

KIM SEONGYOON

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EDUCATION

03/2019 to 02/2025

Bachelor Degree : Computer Science and Engineering
Chungnam National University – Daejeon

SKILLS

- Python (Numpy, Pandas, Scikit-learn, Keras, Tensorflow, Pytorch, Flask)
- SQL (MySQL, MariaDB, Oracle DB)
- ML Frameworks (Tensorflow, Pytorch)
- Productionizing eXplainable AI (XAI) Models

EXPERIENCE

09/2023 to Current

CTO – MLOps Developer

LUMOS – Daejeon, Republic of Korea

- Oversaw the development of a League of Legends AI Coaching Service
- Leader of service planning and team development.
- Responsible for the development of the game data collecting program.

11/2023

Participated in AWS Game Day : League of Legends Esports Edition – LoL Park, Seoul

- AWS Game Day : A hackathon focused on analyzing and visualizing player and game data from professional matches.
- Implement a model to predict the outcomes of League of Legends Championship matches based on the provided data.
- Experience deploying a website that predicts the winners of these matches based on the model.

06/2020 to 06/2021

CTO – Data Scientist

CareConnect(Connect D) – Daejeon, Republic of Korea

- Oversaw the development of an AI-based diabetes patient management and care service.
- Responsible for developing AI-based chronic disease analysis reports.
- The application was downloaded by over 1,000 users.

PROJECTS

09/2023 to Current

StartUp

LoLPAGO, AI based League of Legends Coaching Service – LUMOS Company

- CTO in this project.
- Implemented a personalized game result analysis based on an object-player distance-based win/loss analysis model and a time-based Champion Strength graph, both of which were implemented during the research process.
- Now developing a system for data extraction and analysis based on Computer Vision from replay videos.

09/2023 to 12/2023

Open-Source Project

PyLoL, League of Legends Replay Data Extractor – Open Software Project in Chungnam National Univ.

- Program for gathering positional data and providing analytics from Game 'League of Legends' videos.
- Can be used to automatically gather spatiotemporal data (player locations over time) from a series of Youtube/locally stored videos using Detection Model such as Yolov8, which is trained on custom dataset.
- Developed a detection model, which is used in the champion tracking was improved to perform well under constraints such as ping and structure, based on automatically labeled dataset by the program.
- Can save replay files(.rofl) automatically and get the location of players every one second. So it can visualize the tracks of champions in League of Legends.

07/2023 to 09/2023

Internship

FishScope – TidePool Corporation

- Implemented a Matching and Tracking Module for fish Bounding Boxes captured in videos shot with a Stereo Camera.
- Utilized OpenCV functionalities(SIFT, ORB, etc.) in the development of the matching module.
- Developed a Bounding Box Matching module based on Vision Transformer, contributing to the company by improving the Match Rate.

04/2023 to 06/2023

Short-Term Project

DzarDiary, Web Application that sympathizes with the diary using GPT – Chungnam National University

- Participated in Back-End Engineer.
- Implemented Server based on Flask Framework, and sympathizing model using NAVER CLOVA API and GPT-3.5 API

04/2023 to 06/2023

Short-Term Project

Tool's Riot, Lane Meta Analytics Using EDA – Data Science Term Project, Chungnam National University

- Implemented Data Extractor using League of Legends API for Developers.
- To implement a model that achieves over 90% accuracy in time-series win/loss predictions using Random Forest and to visualize the temporal variation of game-winning contributions by different game roles.

07/2022 to 09/2022

Internship

assiCT, Brain hemorrhage detection & explaining using XAI - Silicon Valley Online Internship in Chungnam National University

- Developed an AI-based Intracranial Hemorrhage Detection program from medical (DICOM) CT scan images.
- Implemented XAI (Explainable AI) functionalities using Lime Explainer.
- Visualized areas suspected of hemorrhage in CT images to aid doctors in diagnosis.
- Investigated the biological significance of CT image values in medicine and reflected this in data preprocessing to enhance detection performance.

10/2020 to 11/2020

Short-Term Project

CareConnect, Personalized HealthCare Service using Public Data – Chungnam National University

- Remote Healthcare Services Suggested for When Face-to-Face Doctor Visits Are Impossible Due to COVID-19.
- The goal is to improve users' lifestyle patterns by quantifying the risk of diabetes based on blood pressure, blood sugar, and body information available in public data.
- Implemented the model based on Random Forest.

EXTRACURRICULAR ACTIVITIES

03/2022 to 02/2023

University LAB Internship, DNCLAB(Distributed Network and Computing LAB) – Chungnam National University

- Paper1(1st Author) : **Win Prediction in MOBA Games Using Time-Series Location Data: Case Study in League of Legends**, Korean Institute of Communication and Information Sciences, 2023.02.
 - Predict the outcome of games in 'League of Legends' using time-series location data operates based on RNN (Recurrent Neural Networks) and Random Forest (RF). This model predicts wins and losses using the early game time-series location information of individual characters.
 - By analyzing the time-series location data from the early stages of the game, specifically between 5 to 9 minutes, it can predict the outcome with up to 74.19% accuracy.
 - Information on how location-based data impacts the outcome of a game can be provided through the proposed model. This model utilizes time-series location data to predict wins and losses in the game. Can be expected that users can check their location-based information to gain insights on which positional strategies to adopt in the game.
- Paper2(1st Author) : **ConvLSTM-based Particulate Matter Concentration Prediction Model with Location of Weather Station by Meteorological Data Imagination**, Korean Institute of Information Scientists and Engineers, 2023.12.
 - Proposed the model that predicts the correlation between wind direction, wind speed, and the concentration of fine dust, taking into account the location information of observation stations.
 - The proposed model demonstrated superior predictive performance compared to RNN and LSTM models that did not consider location information.
 - This research showed that considering wind direction and speed data based on location can aid in improving performance.
- Previously, Studied Federated Learning and gained experience in implementing a federated learning environment through the Flower framework (During 6 months).
- Currently, my research focuses on quantitatively calculating the contribution to victory or defeat based on the real-time actions and states of League of Legends players, drawing on the concept of object-oriented ideas.

07/2020 to 12/2020

University LAB Internship, HCILAB(Human Computer Interaction LAB) – Chungnam National University

- Paper1 : Microplastic Segmentation for Beach Sand Photos.
 - Proposed dividing images into several smaller areas for detection in the context of imbalanced class proportions, specifically to detect the minority class of microplastics. Utilized U-Net-based Segmentation for this purpose.

LEADERSHIP (OR CERTIFICATES ETC....)

02/2024

Competition and Educational Course on Machine Learning Application Ideas using Large Language Models – Winter Conference 2024, The Korean Institute of Communications and Information Sciences

- Learned Principles of Large Language Models and Fundamentals of Using ChatGPT.
- Presented on the topic of an application for preventing dementia in the elderly using large language models, and got an award.
- Utilized public data on elderly speech with dementia from AI Hub to propose delaying the onset of dementia through an AI model trained with prompts and based on existing dementia screening tests.

- 01/2024 **DSC Living Lab Project Excellent Team, CARLA-based mobility data privacy-compliant data mining platform – DSC Regional Innovation Platform**
- Use CARLA(Open-source simulator for autonomous driving research) for implementing virtual data mining program.
 - Implemented an accident prediction model based on a driving dataset designed through virtual scenarios.
- 12/2023 **Certificate of Completion, DSC Living Lab Facilitator Training Program – Korean Facilitators Association(KFA)**
- Official KFA (Korean Facilitator Association) certified course conducted by the University Educational Innovation Headquarters (Future Living Lab Center) at Chungnam National University.
 - Completed 24 hours from December 1st to December 3rd.
 - ‘DSC’ stands for the initials of the local governments of Daejeon, Sejong, and Chungnam in South Korea.
- 08/2023 **Top Promising Startups 300(Growth Track), Deputy Prime Minister and Minister of Education – Ministry of Education, Republic of Korea**
- Organized by the Ministry of Education, participated in a startup team focusing on an AI-based esports analysis service and was selected as an outstanding team.
- 06/2020 to 06/2021 **CEO in ‘Connect D’ Company(StartUp) – Daejeon, Republic of Korea**
- Developed a parking control system based on parking log data to alleviate parking space congestion in densely parked areas.
- 06/2020 to 06/2021 **Pre-StartUp Package Support Program, Ministry of SMEs and StartUps – Seoul, Republic of Korea**
- To support the successful startup of prospective entrepreneurs with technology startup ideas, this includes providing commercialization funds, enhancing business models, and supporting prototype production.
 - Received approximately 50 million won in commercialization support funds to operate a company with a ‘Double parking prevention system in 1st generation new town’ as the item.
- 08/2019 **51 Pitch Competition– Los Angeles, California, USA**
- Pitching an idea for a system to detect and blur adult content on YouTube for children.
- 08/2019 **51 Conference 2019 – Los Angeles, California, USA**
- 51 Conference is a 3-day event for Korean professionals and students in Silicon Valley to network, share information, and discuss the next big thing.
 - This conference was an impressive one that motivated me to become an AI developer.
- 07/2019 **Problem Solving with Artificial Intelligence Technology Development Training - Natural Language Processing and Chatbots – Korea Advanced Institute of Science and Technology; KAIST**
- Hosted by the KAIST Smart Energy Artificial Intelligence Research Center.
 - I received training in natural language processing theory and based on this, conducted a project to implement a chatbot.

AWARDS

- 11/2023 **Sponsorship Award from Amazon Web Services Korea (AWS) – 2023 SW Talent Festival, Institute of National Program of Excellence in Software**
- Participated in a competition with the project titled 'AI-based 'League of Legends' win-loss analysis and coaching web service (Service Name: LoLPAGO)', and got an award.
- 06/2023 **Human-Centered Award – Human-Computer Interaction, Chungnam National Univ.**
- In the Human-Computer Interaction class, my project 'Dear Diary: Emotion Analysis/Empathy Service based on chat-GPT for diary entries' was ranked first in the class.
- 11/2022 **1st Ranking in the ‘27th CNU VILL Startup Idea Contest’, President of Chungnam National University – StartUp Support Center, Chungnam National Univ.**
- Participated in an entrepreneurship competition hosted by the school, where evaluations were based on the business model and feasibility.
 - After four attempts, won the grand prize. This achievement involved multiple rounds of pitching and pivoting.
- 11/2022 **2nd Ranking in Collathon,2022 – Chungnam National University, National Center of Excellence in Software**
- Sponsored by Plan I Co., Ltd. and organized by the major club 'MOTION', a full-stack project competition.
 - Planned and developed an AI-based 'League of Legends' win-loss analysis and coaching web service, utilizing React, OracleDB, TensorFlow, and Flask.
 - Responsible for the development and integration of the AI model, including creating a model that visualizes win probability fluctuations based on time-series game data and offers hourly strategies, leveraging TensorFlow.