Min Jung Lee

POSITION	**Master's Student** **Graduate School of Artificial Intelligence** **Pohang University of Science and Technology (POSTECH)**

CONTACT
INFORMATION

Computer Vision Laboratory
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RESEARCH
INTERESTS

My research interests mainly focus on developing novel models and algorithms to address practical challenges in deploying artificial intelligence systems to various real-world applications. I am currently focused on the following topics:

- **(M-)LLM-based Video Understanding:** Integrating multi-modal LLMs or LLMs for video analysis, e.g., video summarization and image captioning.
- **Generative AI:** Generating synthetic data for vision tasks (e.g., object detection / classification, vision-language modeling), especially for rare or hard-to-capture scenarios.

The application domains of interest encompass a broad range, including multi-modal learning (e.g., Vision-language, Visual QA, and image captioning) and LLM (e.g., fine-tuning LLM and prompt engineering).

EDUCATION

Pohang University of Science and Technology (POSTECH), Pohang, Korea
M.S., Graduate School of Artificial Intelligence (GSAI)   **Sep 2022 – Aug 2024**

- Advisor: Prof. Minsu Cho
- Cumulative GPA: 4.05/4.3 (97.5 / 100)
- Thesis: "Video Summarization with Large Language Models"

San Francisco State University (SFSU), California, U.S.
Exchange Student   **Jan 2020 – May 2020**

- Cumulative GPA: 4.0/4.0

Chung-Ang University (CAU), Seoul, Korea
B.S., School of Electrical and Electronics Engineering (EEE)   **Mar 2017 – Feb 2022**

- Advisor: Prof. Chang Ha Lee
- Honors: *Summa Cum Laude*
- Cumulative GPA: 4.31/4.5 (98.10 / 100, Rank: 11 / 201)

INDUSTRY
EXPERIENCE

GenGenAI, Seoul, South Korea
Research and Development SW Engineer   **Sep 2024 – Present**
- Developing generative AI models for photorealistic image synthesis in rare and complex scenarios to enhance vision tasks performance.
- Synthesizing images conditioned on textual prompts and structured spatial inputs such as object bounding boxes.

PUBLICATIONS

Min Jung Lee, Dayoung Gong, Minsu Cho, "Video Summarization with Large Language Models," in *Computer Vision and Pattern Recognition* (**CVPR**), 2025.

Jungwoo Kim, **Min Jung Lee**, Suha Kwak, "Fine-Tuning Strategies for Weather Condition Shifts: A Comparative Analysis of Models Trained on Synthetic and Real Datasets," in *Annual Symposium of Korea Information Processing Society* (**ASK**), 2024.

Sanghyun Kim*, **Min Jung Lee***, Woohyeok Kim, Deunsol Jung, Jaesung Rim, Sunghyun Cho, Minsu Cho, "Burst Image Super-Resolution with Base Frame Selection," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (**CVPR**) *workshop, NTIRE*, 2024.

Min Jung Lee, Jongmin Lee, Sanghyun Kim, Sunghyun Cho, Minsu Cho, "Base Frame Selection on Dynamically Exposed Burst," in *Image Processing and Image Understanding* (**IPIU**) 2024.

Min Jung Lee, Chi-hyoung Rhee, Chang Ha Lee, "HSVNet: Reconstructing HDR Image from a Single Exposure LDR Image with CNN," in ***Applied Sciences***, *vol. 12, no. 5, p. 2370, Feb. 2022, doi: 10.3390/app12052370.*.

RESEARCH PROJECTS	**Samsung Advanced Institute of Technology (SAIT)** Nov 2022 - Oct 2023 Non-uniformly exposed burst processing using robust base frame selector. (ISP Project) **Samsung Advanced Institute of Technology (SAIT)** Sep 2022 - Oct 2022 Burst image enhancement in an extremely degraded environment by noise, blur and shift. (ISP Project)

RESEARCH EXPERIENCE

Computer Vision lab. @ POSTECH   Sep 2022 - present
- **Develop a video summarization framework with (M-)LLMs** by leveraging output embedding from the LLMs, and applying self-attention mechanisms to produce contextually rich output summaries. (CVPR'25)
- **Develop a frame selection model** to improve burst image restoration/enhancement by merging image features and motion information (CVPRW'24, IPIU'24)
- **Create synthetic & real-world RAW burst dataset** under capturing non-uniform exposure from public video benchmark using inverse camera ISP
- **Collect Real-world RAW burst dataset** under capturing non-uniform exposure using dual-camera system for evaluation

Visualization lab. @ CAU   Jan 2021 - Feb 2022
- **Develop an HDR reconstruction network** from a single random exposure LDR image with U-net for image enhancement

PROFESSIONAL ACTIVITIES

Teaching assistant
AI Trends (AIGS703C-01) @ POSTECH   Fall semester 2023

Instructor
POSCO AI expert training course @ POSTECH   June 2023 – July 2023
- Object detection/segmentation/tracking, generative models (VAE/GAN/Diffusion)

ENGINEERING EXPERIENCE

Term projects
- Deep Learning (AIGS538):   Spring semester 2023
 Convolutional block attention module with regularization [pdf]
- Computer Vision (AIGS539):   Fall semester 2022
 Fine-tuning strategies for semantic segmentation models [pdf]

Side projects
- An algorithm replacing the authentic fingerprints in images with the fake fingerprints for biometrics security [pdf]   June 2021 – Aug 2021
- A mobile app and Arduino circuit system for reserving seat system for the pregnant in public transportation [pdf]   Aug 2019 – Sep 2019

HONORS AND AWARDS

Dean's List with Department Honor Scholarship
- Top 1 in a department   Spring 2021
- Top 10% in a department   Spring 2019, Fall 2018, Spring 2018

COMMUNITY SERVICES

Student Worker @ SFSU   Jan 2020 – May 2020
- Affiliated to IEEC (International Education Exchange Council)
- Promoted information sessions and social events among international students.

LANGUAGE

Korean(native), English(fluent)