Jihwan Eom

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Education

Mar. 2016 – Present Computer Science, Yonsei University

Work Experience

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 AutoML by defining Bayesian optimization-based pipeline for hyperparameter search
- Implemented CycleGAN code for converting different MRI protocols to the same style
- Communicated with medical experts at college of Medicine - 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
- Computed prognosis scores by applying time-series analysis 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)

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)

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 (Under review)

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, Radiological Society of North America (RSNA) (Submitted)

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 (Work in progress)

* Both authors contributed equally to this work.

Extracurricular Activities

Nov. 2020 – Present **SIRANO (Severance Inspirational Researchers with Advanced Neuro Oncology)**

- Shared knowledge and research progress on medical topics with doctors, statisticians, and AI researchers at Severance Hospital
- Understood the hardships facing in real-world such as data regulation and challenges by noisy data
- Learned recent trends on medical research by reviewing papers from RSNA and MICCAI

Jan. 2021 – Present **Research member, YAI (Yonsei Artificial Intelligence)**

- Studied papers on well-known concepts such as transformer, generative model, etc. and implemented them in code
- Designed a CNN-LSTM based forecasting model to predict sea ice changes from Arctic images