

Jee Seok Yoon

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📍 Vancouver, Canada



INTERESTS	Generative models and model explainability/interpretability for medical and natural images. Current Interests: <u>Diffusion Model</u> , Invertible Networks, Image Synthesis and Manipulation	
EDUCATION	University of British Columbia <i>Visiting Research Student in Dept. of Electrical and Computer Engineering</i> <i>Co-Advisor: Professor Xiaoxiao Li and Professor Heung-Il Suk</i> <i>Working on diffusion model for medical image synthesis [12]</i> Korea University (Coursework Completed Aug. 2021) <i>Ph.D. candidate in Dept. of Brain and Cognitive Engineering</i> <i>Advisor: Professor Heung-Il Suk</i> GPA: 4.18 / 4.5 (96.3 / 100) Korea University <i>Undergraduate student in Dept. of Computer Science and Engineering</i> GPA: 3.23 / 4.5 (85.5 / 100)	Vancouver, Canada Aug. 2022 – Jul. 2023 Seoul, South Korea Sep. 2018 – (Anticipated) Sep. 2024 Seoul, South Korea Mar. 2012 – Aug. 2018
SELECTED PUBLICATIONS	Jee Seok Yoon* , Chenghao Zhang, Heung-Il Suk, Jia Guo, Xiaoxiao Li, “ <u>SADM: Sequence-Aware Diffusion Model for Longitudinal Medical Image Generation</u> ,” arXiv, 2022 (Paper) <i>In order of importance</i> Jee Seok Yoon* , M.C. Roh, and H.-I. Suk, “ <u>A Plug-in Method for Representation Factorization in Connectionist Models</u> ,” <i>IEEE Transactions on Neural Networks and Learning Systems</i> , 2021 (IF 10.451 , paper , code) K. Oh*, Jee Seok Yoon* , and H.-I. Suk, “ <u>Learn-Explain-Reinforce: Counterfactual Reasoning and Its Guidance to Reinforce an Alzheimer’s Disease Diagnosis Model</u> ,” <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , 2022 (IF 16.389 , paper , code) Bum-Chae Kim*, Jee Seok Yoon* , Jun-Sik Choi, and Heung-Il Suk, “ <u>Multi-scale Gradual Integration Convolutional Neural Network for False Positive Reduction in Pulmonary Nodule Detection</u> ,” <i>Neural Networks</i> , 2019. (IF 8.050 , paper , code) Y. Ahn*, Jee Seok Yoon* , S. Lee, H.-I. Suk, J. Son, Y. Sung, Y. Lee, B.-K Kang, and H. Kim, “ <u>Deep Learning Algorithm for Automated Segmentation and Volume Measurement of the Liver and Spleen Using Portal Venous Phase Computed Tomography Images</u> ,” <i>Korean Journal of Radiology</i> , 2020 (IF 3.179 , paper)	
EXPERIENCE	Kakao Enterprise (AI Laboratory) <i>Research Intern</i> - Developed a diffusion model for natural/medical image synthesis (partial work for [12]) SK Telecom <i>Teaching Assistant</i> - Taught TensorFlow and PyTorch to employees of SK Group ranging from experts to beginners Kakao Corp. (Computer Vision Team) <i>Research Intern</i> - Mainly focused on meta-learning and few-shot learning (produced [2]) Venture Company <i>Co-founder, CTO, Backend Developer</i> - Developed the backend for a mobile dating service (currently out of business...!)	Pangyo, Gyeonggi, South Korea Mar. 2021 – Sep. 2021 Eulji-ro, Seoul, South Korea Sep. 2017 – Sep. 2020 Pangyo, Gyeonggi, South Korea Jun. 2018 – Aug. 2018 Anam, Seoul, South Korea Mar. 2013 – May. 2014
SKILLS	Python: 8+ years of daily use of Tensorflow and PyTorch (+ Very rusty on Java, C#, C++) HPC: Experience with AWS, GCP, SLURM, PBS (+ I’m in charge of our lab’s GPU clusters) Dataset: Few-shot [2], 1D (signal) [4], 2D [15], 3D [11], 4D (3D+time) [12]	

PROJECTS

CHALLENGE	SEGMENTATION	9th place in Ischemic Stroke Lesion Segmentation Challenge 2016 (Official Leaderboard , [18])
		10th place in Brain Tumor Image Segmentation Challenge 2016 ([20, 21])
APPLICATIONS	DETECTION	4th place in Lung Nodule Analysis 2016 (Official Leaderboard , under the name <i>MILAB</i> , [11])
	LCD CRACK DETECTION	Carrot Insurance PhoneCare LCD Insurance Developed smartphone LCD crack detector (News)
	FIBROSIS	SmartCarworks Inc. GoCDSS
	DIAGNOSIS	Fully automated liver, spleen segmentation and liver fibrosis diagnosis system (News , [10])

Participated as the main/1st contributor in the listed projects

AWARDS & HONORS

International Research Grant (\$34,000+\$5,000) Korea University	Seoul, South Korea Aug., Dec. 2022
Naver Ph.D. Fellowship (\$4,600) Naver Corp. (Link)	Seoul, South Korea Dec. 2021
Research Scholarship (\$1,700) Korea University (Link)	Seoul, South Korea Oct. 2021
Junior Fellow Research Grant (\$2,500) Korea University (Link)	Seoul, South Korea Jul. 2021
Fundamental Scientist Scholarship (\$22,000) JW Foundation (Link)	Seoul, South Korea Jan. 2021
Student Travel Award (\$1,000) Medical Image Computing and Computer Assisted Intervention Conference (MICCAI, link)	Quebec, Canada Sep. 2017
Best Paper Award Korean Institute of Information Scientists and Engineers (KIISE) Korea Computer Congress (KCC, link)	Jeju Island, South Korea Jun. 2017
Best Undergraduate Student Paper Award Korean Institute of Information Scientists and Engineers (KIISE) Winter Conference (Link , code)	Pyeongchang, South Korea Dec. 2016

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PUBLICATIONS

**First Author(s)*

TYPE	#	ROLE	PUBLICATIONS
JOURNAL	1	Co. 1 ST	K. Oh*, Jee Seok Yoon* , and H.-I. Suk, “ Learn-Explain-Reinforce: Counterfactual Reasoning and Its Guidance to Reinforce an Alzheimer’s Disease Diagnosis Model ,” IEEE Transactions on Pattern Analysis and Machine Intelligence, 2022 (IF 16.389 , paper , code)
	2	1 ST	Jee Seok Yoon* , M.C. Roh, and H.-I. Suk, “ A Plug-in Method for Representation Factorization in Connectionist Models ,” <i>IEEE Transactions on Neural Networks and Learning Systems</i> , 2022(IF 10.451 , paper , code)
	3	Co. 1 ST	H.J. Park*, Jee Seok Yoon* , S.S. Lee, H.-I. Suk, B. Park, Y.S. Sung, S.B. Hong, H. Ryu, “ Deep Learning-Based Assessment of Functional Liver Capacity Using Gadoteric Acid-Enhanced Hepatobiliary Phase Magnetic Resonance Imaging ,” Korean Journal of Radiology, 2022 (IF 3.179 , paper)

	4		W. Ko, E. Jeon, Jee Seok Yoon , and H.-I. Suk, " <u>Semi-Supervised Generative and Discriminative Adversarial Learning for Motor Imagery-based Brain-Computer Interface</u> ," Scientific Reports, 2022 (IF 4.380 , paper , code)
	5		S.S. Lee*, R. Park, Y.S. Sung, Jee Seok Yoon , H.-I. Suk, H.J. Kim, and S.H. Choi, " <u>Accuracy and efficiency of right-lobe graft weight estimation using deep learning-assisted CT volumetry for living donor liver transplantation</u> ," Diagnostics, 2022 (IF 3.706 , paper)
	6		E. Jeon*, W. Ko, Jee Seok Yoon , and H.-I. Suk, " <u>Mutual Information-driven Subject-invariant and Class-relevant Deep Representation Learning in BCI</u> ," <i>IEEE Transactions on Neural Networks and Learning Systems</i> , 2021 (IF 10.451 , paper)
	7		D.W. Kim*, J. Ha*, S. Lee, J.H. Kwon, N.Y. Kim, Y. Sung, Jee Seok Yoon , H.-I. Suk, Y. Lee, and B.-K. Kang, " <u>Population-based and Personalized Reference Intervals for Liver and Spleen Volumes in healthy individuals and those with viral hepatitis</u> ," <i>Radiology</i> , Vol. 301, No. 2, 2021 (IF 11.105 , paper)
	8		J.H. Kwon, S.S. Lee, Jee Seok Yoon , H.-I. Suk, Y.S. Sung, H.S. Kim, C. Lee, K.M. Kim, S.J. Lee, and S.Y. Kim, " <u>Liver-to-Spleen Volume Ratio Automatically Measured on CT Predicts Decompensation in Patients with B Viral Compensated Cirrhosis</u> ," <i>Korean Journal of Radiology</i> , 2021 (IF 3.179 , paper)
	9		C. Lee*, S.S. Lee, W.-M. Choi, K.M. Kim, Y.S. Sung, S. Lee, S.J. Lee, Jee Seok Yoon , and H.-I. Suk, " <u>An index based on deep learning-measured spleen volume on CT for the assessment of high-risk varix in B-viral compensated cirrhosis</u> ," <i>European Radiology</i> , Vol. 31, No. 5, pp. 3355-3365, 2020 (IF 5.315 , paper)
	10	Co. 1 ST	Y. Ahn*, Jee Seok Yoon* , S. Lee, H.-I. Suk, J. Son, Y. Sung, Y. Lee, B.-K. Kang, and H. Kim, " <u>Deep Learning Algorithm for Automated Segmentation and Volume Measurement of the Liver and Spleen Using Portal Venous Phase Computed Tomography Images</u> ," <i>Korean Journal of Radiology</i> , Vol. 21, No. 8, pp. 987-997, 2020 (IF 3.179 , paper)
	11	Co. 1 ST	Bum-Chae Kim*, Jee Seok Yoon* , Jun-Sik Choi, and Heung-Il Suk, " <u>Multi-scale Gradual Integration Convolutional Neural Network for False Positive Reduction in Pulmonary Nodule Detection</u> ," <i>Neural Networks</i> , Vol. 115, pp. 1-10, 2019. (IF 8.050 , paper , code)
INTERNATIONAL CONFERENCE	12	1 ST	Jee Seok Yoon* , Chenghao Zhang, Heung-Il Suk, Jia Guo, Xiaoxiao Li, " <u>SADM: Sequence-Aware Diffusion Model for Longitudinal Medical Image Generation</u> ," arXiv, 2022 (Paper)
	13		A. W. Mulyadi*, W. Jung, K. Oh, Jee Seok Yoon , and H.-I. Suk, " <u>XADLiME: eXplainable Alzheimer's Disease Likelihood Map Estimation via Clinically-guided Prototype Learning</u> ," arXiv, 2022. (Paper , code)
	14		A. W. Mulyadi, W. Jung, K. Oh, Jee Seok Yoon , and H.-I. Suk, " <u>Clinically-guided Prototype Learning and Its Use for Explanation in Alzheimer's Disease Identification</u> ," NeurIPS Workshop on Medical Imaging meets NeurIPS (MedNeurIPS), 2022 (Oral, paper)
	15	1 ST	Jee Seok Yoon* , Wonjun Ko, and Heung-Il Suk, " <u>A Plug-in Factorizer for Disentangling a Latent Representation</u> ," Proc. of 1 st <i>ICCV Workshop on Interpreting and Explaining Visual Artificial Intelligence Models</i> , Seoul, South Korea, 2019 (Poster Spotlight , link)
	16		Wonjun Ko*, Jee Seok Yoon , and Heung-Il Suk, " <u>Towards Reducing Calibration in BCI: Artificial EEGs Generation by Deep Learning</u> ," Proc. of 7 th <i>International Brain-Computer Interface Meeting</i> , Pacific Grove, USA, 2018. (Student Award , Poster, link , paper)

	17		Wonjun Ko*, Jee Seok Yoon , Eun-song Kang, Eunji Jun, Jun-Sik Choi, and Heung-Il Suk, “ <u>Deep Recurrent Spatio-Temporal Neural Network for Motor Imagery based BCI</u> ,” Proc. of 6 th <i>IEEE International Winter Conference on Brain-Computer Interface</i> , High1 Resort, Korea, 2018. (Poster, paper)
	18	1 ST	Jee Seok Yoon* , Eun-Song Kang, and Heung-Il Suk, “ <u>Gated Two-Stage Convolutional Neural Network for Ischemic Stroke Lesion Segmentation</u> ,” Proc. of 3 rd <i>MICCAI Workshop on Ischemic Stroke Lesion Segmentation Challenge (ISLES)</i> , Quebec, Canada, 2017. (<u>Student Travel Award</u> , poster, paper)
DOMESTIC CONFERENCE	19		Ahmad Wisnu Mulyadi, Wonsik Jung, Kwanseok Oh, Jee Seok Yoon , and Heung-Il Suk, “ <u>Topological-aware Prototype Learning for Estimating Explainable Alzheimer’s Disease Likelihood Map</u> ,” Proc. of 2023 <i>KIISE Winter Conference, 2023</i> (Oral)
	20	1 ST	Jee Seok Yoon* and Heung-Il Suk, “ <u>Auto-context Bagging for Brain Tumor Automatic Segmentation</u> ,” Proc. of 2017 <i>KIISE Korea Computer Congress (KCC)</i> , 2017 (<u>Best Paper Award</u> , oral, link , paper)
	21	1 ST	Jee Seok Yoon* and Heung-Il Suk, “ <u>Deep Learning-based Brain Tumor Segmentation from Multi-modal MRI</u> ,” Proc. of 2016 <i>KIISE Winter Conference</i> , 2016 (<u>Best Paper Award</u> , poster, link , paper , code)
DOMESTIC PATENT	22		Jee Seok Yoon and Heung-Il Suk*, “ <u>A Method and Device for Explainable Few-shot Image Classification</u> ,” Korean Patent, No. 10-2316678, 19 Oct. 2021 (Link)
DOMESTIC ARTICLE	23	1 ST	Jee Seok Yoon* and Heung-Il Suk, “ <u>AI-based Computer Vision Uses in Kakao Corp.</u> ,” Communications of the Korean Institute of Information Scientists and Engineers, Vol. 37, No. 2, pp. 52-55, Feb 2019 (Link)

Thank you for your interest.

