Sang-Kyun Ko (고상균, 高像均)

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Google scholar | Linkedin

EDUCATION

advanced Application for Intelligence systems Lab.(aAIs Lab), HanYang University (HYU), Seoul, Korea [link]
Year of completion: September 2019 - February 2022, September 2023 - February 2024

- M.S degree in **Department of Computer Science**
- Thesis: 'Learning to Directly Maximize Evaluation Metrics: Focus on Matching Efficiency and Concordance Index' [link]
- GPA 3.33 / 4.0
- Teaching Assistent: Artificial Intelligence (CSE4007), Automata Theory (ITE3061), Discrete Mathematics (MAT2020), Creative Software Programming, C++ (ITE1015)
- 2022, Led research on utilizing censored data as training data in survival analysis
- 2020, Collaborative Research with Particle Physics: Identifying additional b-jets in $t\bar{t}b\bar{b}$ process
- Advisor: Prof. Yung-Kyun Noh

System Software Research Lab.(SSR Lab), Sun Moon University, Asan, Korea
(currently changed to Intelligent System and Software Research Lab., CBNU) [link]
Year of completion: March 2013 - February 2019

- B.S degree in **Department of Computer Science**
- Graduation Project: 'The Search System Using Deep Learning for Object Search in Multimedia.'
- GPA 3.35 / 4.5
- 2017, **Student Excellence Scholarship**
- Advisor: Prof. BongJae Kim

SHORT TERM EDUCATION

- February 2024, Pattern Recognition and Machine Learning Winter School 2024 (12 hours, Online) [link]
- January 2024, 3D Computer Vision and Neural Fields by Prof. Kwang Moo Yi, (9 hours, Online) [link]
- February 2021, Pattern Recognition and Machine Learning Winter School 2021 (8 hours, Online) [link]
- December 2020, The 11th KIAS CAC Online Winter School: The Parallel Computing and Artificial Intelligence (20 hours, Online) [link]
- April 2019, Launching into Machine Learning: an online non-credit course authorized by Google Cloud and offered through Coursera (14 hours, Online) [link]

EMPLOYMENT

Machine Learning Researcher
(Contract with Professor)
Oct 2023 - Ongoing
Institution: Seoul National University Bundang Hospital, SNUBH
Department: Coronary Artery AI team, Cardiovascular Center, Internal Medicine

- Coronary Angiogram X-ray Image Analysis
- 3D Reconstruction of Coronary Artery
- Estimating the Risk of Atherosclerotic Cardiovascular Disease

Machine Learning Research Engineer
(Full-time employee)
April 2022 - July 2023
Institution: AINEX
Department: Gastroscopic AI Part, Al Research and Development Team

- Endoscopic Image Generation via Diffusion Model
- Gastroscopic Image Analysis for Diagnosis
- Real-time Image classification
- Detected Object Size Estimation in Monocular Lens

Assistant Researcher
(Contract employee)
April 2019 - July 2019
Institution: Industry-University Cooperation Foundation at Sun Moon University
Department: Sytem Software Research Lab.

- Chinese Cursive Character Recognition based on Convolutional Neural Network

CONFERENCES

1. **Sang-Kyun Ko** and Yung-Kyun Noh, (2023), Data Reconstruction Method for Learning to Censored Survival Data, *Korean Artificial Intelligence Association Summer Conference, 2023*, Poster-Presentation. [Program book link], [Paper], [Poster]
2. Oh, M. J., Park, J., Jeon, J., **Ko, S. K.**, Jo, S., Kang, S., Kim, S. H., Park, S. H., Chang, Y. H., Shin, C. M., Kang, S. J., Kim, S. G., & Cho, S. J. (2023). Application of artificial intelligence in the detection of Borrmann type 4 advanced gastric cancer in upper endoscopy. *United European Gastroenterology Journal, 11*(*Supplement 8*), *pp0253, p666.*, Abstract Poster, [Abstract]
3. **Ko, S**., Kim, B., and Kim, J. D., (2018), Deep Learning based Algorithm for Object Identification in Multimedia, *The 13th KIPS International Conference on Ubiquitous Information Technologies and Applications* (*CUTE 2018*), Oral Presentation. [Program book link]

PUBLICATIONS

1. Moon, I.T.*, **Ko, SK.***, Kang, SH. et al. (2024). Augmented Reality in Cardiology: Enhancing Visualization and Precision. *Current Cardiovascular Risk Reports.* (***contributed equally to this work**.)

2. Jang, C., **Ko, S**. K., Choi, J., Lim, J., Noh, Y. K., and Kim, T. J. (2022). Learning to increase matching efficiency in identifying additional b-jets in the $t\bar{t}b\bar{b}$ process. *The European Physical Journal Plus,137(7), 1-12.*
3. **Ko, S.**, Kim, B., and Kim, J. D. (2018). Deep Learning-Based Algorithm for Object Identification in Multimedia. *In Advances in Computer Science and Ubiquitous Computing* (*pp.505-511*). *Springer, Singapore.*
4. Park, K., Hong, B., **Ko, S.**, and Kim, B. (2018). Design and Implementation of Real-Time Web Authoring Tool Based on Drag-and-Drop Method. *In Advances in Computer Science and Ubiquitous Computing* (*pp.539-543*). *Springer, Singapore.*
5. Hyeontae Seo, Boseon Hong, **Sang-Kyun Ko**, Kichoel Park, Bongjae Kim, and Hyedong Jung (2017). A survey on the performance of Deep Learning based on multiple GPUs. *Proceedings of the Korean Institute of Information Scientists and Engineers Conference, 1714-1716.*

AWARDS

- Nov 2018, **Excellence prize**, 4th Industrial Revolution Talent Development Joint Festival in the fields of Papers or Coding, awarded by *Korea Society of Information Communication Security Ethics*
- Nov 2018, **Grand Prize**, Comprehensive Competition for Union of Computer Science and Electrical Engineering, awarded by the *Department of Computer Science at Sun Moon University*
- June 2018, **Silver Prize**, Comprehensive Competition for Computer Science, awarded by the *Department of Computer Science at Sun Moon University*
- Nov 2017, **Bronze Prize**, Global capston design workshop, awarded by *Idea Factory at Sun Moon University*
- April 2017, **Excellence prize**, Idea Contest held by the President, awarded by *President of Sun Moon University*

CERTIFICATES

- May 2019, Engineer Information Processing(정보처리기사), Human Resources Development Service of Korea
- June 2016, Driver' s license, Gyeonggi Nambu Provincial Police Agency

RESEARCH INTERESTS

- Addressing theoretical and statistical issues in machine learning for big data analysis
- Exploring optimization techniques for the loss of deep learning models
- Being interested in diverse topics, including multi-modality, sequence models, and large-scale generative models

SKILLS

Programming Languages and Development Environment

- Python, C++, C, Linux, Docker, WSL, Git, SQL

Machine Learning and Deep Learning

- Pytorch, Tensorflow, Scikit-learn, Ultralytics(yolo v8)

Data Analysis and Visualization Tools and Environments

- Pandas, Numpy, Pydicom, OpenCV, Seaborn, Matplotlib, Wandb

Technical Knowledge

- Broad knowledge in computer science
- Mathematical understanding of data, machine learning, and deep learning models
- Clear communication through mathematical expressions

MILITARY SERVICE

March 2014 - December 2015
Infantry of Army, Yanggu-gun, Gangwon-do, Republic of Korea

- PRC-999K Platoon Signalman and K3 Assistant Gunner