

# Saebyeol Shin

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## EDUCATION

**Sungkyunkwan University (SKKU)**

*BS in Data Science*

*BS in Computer Science and Engineering*

**Seoul, Korea**

*03/2019 – Current*

## PUBLICATIONS

1. Lee, G.H.\*, Shin, S.B.\*, Ko, D.G., Jung, J.Y., and Woo, S.S. **"A-ColViT: Real-time Interactive Colorization by Adaptive Vision Transformer."** International Workshop on Practical Deep Learning in the Wild at AAAI, 2023.
2. Shin, S.B., Woo, S.S. **"Deepfake Detection using Effective Mask Attention."** Korean Artificial Intelligence Association (KAIA), 2023.
3. Lee, G.H., Shin, S.B., and Woo, S.S. **"Accelerating CNN via Dynamic Pattern-based Pruning Network."** ACM International Conference on Information & Knowledge Management (CIKM), 2022.
4. Lee, G.H., Shin, S.B., and Woo, S.S. **"Efficient Multi-Scale Feature Generation Network."** Korea Computer Congress (KCC), 2022.
5. Lee, S.J.\*, Ko, D.G.\*, Park, J.Y., Shin, S.B., Hong, D.H., and Woo, S.S. **"Deepfake Detection for Fake Images with Facemasks."** ACM Workshop on the Security Implications of Deepfakes and Cheapfakes (WDC), 2022.
6. An, J.J.\*, Kim, J.H.\*, Lee, H.B., Kim, J.B., Kang, J.H., Kim, M.H., Shin, S.B., Hong, D.H., and Woo, S.S. **"VFP290K: A Large-Scale Benchmark Dataset for Vision-based Fallen Person Detection."** Neural Information Processing Systems (NeurIPS), 2021.

\* Equal contributions

## RESEARCH EXPERIENCE

**SKKU DASH Lab**, Department of Artificial Intelligence

**Suwon, Korea**

*Research Assistant (Advisor: Prof. Simon S. Woo)*

*06/2021 – 01/2023*

- Established a pruning network to preserve the advantages of both static and dynamic networks, enhancing the kernel's representational power and achieving acceleration; Patent No. 10-2023-0038133 (Date of Patent: Mar. 3, 2023)
- Excellence Undergraduate Research Project (A+ for whole participation – 2021 fall & 2021 winter & 2022 spring): Examined deepfake detection methods with manipulated images to prevent privacy invasion/security threats.

## WORK EXPERIENCE

**SK Telecom AI Fellowship**

**Pangyo, Korea**

*Modeling & Application Development Intern*

*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. Patent No. 10-2023-0000445 (Date of Patent: Jan. 2, 2023)

## PROJECT EXPERIENCE

**ChatGPT-Powered Project.**

**WRTN Technologies/SKKU**

*Prompt Engineer/Frontend Developer*

*03/2023 – 06/2023*

- [WRTN Prompthon] Developed tools that help preparing job interview by prompt engineering on GPT-4.
- [SWE3002] Provided a web service for users who want to develop their Python programming skills, helping them to learn and solve problems by providing GPT-3-generated hints.

**Restoring grayscale images of Korean War Veterans using AI Technology.**  
*Research on Image Colorization & Super Resolution (MOU project)*  
• Developed AI technology for restoring historical images of Korean War Veterans.

**Ministry of Patriots and Veterans Affairs (MPVA)**  
02/2023 – 06/2023

**Object Detection in Satellite Images**  
*Industry-Academic Cooperation Researcher*

**Hanwha System/ICT**  
05/2022 – 09/2022

- Contributed to the development of a rotated object detection network on satellite SAR datasets.
- “Real-time rotated object detection model for SAR image”, SW copyright No. C-2022-049663 (Date: Dec. 1, 2022)

**Solving Mathematical Problems using NLP Technology**

**Institute for ICT Promotion (IITP)**

*Researcher, 5<sup>th</sup> AI Grand Challenge*

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.
- Distributed open-source software such as web and applications and demonstrated the solutions for math problems.

**Abnormal Behavior Detection in CCTV using Object Detection Algorithm**

**IITP**

*Researcher, 4<sup>th</sup> AI Grand Challenge*

06/2021 – 12/2021

- Developed a novel, large-scale dataset in various real-world scenarios for the robust detection of fallen people.
- Published a research paper on the usefulness of the dataset to research fallen person detection, which can further extend to other applications such as intelligent CCTV or monitoring systems.

## **AWARDS AND HONORS**

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### **[Awards]**

- 2<sup>nd</sup> Place, WRTN Prompthon (“Prompt”+“Hackathon”), WRTN Technologies Inc. 06/2023
- 3<sup>rd</sup> Place (Bronze Award), Dean Award in AI Project Course, Department of Software 12/2022
- 3<sup>rd</sup> Place, 2022 Capstone Design Competition, Department of Software 12/2022
- 2<sup>nd</sup> Place (Grand Prize), SKT AI Fellowship 11/2022
- 4<sup>th</sup> Place (top 1.5%), Natural Language-based Climate Technology Classification AI Competition, DACON 08/2021
- Research Grant Winner, 5<sup>th</sup> AI Grand Challenge, IITP 07/2021
- 1<sup>st</sup> Place (Grand Prize), Sungkyunkwan University Convergence Project 08/2020

### **[Scholarships]**

- AAAI-23 Student Scholarship 02/2023
- SIGIR Student Travel Grants for CIKM 2022 10/2022
- SKKU Student Success Changeui Scholarship (100% tuition support) 06/2022
- SKKU Student Success Didimdol Scholarship 10/2020
- SKKU Academic Excellence Scholarship (70% tuition support) 02/2020
- Mega Study Scholarship (external) 05/2019

## **TEACHING EXPERIENCE.**

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**K-Software Empowerment BootCamp**

**Pangyo, Korea**

*Teaching Assistant*

06/2023

- Delivered lectures on foundational topics of Neural Networks, including Linear Regression, Deep Learning, CNN models, RNN, LSTM, and Attention mechanisms.

**SKKU Summer Data Science BootCamp: Python Programming**

**Seoul, Korea**

*Teaching Assistant*

07/2020 – 08/2020

- Lectured on Python to enhance students’ academic competencies and python programming skills.

## **LEADERSHIP & EXTRACURRICULAR ACTIVITIES**

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**SKKU Convergence Project for Smart University Life during COVID-19**

**Suwon, Korea**

*Team Leader*

07/2020 – 09/2020

- Provided “Take Eat Easy,” a group food order service to reduce the burden of expensive delivery fee for students.

**SKKU Institute of Broadcast Research****Seoul, Korea***Member, Content Planning Department**03/2019 – 03/2020*

- Studied and filmed short movies and commercials with team members.
- Organized and participated in various campus activities and events such as welcoming party and student festivals.

**SKKU Global Buddy Program****Seoul, Korea***Global Buddy Assistant Leader**09/2019 – 12/2019*

- Assisted exchange and international students adjust to the Korean culture, society, and university campus life.

**PROFICIENCY IN SKILLS**

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**Computer/Programming:** Python, C, JAVA, R, LaTeX (all advanced)**Languages:** Korean (native fluency), English (full professional proficiency)