

Jihwan Eom

+82) 10-8882-1899 | jihwan.eom@yonsei.ac.kr | Yeonhui-dong, Seodaemun-gu, Seoul, Korea (03726)

Education

Mar. 2016 – 2023.Feb
(Expected) Computer Science, Yonsei University

Work Experience

- July. 2021 – Present **Deep Learning Engineer Intern, Intel Korea**
- Contributed to develop a deep learning toolbox named Openvino Training Extensions (OTE).
 - Integrated class-incremental learning model template for classification into OTE.
 - Researched semi-supervised, imbalanced learning for classification/segmentation task.
 - Pioneered semi-supervised learning to work well even in very difficult situations (under 10 labels).
 - Improved the accuracy up to 19% by proposing techniques which is optimized in hard scenario.
- Nov. 2020 – Present **Assistant Research Scientist, Center for Clinical Imaging Data Science (CCIDS)**
- Developed a model that analyzes Head MRI and suggests treatments for brain tumors such as Meningioma, Pituitary adenoma, Schizophrenia, Panic disorder, etc.
 - Replaced existing pipeline by defining Bayesian-based pipeline for hyperparameter search.
 - Implemented CycleGAN code for converting different MRI protocols to the same style.
 - Communicated with medical experts at college of Medical - radiologist, neurologist, psychiatrist.
- Jan. 2021 – Mar. 2021 **AI researcher, National Health Insurance Service Ilsan Hospital**
- Built a self-supervised learning model for accurate allocation of ICUs to enhance surge capacity.
 - The model used to predict prognosis scores on chest X-ray images of COVID-19 patients.
- Jun. 2020 – Mar. 2021 **Intern, Dependable Computing lab (Yonsei Univ.)**
- Programmed a model for detecting stress from noisy data accumulated by wearable devices
 - Increased accuracy by 14% by devising filters to eliminate anomalies and applying feature selection/engineering based on statistics
 - Designed two network semi-supervised architecture to focus on important time window

Publications

- Sep. 2020 Attention-based Stress Detection exploiting Non-contact Monitoring of Movement Patterns with IR-UWB radar, J.H Shin, J.H. Moon, B.S. Kim, **J.H. Eom**, N.S. Park and K.W. Lee, ACM/SIGAPP Symposium On Applied Computing (SAC) (Accepted)
- Feb. 2021 Diffusion Tensor Imaging Radiomics in Corpus Callosum Subregions Differentiates Patients with Schizophrenia from Healthy Controls, Y.W. Park, **J.H. Eom**, J.H. Lee, S.S. Ahn, M.J. Bang, Molecular Psychiatry (Accepted)
- Nov. 2020 Radiomics with Ensemble Machine Learning Predicts Dopamine Agonist Response in Patients with Prolactinoma, Y.W. Park, **J.H. Eom**, S.Y. Kim, H.Y. Kim, S.S. Ahn, C.R. Ku, The Journal of Clinical Endocrinology & Metabolism (JCEM) (Accepted)
- May. 2021 Cycle-Consistent Adversarial Networks Increases Robustness of Radiomics Model in Grading Meningiomas on External Validation, Y.W. Park*, S.J. Shin*, **J.H. Eom**, C. An, S.C You, S.S. Ahn, S.M Lim, R.W. Park, S.K. Lee, Korea Journal of Radiology (KJR) (Accepted)
- May. 2021 Non-contact Movement Pattern Monitoring-based Stress Detection on Semi-supervised Learning model with IR-UWB radar, J.H. Shin, J.H. Moon, B.S. Kim, **J.H. Eom**, N.S. Park and K.W. Lee, ACM Transactions on Computing for Healthcare (ACM Healthcare) (Accepted)

* Both authors contributed equally to this work.

Extra information

- Research interests **Semi/Self-supervised, class-incremental learning**, which are related with label efficiency problems: To design a novel framework that can acquire general representations with no given or minimum prior knowledge which require human laborites.
- Technical proficiency **Programming**
C/C++, Python*, Java
- Software / Framework**
Pytorch*, Tensorflow, OpenCV
(*) implies mainly used language, framework respectively.