YOUNGRAE KIM

Address: Daejeon, South Korea

Phone: +82) 10-8242-3322 │ Email: youngrae.kim@kaist.ac.kr │Website**:** website link

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)   **Daejeon, Korea**
M.S. in Computer Science   Mar. 2022 – Feb.2024 (expected)
- GPA: 3.66/4.3 (3.62/4.0), Advisor: Prof. Dongman Lee
- Thesis: "Few-Shot Weather-Degraded Image Restoration" (under review).
- Full-tuition Government Scholarship for Science and Engineering

Hongik University   **Seoul, Korea**
B.S. in Computer Engineering   Mar. 2016 – Feb. 2022
- CGPA: 4.01/4.5 (3.73/4.0), Major GPA: 4.2/4.5 (3.85/4.0)
- Academic Excellence Scholarship for 7 semesters

RESEARCH INTERESTS

Domain Adaptation, Few-shot Learning, Scene/Video Understanding

PUBLICATIONS

Kim, Y.R.,* Cho, Y.G.*, Lee, D.M. "Test-Time Adaptation with Style Transfer." *In preparation for* **CVPR 2024.**

Bae, K.H.**, Kim, Y.R.,** Ahn G.O., et al. "Disentangled Video Representation Learning." *In preparation for* **CVPR 2024.**

Kim, Y.R.,* Cho, Y.G.*, Nguyen, T.T., Lee, D.M. "MetaWeather: Few-Shot Weather-Degraded Image Restoration via Degradation Pattern Matching." **AAAI 2024.** *Under review.* [Link]

Kim, Y.R.,* Cho, H.H.,* Lim, J.S.,* Lee, M.J.,* et al. "Efficient Reference-based Video Super-Resolution (ERVSR): Single Reference Image is All You Need." *IEEE/CVF Winter Conference on Applications of Computer Vision,* **WACV 2023.**[Link]

(* denotes equal contributions)

RESEARCH EXPERIENCE

KAIST CDSN Lab (Advisor: Prof. Dongman Lee)   **Daejeon, Korea**
Test-Time Adaptation with Style Transfer   Aug. 2023 – Present
- Proposed flexible transfer of the input images' styles with learnable parameters.
- Changed the target domain's style to the source's to prevent overfitting and overhead of feature distribution shift.

Few-Shot Learning on Weather-Degraded Image Restoration   Feb. 2023 – Aug. 2023
- Suggested prioritization of learning degradation patterns over background distribution by image restoration models without sufficient labeled data, assuming that degradation patterns are only the common factor among the limited few-shot images available for adaptation.
- Applied a matching network paradigm to the model to build generalized knowledge using episodic meta-learning.
- Achieved the highest performance in image restoration task; authored and submitted a paper to **AAAI 2024**.

Kyung Hee University VLL Lab (Prof. Jinwoo Choi's group)   **Suwon, Korea**
Disentangled Video Representation Learning.   May 2023 – Present
- Examined standard video modes' limitations and clarified they often prioritize the foreground while neglecting the background in videos, which leads to information loss.

KAIST CS507 AI & ML Course (Advisor: Prof. Tae-kyun Kim)   **Daejeon, Korea**
Efficient Video Super-Resolution   Apr. 2022 – Aug. 2022
- Identified the issue of low computational efficiency in existing reference-based video super-resolution task.
- Determined the suitability/sufficiency of a single frame as a reference feature instead of all frames.
- Extracted the full features of one reference frame and transferred the feature to all frames.
- Greatly improved computational efficiency with minimal performance impact; published results on **WACV 2023**.

Hongik University APL Lab (Advisor: Prof. Young Yoon)   **Seoul, Korea**
Taxi Dispatch System for Maximizing Profits   Jul. 2020 – Dec. 2021
- Processed raw sensor data; implemented and conducted experiments using realistic simulations to evaluate the effectiveness of various dispatching strategies.

ACADEMIC SERVICE

Reviewer, IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)

TEACHING ASSISTANTSHIPS

Korea Advanced Institute of Science and Technology (KAIST)   **Daejeon, Korea**
"CS206 Data Structure", School of Computing – *Best TA Award*   Fall 2022
"CS330 Operating System", School of Computing   Spring 2022

PROFICIENCY IN SKILLS

Programming: Python, C/C++, JAVA, Verilog
Frameworks: PyTorch, Docker, Triton Inference Server, gRPC

MILITARY EXPERIENCE

Honorable Discharge as a Sergeant, Republic of Korea Air Force, **Cheongju, Korea**   Apr. 2018 – Mar. 2020

REFERENCES

Dongman Lee, *Professor*, KAIST School of Computing, Vice President of KAIST (dlee@kaist.ac.kr)
Tae-Kyun Kim, *Professor*, KAIST School of Computing; Imperial College London (kimtaekyun@kaist.ac.kr)
Seunghoon Hong, *Assistant Professor*, KAIST School of Computing, (seunghoon.hong@kaist.ac.kr)
Jinwoo Choi, *Assistant Professor*, Kyung Hee University Science & Engineering (jinwoochoi@khu.ac.kr)