Yejin **Kim**

Machine Learning Engineer

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Skills

Programming Languages Python, Java, R, C#, C, JavaScript, Bash, LaTeX
Frameworks and IDEs Pytorch, TensorFlow, Pytorch Lightning, HuggingFace, Flask, Jupyter Notebook, Postman, Pycharm
Libraries numpy, pandas, sckit-learn, D3.js, OpenGL, WebGL

Educations

Sejong University
Seoul, S.Korea

M.S. in Computer Science and Engineering [Transcript] [Certificate] *Mar. 2021 - Current*

- **CGPA: 4.5/4.5** | Selected for Brain Korea 21 Program | Honors Scholarship (2021)

Sejong University
Seoul, S.Korea

B.S. in Computer Engineering with Honors Program [Transcript] [Certificate] *Mar. 2016 - Feb. 2021*

- **CGPA: 4.18/4.5** | Granted National Graduate Science & Technology Scholarship for 2 years | Graduated with Magna Cum Laude
- Honors Program: Hosted evening program for leadership camp to make people getting known each other; Gathered opinions on classes and programs from students and discussed with professors

Experience

Research Assistant, Data Visualization Lab
Sejong Univ, Seoul, S.Korea

Software Engineer & Project Manager & Researcher *Oct. 2019 - Feb. 2022*

- Led the research projects by writing proposals, end-year reports & documents, and communicating with external research facilities
- Supervised new undergraduate researchers through seminars and personalized curriculum
- Managed scheduling, writing, and reviewing for writing a survey paper on heterogeneous data fusion
- Generated and managed a GitHub lab organization, and managed a remote lab server

Researches

COVID-19 Infected Case Prediction Model using Neural ODE [K-conference]
Sejong Univ, Seoul, S.Korea

Lead Author & Lead Developer *Jan. 2020 - Apr. 2021*

- Created LSTM and NeuralODE-based deep learning model which is predicting the number of infected people with COVID-19
- Using the NeuralODE module, designed the model for solving ordinary differential equations which is used to estimate the spread of disease
- Implemented modules for deep learning pipeline such as data collecting, preprocessing, learning, and evaluating modules, and automated the pipeline
- Implemented existing disease models such as SIRD, R0 estimation, and NIPA for baseline experiments and released them as open sources
- Keywords: Pytorch, NeuralODE, LSTM, Time-series Dataset, MLOps, Compartmental Models, SIRD, Patent | Codes: DVL-Sejong/COVID_Project

ConvLSTM-Based COVID-19 Outbreak Prediction [K-journal]
Sejong Univ, Seoul, S.Korea

Lead Author & Lead Developer *Jan. 2020 - Feb. 2022*

- Created ConvLSTM-based deep learning model for analyzing which feature combinations are affecting the spread of COVID-19
- Using patient and location information, generated multivariate 3d array dataset, and adopted KDE kernel for maximizing the spatial feature
- Constructed 120 feature combinations by contextual & statistical methods, and optimized the model for each learning dataset using HPO libraries
- Keywords: ConvLSTM, HPO, AutoML, TensorFlow, Spatiotemporal Dataset, Multivariate Dataset

Damaged Cable Detection [SCI]
Sejong Univ, Seoul, S.Korea

Author & Developer *Jan. 2020 - Aug. 2021*

- Given cable tension data of cable-stayed bridges, detected damaged cable by statistical analysis using the STL decomposition method
- Assuming the damaged cable would affect neighboring cables, calculated and analyzed cross-correlations of the decomposed cable data
- Implemented Gaussian Mixture Model to recognize cable tension ratio, and detected the damaged cable by PDF contour images
- Keywords: STL Decomposition, Gaussian Mixture Model, Open Source, Anomaly Detection, Statistic | Code: DVL-Sejong/AnomalyCableDetection

Eye-Gaze Project [Conference] [K-conference]
Sejong Univ, Seoul, S.Korea

Lead Developer *Oct. 2019 - Feb. 2020*

- Developed Eye-gaze Tracking Program to collect gaze data seeing designated photos, and I-VT Filter which determines the state of gaze
- As a lead developer, communicated with the researcher to make the code used easily and reproduced; Those codes are used or reproduced so far
- Keywords: Gaze Data Visualization, Gaze Behavior, PyQT, Application Program, Python, Open Source | Codes: DVL-Sejong/GazeProject

Project

Next POI Recommendation
Seoul, S.Korea

Project Leader & Machine Learning Engineer *Jun. 2022 - Current*

- Creating an Android application recommending the next places to go for travelers, and designing a recommendation model using GNN
- For recommending places by reviews and user preference, extracting topics from crawled review data and generating graph network using the topics
- Adopted an agile workflow process, constructing requirements specification to divide the project into smaller milestones
- Keywords: Next POI Recommendation, Open Source, Android, GNN, Project Management