Yunsoo Kim

Researcher · Semiconductor Research · Samsung Electronics
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Interests

My primary objective as a researcher is building visual AI models that are both practically useful and robust. Concretely, my research interests include: (i) developing effective **analysis method for three-dimensional data**, including generative model and (ii) building **large foundation models using multimodal data** and their robust adoption with few-shot or zero-shot learning.

Education

Pusan National University - Master of Science — Sep. 2020 - Aug. 2022

· Information Convergence Engineering Department (Advisor : JinKyu Gahm)
· Master Thesis : Machine Learning model for Differentiation of Atypical Parkinsonian Syndromes

Pusan National University - Bachelor of Science — Mar. 2014 - Aug. 2020

· School of Computer Science Engineering

Experience

Samsung Electronics - Researcher — Aug. 2022 - Present

· Semiconductor Research
· Nano-structure analysis using electron microscopy image

Pusan National University - Research Assistant — Mar. 2020 - Aug. 2022

· Image Computing and Machine Learning Lab
· Brain morphology analysis and disease diagnosis using medical image

KEPRI (Korea Electric Power Research Institute) - Research Intern — Sep. 2019 - Feb. 2020

· Information Communication Technology Solution Lab
· Autonomous driving robot in underground electric power station for safety inspection

Anseong Police Station - Sergeant — Jul. 2015 - Apr. 2017

· Military service

Publications

TEM image segmentation modeling for automatically measuring core structure of semiconductor device — May. 2024

· SangHo Yoon, **YunSoo Kim**, WooJin Jung, SuBong Shon, SungHo Lee, MyungJun Lee
· *Samsung Best Paper Award*

Automated Differentiation of Atypical Parkinsonian Syndromes Using Brain Iron Patterns in Susceptibility Weighted Imaging — Mar. 2022

· **YunSoo Kim**, JaeHyeok Lee, JinKyu Gahm
· *Diagnostics (link)*

Differentiating Parkinsonian Syndormes Using Distictive Brain Iron Accumulation Patterns in Susceptibility Weighted Image (SWI) — Jan. 2022

· **YunSoo Kim**, JaeHyeok Lee, JinKyu Gahm
· *IEEE International Conference on Big Data and Smart Computing (**BigComp**) (link)*

Steel surface defect classification using ResNet50 Dec. 2021

· WonJune Choi, **YunSoo Kim**, JeongWon Jo, DongHyong Lee, SeungKyu Kim, SeongSu Park, JinKyu Gahm
· *Korea Software Congress 2021 (**KSC2021**)*

Pose Classification and Correction System for At-home Workouts Sep. 2021

· JaeMin Kang, SeongSu Park, **YunSoo Kim**, JinKyu Gahm
· *Journal of the Korea Institute of Information and Communication Engineering (**JKIICE**)*

Multiple Sclerosis Lesion Detection using 3D Autoencoder in Brain Magnetic Resonance Images Aug. 2021

· WonJune Choi, SeongSu Park, **YunSoo Kim**, JinKyu Gahm
· *Journal of Korea Multimedia Society*

Surface-based Analysis of Subcortical structures in SWI for Atypical Parkinsonian Syndromes Jun. 2021

· **YunSoo Kim**, JaeHyeok Lee, JinKyu Gahm
· *Organization of Human Brain Mapping (**OHBM**) (link)*

MRI Image Super Resolution through Filter Learning Based on Surrounding Gradient Information in 3D Space Feb. 2021

· SeongSu Park, **YunSoo Kim**, JinKyu Gahm
· *Journal of Korea Multimedia Society*

Patents

Method for Training Foundation Model of Image Segmentation to Automatically Measure Geometrical Structure of Semiconductor Devices and System Platform for Generating and Managing Ground Truth Images May. 2024

· SangHo Yoon, **YunSoo Kim**, SuBong Shon, SungHo Lee, MyungJun Lee
· 2024-0109944

Method and Apparatus for Generating Basal Ganglia Mask Emphasizing Fe Component in Brain using T1 MRI and SWI, and Classification System of Atypical Parkinsonian Syndromes using the same Apr. 2024

· JaeHyeok Lee, **YunSoo Kim**, JinKyu Gahm
· 10-2662563

Automated System for EUV Throughput Evaluation and Operational Loss Analysis Using Wafer Production Yield Prediction Models Sep. 2023

· MinSeok Kim, **YunSoo Kim**, JunHyeok Park, Aryeon Choi, SangMin Hwang, GilHwan Kim, YoHwan Joo
· Pending

Steel Surface Defect Classification using Deep-Learning Program Nov. 2021

· WonJune Choi, **YunSoo Kim**, JinKyu Gahm
· 10-2021-0160398

Image aspect ratio change program Dec. 2020

· **YunSoo Kim**, JinKyu Gahm
· 10-2020-0166068

Teaching

Introduction to Computer Vision Spring 2021

AI Programming Fall 2020, Fall 2021

Introduction to Unix Programming Spring 2022

Engineering Research Practice Fall 2020, Spring 2021, Fall 2021, Spring 2022