

# Gwanghan Lee

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## EDUCATION

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### Sungkyunkwan University (SKKU)

MS in Department of Artificial Intelligence

Suwon, Korea

03/2020 – 08/2023 (anticipated graduation)

### Konkuk University

BS/MS in Organic and Nano System Engineering

Seoul, Korea

03/2021 – 02/2019

## PUBLICATIONS

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### International Conference

1. **"A-ColViT: Real-time Interactive Colorization by Adaptive Vision Transformer."**  
Gwanghan Lee\*, Saebyeol Shin\*, Donggeun Ko, and Simon S. Woo.  
International Workshop on Practical Deep Learning in the Wild at AAAI, 2023.
2. **"Accelerating CNN via Dynamic Pattern-based Pruning Network."**  
Gwanghan Lee, Saebyeol Shin, and Simon S. Woo.  
ACM International Conference on Information & Knowledge Management (CIKM), 2022.
3. **"EMGNet: Efficient Multi-Scale Feature Generation Adaptive Network."**  
Gwanghan Lee, Minha Kim, Minha Kim, and Simon S. Woo.  
International Conference on Information and Knowledge Management (CIKM), 2021.
4. **"Exploring Group Sparsity using Dynamic Sparse Training"**  
Geunhye Jo, Gwanghan Lee, and Dongkun Shin.  
IEEE International Conference on Consumer Electronics Asia (ICCE-Asia), 2020.

### International Journal

1. **"Development of fashion recommendation system using collaborative deep learning"**  
Gwanghan Lee\*, Sungmin Kim\*, and Chang Kyu Park\*.  
International Journal of Clothing Science and Technology (IF = 1.15), 2022.

### Domestic Conference

1. **"Efficient Multi-Scale Feature Generation Network."**  
Gwanghan Lee, Saebyeol Shin, and Simon S. Woo.  
Korea Computer Congress (KCC), 2022.
2. **"Gradual Group-level Pruning with Dynamic Sparse Training"**  
Gwanghan Lee, and Dongkun Shin.  
Korea Computer Congress (KCC), 2020.

\* Equal contributions

## WORK EXPERIENCE

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### SK Telecom AI Fellowship

Research Intern

Pangyo, Korea

06/2022 – 11/2022

- Developed user-interactive, context/instance adaptive colorization model to colorize and restore grayscale images of historically significant events in Korea such as independence movements, Korean War, and democratization protests.
- Won an order for the 3rd year project to restore the old image from the Jeollanam-do Provincial Office supervised by the Ministry of Culture, Sports and Tourism.
- Published 1 conference paper and 1 patent during the project.

## PROJECT EXPERIENCE

### Object Detection in Satellite Images

Hanwha System / ICT

Industry-Academic Cooperation Researcher

05/2022 – 11/2022

- Contributed to the development of a rotated object detection network on satellite datasets.

### Solving Mathematical Problems using NLP Technology

IITP

Research on model compression

07/2021 – 05/2022

- Constructed efficient deep learning models to solve mathematical problems that understands the context of natural language with improved inference speed compared to existing deep learning models.

### Software Framework for Intelligent IoT Devices

IITP

Research on model compression

03/2020 – 01/2021

- Contributed to the development of efficient network. (pruning, knowledge distillation, optimization)

## AWARDS AND HONORS

### International Awards

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|--|--------------|
| • <b>Gold medal (9th/828), Sound Classification,</b> BirdCLEF 2022                               | Kaggle, 2022 |
| • <b>Silver medal (21st/1565), Image Segmentation,</b> UW-Madison GI Tract Image Segmentation    | Kaggle, 2022 |
| • <b>Silver medal (41st/874), Image Captioning,</b> Bristol-Myers Squibb – Molecular Translation | Kaggle, 2021 |
| • <b>Bronze medal (137th/1636), Regression,</b> COVID-19 mRNA Vaccine Degradation Prediction     | Kaggle, 2020 |
| • <b>Bronze medal (243th/2618), Classification,</b> University of Liverpool - Ion Switching      | Kaggle, 2020 |
| • <b>Bronze medal (113th/1538), Object Detection,</b> Understanding Clouds from Satellite Images | Kaggle, 2019 |

### Domestic Awards

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|---|----------------------|
| • <b>2nd Place, Image Colorization,</b> SKT AI Fellowship                                     | SKT, 2022            |
| • <b>1st Place, Super Resolution,</b> Camera Image Quality Improvement AI Competition         | LG AI Research, 2021 |
| • <b>1st Place, Object Detection,</b> SKT CCTV Security Video Image Object Detection          | SKT, 2021            |
| • <b>1st Place, Video Classification,</b> 2021 Pangyo AI Challenge                            | AICONNECT, 2021      |
| • <b>1st Place, Topic Classification,</b> News topic classification using KLUE data           | DACON, 2021          |
| • <b>2nd Place, Anomaly Detection,</b> Electrical energy quality classification AI Contest    | NIPA, 2021           |
| • <b>2nd Place, Image Classification,</b> Ego-Vision Hand Gesture Recognition AI Competition  | NIA/DACON, 2021      |
| • <b>Awards (KRW 273M in support),</b> 2021 AI Grand Challenge 5th                            | IITP, 2021           |
| • <b>3rd Place, Regression,</b> Collider detection AI contest using vibration data            | KAERI/DACON, 2020    |
| • <b>2nd Place, Regression,</b> Bio-Optical Data Analysis AI Contest                          | AI i-CON/DACON, 2020 |
| • <b>3rd Place, Regression,</b> AI Challenge for temperature estimation using public data     | KIMM/DACON, 2020     |
| • <b>2nd Place, Regression,</b> Jeju BigData Competition                                      | JTP/DACON, 2019      |
| • <b>3rd Place (leaderboard 5th), Recommender System,</b> Kakao brunch article recommendation | KAKAO, 2019          |

### Scholarships

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|--|------|
| • SKKU Best Paper Scholarship          | 2022 |
| • SKKU Academic Excellence Scholarship | 2022 |
| • SKKU Best Paper Scholarship          | 2021 |
| • SKKU Academic Excellence Scholarship | 2021 |

## **TEACHING EXPERIENCE**

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### **Undergraduate Research Program**

**Seoul, Korea**

*Deeplearning Project Mentort*

*03/2021 – 12/2021*

- Lecture on the entire pipeline from image pre-processing, modeling, and post-processing.
- A Guide to Deepfake Detection Research.
- A Guide to Efficient Deepfake Detection Research.

## **PROFICIENCY IN SKILLS**

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**Programming/Framework:** Python, Pytorch, LaTeX (all advanced)

**Languages:** Korean (native fluency)