

Saebyeol Shin

Website: <https://saebyeolshin.github.io>

Email: toquf930@g.skku.edu

EDUCATION

Sungkyunkwan University (SKKU)

BS in Data Science (Major GPA: 3.93/4.0)

BS in Computer Science and Engineering (Major GPA: 3.95/4.0)

Seoul, Korea

03/2019 – Present

PUBLICATIONS

1. Shin, S.B. and Woo, S.S. “**MaskDF: Adaptive Mask Attention for Effective Deepfake Detection in the Surveillance System.**” IEEE International Conference on Advanced Video and Signal-Based Surveillance (AVSS), 2022. *Under Review*
2. 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.
3. Lee, G.H., Shin, S.B., and Woo, S.S. “**Efficient Multi-Scale Feature Generation Network.**” Korea Computer Congress (KCC), 2022.
4. 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.**” Workshop on the Security Implications of Deepfakes and Cheapfakes (WDC), 2022.
5. An, J.J.*, Kim, J.H.*, Lee, H.B., Kim, J.B., Kang, J.H., Kim, M.H. Shin, S.B., Hong, D.H., Woo, S.S., et al. “**VFP290K: A Large-Scale Benchmark Dataset for Vision-based Fallen Person Detection.**” Neural Information Processing Systems (NeurIPS), 2021.

* Equal contributors

RESEARCH EXPERIENCE

SK Telecom AI Fellowship

Modeling & Application Development Intern

Pangyo, Korea

06/2022 – Present

- Develop a deep learning-based adaptive colorization model to colorize and restore gray images, archives, and records of historically significant events in Korea such as independence movements, Korean War, and democratization protests.
- Build a user-interactive, context/instance-adaptive colorization model to solve ill-posed problems and color bleeding to restore images more accurately and closely to the original in the image colorization task.

SKKU DASH Lab, Department of Artificial Intelligence

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

Suwon, Korea

06/2021 – Present

- Established a pruning network to preserve the advantages of both static and dynamic networks, enhancing the kernel's representational power and achieving acceleration.
- Built an early-exit network to reduce the redundancy of architecture and generate multi-scale features, improving the overall performance.
- Examined efficient deepfake detection methods with manipulated images to prevent privacy invasion/security threats.

PROJECT EXPERIENCE

Object Detection in Satellite Images

Industry-Academic Cooperation Researcher

Hanwha System / ICT

05/2022 – Present

- Contribute to the development of an efficient rotated object detection network on SAR datasets.

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.
- Created and augmented various elaborate mathematical questions to enhance the model performance.
- 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 (VFP290K) for the robust detection of fallen people from images collected in various real-world scenarios.
- Published a research paper on NeurIPS (#5) 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]

- *4th Place (top 1.5%),* Natural Language-based Climate Technology Classification AI Competition, *08/2021*
Green Technology Center/ DICON
- *Research Grant Winner, 5th AI Grand Challenge,* Institute for ICT Promotion *07/2021*
- *Grand Prize,* Sungkyunkwan University Convergence Project *08/2020*

[Scholarships]

- 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 Coding

Seoul, Korea

Teaching Assistant

07/2020 – 08/2020

- Lectured on Python to enhance students' academic competencies and creative software skills.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

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, weekly dinners, monthly field trips, 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.
- Taught Korean language to exchange students and learned English by participating in language exchange programs.

PROFICIENCY IN SKILLS

Computer/Programming: Python, C, JAVA, R, LaTeX (all advanced)

Framework: PyTorch, TensorFlow

Languages: Korean (native fluency), English (full professional proficiency)