

Donggeun Ko

APPLIED ARTIFICIAL INTELLIGENCE · MOLECULAR BIOTECHNOLOGY

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Education

Sungkyunkwan University (SKKU)

MSC. IN APPLIED ARTIFICIAL INTELLIGENCE

Suwon, S.Korea

Mar. 2022 - Present

- GPA: 4.19/4.5
- **Interest:** Computer Vision, Generative AI, Debiasing, Multi-Modal

Ghent University Global Campus (GUGC)

B.S. IN MOLECULAR BIOTECHNOLOGY

Incheon, S.Korea & Gent, Belgium

Aug. 2015 - Aug. 2021

- Belgium ECTS Score: 14.6/20 (Cum Laude)
- Received academic scholarship for academic excellence (top 10%).
- **Thesis:** Interpreting Neural Networks Trained for Detecting Translation Initiation Sites in DNA Sequences with Adversarial Inputs
Advised by: Dr. Utku Ozbulak, Prof. Wesley De Neve

Experience/Internship

SKT AI Fellowship

INTERN FELLOWSHIP

Seoul, S.Korea

Jun. 2022 - Nov. 2022

- Develop deep learning model to colorize past historical gray scale images of South Korea backgrounds (war, riots, daily life).
- Won the Grand Prize

Undergraduate Research, Centre for Biosystems and Biotech Data Science (Prof. dr. Wesley De Neve)

RESEARCHER

Incheon, S.Korea

Jul. 2020 - Aug. 2020

- Researched on detecting translation initiation sites in DNA sequences using Deep Learning models

Undergraduate Research, Plant Biotechnology Research Centre (Prof. dr. Hoo Sun Chung)

RESEARCHER

Incheon, S.Korea

June. 2020 - Jul. 2020

- Researched on recombinant DNA preparation and functional assays for metabolic pathways in Arabidopsis Protoplasts

Undergraduate Research, Biomedical Research Centre (Prof. dr. Magdalena Radwanska)

RESEARCHER

Incheon, S.Korea

Dec. 2019

- Researched on magnetic-beads based purification of apoptotic B cell lymphomas

Extracurricular Activity & Teaching

Pseudo Lab Text-to-Image Generation Paper/Code Contributor

CONTRIBUTOR & LEARNER

Suwon, S.Korea

May. 2023 - Dec. 2023

- Review papers and code related to image generation and generative AI and conducted various experiments by fine-tuning diffusion based models

Application and Foundation of AI

TEACHING ASSISTANT

Suwon, S.Korea

Mar. 2023 - Dec. 2023

- Teaching Assistant for Application and Foundation of AI course for Spring Semester 2023, Summer school 2023.

NH Nonghyup Data Science Project Special Lecture

TEACHING ASSISTANT

Seoul & Suwon, S.Korea

May. 2023 - July. 2023

- Teaching assistant and project guidance manager for NH Nonghyup Data Science Project for employees in NH.

Executive Student Council, Ghent University Global Campus

VICE PRESIDENT, SENIOR STUDENT REPRESENTATIVE, SPOKESPERSON

Incheon, S.Korea

Sept. 2020 - Jun. 2021

- Lead the university and bridged the connection between students and professors as a member of executive student council.

University Ambassador, Ghent University Global Campus

MEMBER

Incheon, S.Korea

Sep. 2020 - Jun. 2021

- Represented the university and assisted advertising the university.

Summer & Fall Academic Tutoring

LECTURER/TUTOR

- Taught university Physics I and II course in Ghent University Global Campus over the Summer and Fall.

Incheon, S.Korea

Jun. 2019 - Nov. 2019

Winter Academic Tutoring

LECTURER/TUTOR

- Taught Physics II full course in Ghent University Global Campus over the Winter break.

Incheon, S.Korea

Dec. 2019 - Feb. 2020

Honors & Awards

2023	Scholarship , Academic Scholarship from Convergence Program for Social Innovation	<i>Seoul, S.Korea</i>
2023	Best Paper (AI and Agents) , SAC2023 Best Paper Award, MGCMA: Multi-scale Generator with Channel-wise Mask Attention to generate Synthetic Contrast-enhanced Chest Computed Tomography	<i>Tallinn Estonia</i>
2022	Grand Prize , 4th SKT AI Fellowship	<i>Seoul, S.Korea</i>
2021	1st Place , 4th AI Grand Challenge Phase 3 Track 1 - Minister's Award	<i>Seoul, S.Korea</i>
2019	Scholarship , Academic Merit-Based Scholarship	<i>Incheon, S.Korea</i>

Projects

Colorize past historical Korean grayscale images into colored images via Deep learning models

Suwon, S.Korea

ASSISTANT RESEARCHER

July. 2022 - Dec. 2022

- In collaboration with SKT SuperNova team, developed a deep learning model that can automatically colorize grayscale images of South Korean backgrounds including war, riots and daily life.

Detecting rusts and contamination in trusses of Korean Bridges

Suwon, S.Korea

LEADER/HEAD RESEARCHER

Mar. 2023 - Jun. 2023

- In collaboration with Ko-mapper, utilized pre-trained object detection and segmentation models to detect rusts and contamination in trusses of Korean bridges via fine-tuning and data-engineering.

Anomaly Detection for Contrast Enhanced Computed Tomography Images in Lung Settings

Suwon, S.Korea

LEADER/HEAD RESEARCHER

May. 2022 - Dec. 2023

- In collaboration with Gangbuk Samsung Hospital (Prof. Yoongyu Lee and Sooyeon Ham), developed one-class anomaly detection model to detect CT images with lung lesions.

Discovering and classifying possible side-effects for Pembrolizumab medication using AI

Suwon, S.Korea

LEADER/HEAD RESEARCHER

May. 2022 - Dec. 2023

- In collaboration with PEPV laboratory, SKKU, developed an artificial intelligence-based adverse drug reaction prediction model using the WHO-Vigibase-based global database

A study on artificial contrast enhancement in chest computed tomography (CT) using deep learning

Suwon, S.Korea

ASSISTANT RESEARCHER

Nov. 2021 - Current

- In collaboration with doctors of Gangbuk Samsung Hospital (Prof. Yoongyu Lee and Sooyeon Ham), developed a model to generate synthetic CECT images from NCCT images for patients who have potential side-effect for iodinated contrast media.

Publications

AmpliBias: Mitigating Dataset Bias through Bias Amplification in Few-shot Learning for Generative Models

Birmingham, UK

CONFERENCE ON INFORMATION AND KNOWLEDGE MANAGEMENT (CIKM), 2023

October 21-25, 2023

First author

MGCMA: Collaboration between Radiologist-AI in Generating Synthetic Contrast-enhanced Chest Computed Tomography from Non-contrast Images using Multi-scale Generator with Channel-wise Mask Attention

Tallinn Estonia

ACM/SIGAPP SYMPOSIUM ON APPLIED COMPUTING, (SAC), 2023

March 27-31, 2023

Second author, **Best Paper Award (AI and Agents)**

A-ColViT: Real-time Interactive Colorization by Adaptive Vision Transformer

Washington DC, USA

AAAI CONFERENCE ON ARTIFICIAL INTELLIGENCE (AAAI), 2023 WORKSHOP

February 13-14, 2023

Second author

A²: Adaptive Augmentation for Effectively Mitigating Dataset Bias

ASIAN CONFERENCE ON COMPUTER VISION (**ACCV**), 2022

Second author

Macau SAR, China

December 4-8, 2022

Deepfake Detection for Facial Images with Facemasks

ACM ASIACCS, WORKSHOP ON THE SECURITY IMPLICATIONS OF DEEPPAKES AND CHEAPPAKES, (**WDC**), 2022

First author

Nagasaki, Japan

May 30, 2022

Analysis of Obfuscation of Deepfake Images in Differential Privacy Settings

KOREAN ARTIFICIAL INTELLIGENCE ASSOCIATION **KAIA**, 2022

First author

South Korea

November 17-19, 2022

Skills

Programming Python, PyTorch, Tensorflow, LaTeX, R

Languages Korean (Native), English (Fluent) (TOEFL: 102, TOEIC: 975, OPIc: AL), Filipino