

JIEUN KIM

Research Interests

Representation Learning, Brain-Inspired Network, Computational Network

Education

M.S. in Industrial and Management Engineering, Advisor: Jungeol Baek March.2021 – Feb.2023
Korea University, South Korea

B.S. in Statistics, B.S. in Computer Science March.2017 – Feb.2021
Sookmyung Women's University, South Korea

Research Experience

Research Intern May.2024 – present
Korea Institute of Science and Technology, Advisor: Taegone Kim
Developed a neurocomputing model of a spiking neuron network to assess the effects of Parkinson's disease and external factors

Visiting Researcher Aug.2023 – Feb.2024
Georgia Institute of Technology, USA, Advisor: Jungho Lew
Transformer-based multiple time-series anomaly detection algorithm for enhanced representation of building sensor data

Graduate Researcher March.2021 – Feb.2023
Korea University, Department of Industrial and Management Engineering, Advisor: Jungeol Baek
Developed an anomaly detection system using machine learning techniques to analyze multivariate time-series data collected from vehicles. Joint research with Hyundai
Employed a capsulated deep learning network to predict battery degradation. Joint research with BISTelligence

Research Intern July.2019 – July.2020
Sookmyung Women's University, Department of Computer Science, Advisor: Heejoon Chae
Breast cancer subtype classification based on MLP structure with gene expression dataset. Joint research with Seoul National University Hospital

Research Intern June.2020 – July.2020
Sookmyung Women's University, Department of Statistics, Advisor: Yangjin Kim
Survival analysis using COVID-19 confirmed the patient dataset based on a statistical model

Publications

Yujin Lee, Kio Yun, **Jieun Kim**, Jun-Geol Baek, Multiple Encoders for Anomaly Detection on Multivariate Time-series with Various Normality, EAAI, 2023 Under Review
Kim, J. (2023). A distribution-based transformer framework for time series missing value imputation (Master's thesis). Korea University, Department of Industrial Management and Engineering
H. J. Ki, J. Kim, S. **Kim, J.** Park, J. Lee, and Y.-J. Kim, Statistical analysis of estimating incubation period distribution and case fatality rate of COVID-19, The Korean Journal of Applied Statistics, 2020

Joungmin Choi, Jiyoung Lee, **Jieun Kim**, Jihyun Kim, Heejoon Chae, Breast Cancer Subtype Classification Using Multi-omics Data Integration Based on Neural Network, Journal of KIISE, 2020

Presentations

Jieun Kim, Taegon Kim, Spiking Neural Network Modeling of Basal Ganglia for Parkinson's Disease Prognosis and Adaptive Deep Brain Stimulation, KSBNS, 2024

Jieun Kim, Seunghawn Song, Jun-geol Baek, Fuel Cell Vehicle Fuel Efficiency Prediction through Data Refinement Based on Adversarial Generation Method, Korean Institute of Industrial Engineers, 2022

Awards & Honors

Special Prize, Weather Big Data Contest 2022

- Applied machine learning methodology to weather data to forecast the number of individuals with vascular disease in each region after a year

Grand Prize, Data-based Service Contest for Workplace Safety Artificial 2021

- Developed a multi-modal network leveraging video data from work sites for anomaly detection

Third Prize, Contest for Natural and Artificially Generated Data 2021

- Proposed a deep learning network to isolate composite noise using real-world sound data

Best Paper Award, Korean Institute of Information Scientists and Engineers 2020

- Collaborated with Seoul National University Hospital to classify breast cancer subtypes using an MLP network applied to gene expression data

Relevant Experiences

Programming Assistant	LG Energy Solution, LG Electronics, SK Hynix, Hyundai Steel
Teaching Assistant	IDS505: DS-AI programming, Korea University, Spring 2022 IDS508: Principles and applications of machine learning, Korea University, Fall 2022
Academic Service	Reviewer - Journal of Imaging Science and Technology 2023 Book Reviewer - Insights from Kaggle Medalists: A Review of Kaggle Know-How
English Proficiency	The International Conference on Artificial Intelligence in Information and Communication, Oral presentation, 2022 English Lecture List: IME65300, AAA73800, IME50900, IME65800, IMEN31902, 21000542

Skills

Programming Languages	Python (Pytorch, Tensorflow), R, C/C++
Others	Linux, LaTeX