developed deep learning-based face anti-spoofing solutions for eKYC services.
- Investigated generalizable object anti-spoofing methods across multiple domains and modalities.

Jan. 2020 - Feb. 2020

Intern – Electronics and Telecommunications Research Institute (ETRI)

AI Research Engineer

- Developed a human action recognition system that models interactions between humans and surrounding objects in video data.

Publications

Feb. 2025 | **Geonu Lee**, Yonghyun Jeong, Haneol Jang, YoungJoon Yoo, “Domain-Generalized Object Anti-Spoofing: Bridging Gaps and Patch Selection for Robust Detection across Domains,” in *Winter Conference on Applications of Computer Vision (WACV)*

Sep. 2022 | **Geonu Lee**, Kimin Yun, Jungchan Cho, “Occluded Pedestrian-Attribute Recognition for Video Sensors Using Group Sparsity,” in *Sensors*, vol. 22, no. 17, pp. 6626

Aug. 2022 | **Geonu Lee** and Jungchan Cho, “STDP-Net: Improved Pedestrian Attribute Recognition Using Swin Transformer and Semantic Self-Attention," in *IEEE ACCESS*, vol. 10, no.1, pp. 82656 - 82667

Feb. 2021 | **Geonu Lee**, Kimin Yun, and Jungchan Cho, “Improved Human-Object Interaction Detection through On-the-Fly Stacked Generalization," in *IEEE ACCESS*, vol. 9, no. 1, pp. 34251-34263

Feb. 2020 | Bhishan Bhandari, **Geonu Lee**, and Jungchan Cho, “Body-Part-Aware and Multitask-Aware Single-Image-Based Action Recognition," in *Applied Science*, vol. 10, no. 4, pp. 1531-1548

Interests

Computer Vision, Multi-Modal, Anomaly Detection, Domain Generalization, Multi-Task Learning, Object Detection, Face Anti-Spoofing, Pedestrian Attribute Recognition, Human Action Recognition, Human-Object Interaction Detection

Education

Mar. 2021 - Feb. 2023 | **Gachon University**
M.S. in Software Engineering

Mar. 2016 - Feb. 2021 | **Gachon University**
B.S. in Department of Computer Engineering

Academic Projects

2022 | **A Study on the Complex Human Attributes for Situation Understanding**
Master's Research Project – Gachon University
- Conducted research on recognizing interactive human attributes in video sequences under complex contexts.
- Utilized Swin Transformer and Transformer decoder architectures for semantic reasoning.
- Funded by Electronics and Telecommunications Research Institute (ETRI).

2021 | **A Study on the Understanding of Pedestrians**
Master's Research Project – Gachon University
- Developed a pedestrian attribute recognition method robust to occlusion.
- Applied group sparsity regularization to handle various levels of visual obstruction.
- Funded by Electronics and Telecommunications Research Institute (ETRI).

2020 | **A Study on the Understanding of Human-Object-Interactions**
Undergraduate Research Project – Gachon University
- Designed a novel deep neural architecture based on on-the-fly stacked generalization for HOI detection.
- Focused on modeling dynamic interactions between humans and surrounding objects.
- Funded by Electronics and Telecommunications Research Institute (ETRI).

2019 | **A Study on the Understanding of Human Situation Based on Deep Learning**
Undergraduate Research Project – Gachon University
- Proposed a multi-task learning framework combining human pose estimation and action recognition.
- Addressed real-world situational understanding using contextual cues.
- Funded by Electronics and Telecommunications Research Institute (ETRI).

2020 | **Development of Android Application for Dog Breed Prediction Using AI**
Undergraduate Project – Gachon University
- Developed a CNN-based dog breed classifier and deployed it in an Android application.
- Implemented communication between Python back-end and Kotlin front-end using socket programming.