

# 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

## Research Interests

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Computer Vision, Vision-Language-Model, Vision-Language-Action, Anomaly Detection, Domain Generalization, Face Anti-Spoofing, Pedestrian Attribute Recognition, Human Action Recognition, Human-Object Interaction Detection

## Education

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Mar. 2021 - Feb. 2023	<b>Gachon University</b> <i>M.S. in Software Engineering</i>
Mar. 2016 - Feb. 2021	<b>Gachon University</b> <i>B.S. in Department of Computer Engineering</i>

## Research Projects

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2022	<b>A Study on the Complex Human Attributes for Situation Understanding</b> <i>Master's Research Project – Gachon University</i> <ul style="list-style-type: none"><li>Conducted research on recognizing interactive human attributes in video sequences under complex contexts.</li><li>Utilized Swin Transformer and Transformer decoder architectures for semantic reasoning.</li><li>Funded by Electronics and Telecommunications Research Institute (ETRI).</li></ul>
2021	<b>A Study on the Understanding of Pedestrians</b> <i>Master's Research Project – Gachon University</i> <ul style="list-style-type: none"><li>Developed a pedestrian attribute recognition method robust to occlusion.</li><li>Applied group sparsity regularization to handle various levels of visual obstruction.</li><li>Funded by Electronics and Telecommunications Research Institute (ETRI).</li></ul>
2020	<b>A Study on the Understanding of Human-Object-Interactions</b> <i>Undergraduate Research Project – Gachon University</i> <ul style="list-style-type: none"><li>Designed a novel deep neural architecture based on on-the-fly stacked generalization for HOI detection.</li><li>Focused on modeling dynamic interactions between humans and surrounding objects.</li><li>Funded by Electronics and Telecommunications Research Institute (ETRI).</li></ul>
2019	<b>A Study on the Understanding of Human Situation Based on Deep Learning</b> <i>Undergraduate Research Project – Gachon University</i> <ul style="list-style-type: none"><li>Proposed a multi-task learning framework combining human pose estimation and action recognition.</li><li>Addressed real-world situational understanding using contextual cues.</li><li>Funded by Electronics and Telecommunications Research Institute (ETRI).</li></ul>
2020	<b>Development of Android Application for Dog Breed Prediction Using AI</b> <i>Undergraduate Project – Gachon University</i> <ul style="list-style-type: none"><li>Developed a CNN-based dog breed classifier and deployed it in an Android application.</li><li>Implemented communication between Python back-end and Kotlin front-end using socket programming.</li></ul>