

Saebyeol Shin

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EDUCATION

Sungkyunkwan University (SKKU)

B.S. in Data Science

B.S. in Computer Science and Engineering

Seoul, Korea

03/2019 – 08/2023

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

Visual Informatics Group (VITA) @ University of Texas at Austin

Austin, Texas

Research Assistant (Advisor: Prof. Atlas Wang)

07/2023 – Current

- Working on research project to gain a comprehensive understanding of the correlation between sparsity and robustness

Data-driven AI & Security HCI Lab (DASH) @ SKKU

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

Restoring grayscale images of Korean War Veterans using AI Technology.

Ministry of Patriots and

Research on Image Colorization & Super Resolution (MOU project)

Veterans Affairs (MPVA)

- Developed AI technology for restoring historical images of Korean War Veterans.

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

Researcher, 5th AI Grand Challenge

Institute for ICT Promotion (IITP)

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

Researcher, 4th AI Grand Challenge

IITP

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

[Awards]

- 2nd Place, (Grand Prize), Co-Data Station Datathon, President Award of AI Convergence and Open Sharing System 07/2023
- 2nd Place, WRTN Prompthon (“Prompt”+“Hackathon”), WRTN Technologies Inc. 06/2023
- 3rd Place (Bronze Award), Dean Award in AI Project [SWE3032], Department of Software 12/2022
- 3rd Place, 2022 Capstone Design Project Competition [SWE3028], Department of Software 12/2022
- 2nd Place (Grand Prize), SKT AI Fellowship 11/2022
- 4th Place (top 1.5%), Natural Language-based Climate Technology Classification AI Competition, DACON 08/2021
- Research Grant Winner, 5th AI Grand Challenge, IITP 07/2021
- 1st 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.

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

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

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