Jaesung Yoo

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Education

M.S. in Electrical Engineering, Korea University	8. 2020 – 8. 2023
BS-MS integrated program. GPA: 4.44/4.5	(expected)
B.E. in Electrical Engineering, B.S. in Brain and Cognitive Sciences, Korea University	3. 2015 – 8. 2020
Early graduation, with great honor. GPA: 4.26/4.5	

Research Experience

Research Assistant, Massachusetts Institute of Technology (MIT)   7. 2022 – Present

Department of Brain and Cognitive Sciences, Advisor: Robert Guangyu Yang

- Research on simulating model of self in the brain through reinforcement learning.

Research Assistant, Seoul National University Hospital   2. 2021 – 3. 2022

Biomedical Informatics lab, Advisor: Kwangsoo Kim

- Publications on privacy preserving deep learning and AI in medical neuroscience. Developed deep learning training library "hideandseek".

Research Assistant, Korea University   7. 2020 – 1. 2021

Department of Electrical Engineering, Advisor: Joongheon Kim

- Developed DL human response model and RL agent in propofol anesthetic infusion.

Research Assistant, Korea University   9. 2018 – 6. 2020

Department of Computer Science, Advisor: Dongsuk Yook

- Optimized vectorized DTW to be 30% faster than existing libraries.
  Performed experiments for: Voice conversion using multi-decoder VAE-ACGAN, Accent conversion, Bandwidth extension.

Publications

Jaesung Yoo[*], Ilhan Yoo[*], Ina Youn, Sung-Min Kim, Ri Yu, Kwangsoo Kim, Keewon Kim, Seung-Bo Lee. Residual one-dimensional convolutional neural network for neuromuscular disorder classification from needle electromyography signals with explainability. Computer Methods and Programs in Biomedicine (2022). https://doi.org/10.1016/j.cmpb.2022.107079

Under Review ([*]Authors contributed equally)

Jaesung Yoo, Sunghyouk Choi, Ye Seul Yang, Suhyeon Kim, Jieun Choi, Dongkyeong Lim, Yaeji Lim, Hyung Joon Joo, Dae Jung Kim, Rae Woong Park, Hyeong-Jin Yoon, Kwangsoo Kim. Review learning: Alleviating catastrophic forgetting with generative replay without a generator. https://arxiv.org/abs/2210.09394

Ilhan Yoo[*], Jaesung Yoo[*], Dongmin Kim, Ina Youn, Hyodong Kim, Michelle Youn, Jun Hee Won, Woosup Cho, Youho Myong, Sehoon Kim, Ri Yu, Sung-Min Kim, Kwangsoo Kim, Seung-Bo Lee, Keewon Kim. Deep learning model for needle electromyography electrodiagnosis in comparison with physician assessment: A retrospective study.

Jaesung Yoo[*], Sunghyouk Choi[*], Suhwan Kim, Joongheon Kim, Kwangsoo Kim, Hyung-Jin Yoon. Transfer iterative learning in privacy preserving deep learning: a common data model study.

Presentations

Jaesung Yoo, Jeman Park, An Wang, David Mohaisen, Joongheon Kim. On the performance of generative adversarial network (GAN) variants: a clinical data study, Oral presentation at International Conference on ICT Convergence, 2020.

Good Course Styles for Undergraduates, Invited talk at orientation for new faculties, Korea University, 2019.

Department Promotional Video, Korea University school of Electrical Engineering, 2019.

Honors and Awards

AI/Robotics collaborative research program	Korea University, Korea Institute for Advancement of Technology	8. 2022 – 3. 2023
• Full expense for 8-month visiting research		
BS-MS Integrated Program Scholarship	Korea University	Fall 2020
Student Mentor Scholarship	Korea University	3. 2020 – 7. 2021
Gold Paper Award, IEEE Student Paper Contest	IEEE Seoul Section	12. 2019
Korea University Global Research Excursion Program	Korea University	2019
• Full scholarship for Silicon Valley excursion		
National Scholarship for Science and Engineering	Korea Student Aid Foundation	2019
• Full scholarship for 2 years		
Scholarship of Academic Excellence	Korea University	Fall 2015

Teaching & Leadership

Young Engineers Honors Society	National Academy of Engineering of Korea	9. 2019 – Present
International Student Mentor	Korea University	3. 2020 – 7. 2021
Vice-Captain of Swim Team	Korea University	9. 2019 – 12. 2020
Psychology Study Club	Department of Psychology, Korea University	Fall 2019
Linear Algebra Tutor	Korea University	9. 2018 – 7. 2019
• Awarded with best tutor award for two semesters		
Republic of Korea Air Force	South Korea	8. 2016 – 8. 2018
• Lead soldier of squadron, Honorable Soldier Award		

Skills

Scientific Skills

Excellent	Advanced	Basic
Deep Learning	Visualization	Electric/Electronic Circuit
Reinforcement Learning	Signal Processing	
Linear Algebra	Computer Design	

Computer Languages

Excellent	Advanced	Basic
Python (pytorch, hydra, PyPI), Notion	Latex, Inkscape, Tableau, Matlab, SQL, Docker, Git	C, Java, HTML