Saebyeol Shin

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EDUCATION

Sungkyunkwan University (SKKU) **Seoul, Korea**
BS in *Data Science* *03/2019 – 08/2023 (anticipated graduation)*
BS in *Computer Science and Engineering*

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 Facem asks."** 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.
- "An inference method using a dynamic pruning filter in a CNN model, and an inference device performing the method", Patent No. 10-2023-0038133 (Date of Patent: Mar. 3, 2023)

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.
- "Image Colorization Method", Patent No. 10-2023-0000445 (Date of Patent: Jan. 2, 2023)

PROJECT EXPERIENCE

Restoring grayscale images of Korean War Veterans using AI Technology. **Ministy of Pariots and Veterans Affairs (MPVA)**
Research on Image Colorization & Super Resolution (MOU project) *02/2023 – Current*

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

Object Detection in Satellite Images **Hanwha System/ICT**

Industry-Academic Cooperation Researcher *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)

Excellence Undergraduate Research Project **SKKU**

Researcher, (A+ for whole participation – 2021 fall & 2021 winter & 2022 spring). *08/2021 – 06/2022*

- Examined efficient deepfake detection methods with manipulated images to prevent privacy invasion/security threats.

Solving Mathematical Problems using NLP Technology **Institute for ICT Promotion (IITP)**

Researcher, 5th 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, 4th 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

[Awards]

- Bronze Award, Dean Award in AI Project Course, Department of Software *12/2022*
- 3rd Place, 2022 Capstone Design Competition, Department of Software *12/2022*
- Grand Prize (2nd Place), SKT AI Fellowship *11/2022*
- 4th Place (top 1.5%), Natural Language-based Climate Technology Classification AI Competition, Green Technology Center / DACON *08/2021*
- Research Grant Winner, 5th AI Grand Challenge, IITP *07/2021*
- Grand Prize (1st Place), 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.

SKKU Summer Data Science Bootcamp: Python Programming **Seoul, Korea**

Teaching Assistant *07/2020 – 08/2020*

- Lectured on Python to enhance students' academic competencies and software 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)