

Saebyeol Shin

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Interests

COMPUTER VISION · DEEP LEARNING · MACHINE LEARNING

My research broadly lies in the areas of computer vision. Specifically, I would like to advance the performance as well as the efficiency of models

Education

Sungkyunkwan University (SKKU)

Seoul, South Korea

B.S. IN DATA SCIENCE

B.S. IN COMPUTER SCIENCE AND ENGINEERING

Mar. 2019 - present

Publication

c3 "Efficient Multi-Scale Feature Generation Network"

Gwanghan Lee, **Saebyeol Shin**, Simon S. Woo.

Korea Computer Congress (**KCC**), 2022

c2 "Deepfake Detection for Fake Images with Facemasks"

Sangjun Lee*, Donggeun Ko*, Jinyong Park, **Saebyeol Shin**, Donghee Hong, Simon S. Woo.

Workshop on the security implications of Deepfakes and Cheapfakes (**WDC**), 2022 [PDF]

c1 "VFP290K: A Large-Scale Benchmark Dataset for Vision-based Fallen Person Detection"

Jaeju An*, Jeongho Kim*, Hanbeen Lee, Jinbeom Kim, Junhyung Kang, Minha Kim, **Saebyeol Shin**, Minha Kim, Donghee Hong, Simon S. Woo.

Neural Information Processing Systems (**NeurIPS**), 2021 [PDF], [CODE], [SITE]

WORK IN PROGRESS

c4 "Accelerating CNN via Dynamic Pattern-based Pruning Network"

Gwanghan Lee, **Saebyeol Shin**, Simon S. Woo.

ACM International Conference on Information & Knowledge Management (**CIKM**), 2022

Status : Under Review

Research Experience

DASH Lab (Advisor: Simon S. Woo)

SKKU

RESEARCH INTERN

Jun. 2021 - present

- Participated Undergraduate Research Program 3 times
- Conducted research on dynamic pruning methods, preserving valuable information of each image while reducing computational cost by utilizing various filters.
- Conducted research on Detecting deepfake images with manipulated images from zoom online meeting to prevent invasion of privacy or threat of security.

Internship

SKT AI Fellowship

SK Telecom

MODELING & APPLICATION

Jun. 2022 - present

- Developed deep learning based adaptive colorization model to colorize historical gray scale images containing various situations

Project

Research on Object Detection in Satellite Images

Hanwha System / ICT

INDUSTRY-ACADEMIC COOPERATION RESEARCHER

Apr. 2022 - present

- Contributed to the development of rotated object detection network

Research on Solving Mathematical Problems Using NLP Technology

IITP

RESEARCHER (5TH AI GRAND CHALLENGE)

Jul. 2021 - Jul. 2022

- Developed 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.
- Generated and augmented various elaborate mathematical questions to enhance the model performance.
- Distributed open source software such as web and application demo, demonstrating the results of math-problem-solver.

Research on Abnormal Behavior Detection in CCTV Using Object Detection Algorithm

IITP

RESEARCHER (4TH AI GRAND CHALLENGE)

Jun. 2021 - Jul. 2022

- Created a novel, large-scale dataset (VFP290K) for the robust detection of fallen people composed of fallen people images collected in various real-world scenarios.
- Published paper to NeurIPS implying the usefulness of the dataset for research on fallen person detection, which can further extend to other applications, such as intelligent CCTV or monitoring systems.

Honors & Awards

AWARDS

2021 **Awards (273M KRW of research funding)**, 5th AI Grand Challenge

IITP

2021 **4th Place (Top 1.5%)**, Natural Language-based Climate Technology Classification AI Competition

Green Technology
Center / DACON

2020 **Grand Prize**, Convergence Basic Project (3M KRW)

SKKU

SCHOLARSHIP

2022 **Student Success Changeui Scholarship Award**, 100% of tuition

SKKU

2020 **Academic Excellence Scholarship**, 70% of tuition

SKKU

Extracurricular Activity

Convergence Basic Project on Wise University Life During the COVID-19

SKKU

TEAM LEADER

Jul. 2020 - Aug. 2020

- Provided "Take Eat Easy"; the group purchase service of delivery foods to reduce the burden of expensive delivery fee for single student.

2020 Summer Data Science Bootcamp : Python Coding Camp

SKKU

CORE MEMBER

Jul. 2020

- Provided basic lecture on python to enhance academic and creative software competencies / skills of students.

Sungkyunkwan University Institute of Broadcast Research

SKKU

MEMBER OF CONTENT PLANNING DEPARTMENT

Mar. 2019 - Mar. 2020

- Studied and filmed short movies and commercials with team members.
- Organized and participated in various activities and events such as welcoming party, weekly dinners, monthly field trips, and student festival

Sungkyunkwan University Global Buddy Assistant

SKKU

GLOBAL BUDDY ASSISTANT LEADER

Sep. 2019 - Dec. 2019

- Helped exchange students adjust to Korean culture and campus life.
- Taught Korean and learned English by participating in language exchange programs.

Various Volunteer Activities (Total: 67 hours)

VOLUNTEER

Apr. 2019 - May 2020

- Helped caring the ill elderly to eat, wash, do laundry etc.
- Taught Math and English to children in community child care centers.
- Weaved cloth face mask for blind people.
- Made doll / toys for children in poverty

Skills

Framework Pytorch, Tensorflow

Programming Languages Python, C, JAVA, R, LaTeX

Languages Korean, English