Hye Won Hwang

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EDUCATION

M.S. Machine Learning and Data Science (formerly MSiA), *Northwestern University, Illinois, USA*   12/2023
- **Relevant Courses:** Scalable Software Architecture, Cloud Engineering, Analytics for Big Data, Text Analytics, Deep Learning, Data Mining, Predictive Analytics, Social Network Analysis, Databases and Info Retrieval, Data Warehousing
- **Competition:** 7th place at the nationwide Humana Mays Case Competition

M.S. Bio-industrial Engineering, *Yonsei University, Seoul, South Korea*   08/2021
- **Published Paper:** Hye Won Hwang, et al. "A genomics-based semi-rational approach for expanding the postbiotic potential of collagen peptides using *Lactobacillaceae*." Journal of Agricultural and Food Chemistry 70.27 (2022): 8365-8376.

RELEVANT EXPERIENCES

Data Science Intern | TransUnion | Chicago, USA   06/2023 – 08/2023
- Utilized **Spark** to efficiently query data from a **+1 billion user database** and conducted extensive data analysis and pre-processing operations to ensure data quality and accuracy.
- Developed a **multiclass classification model** to recommend the user's next purchase, **increasing forecasting metrics by 5~20%** across various clusters relative to the predecessor model.
- Streamlined modeling pipelines with modular components for full automation from data preprocessing to evaluation.
- Implemented segmentation strategies to delineate distinct customer cohorts to enhance model efficiency.

Data Science Consultant | Honda R&D | Northwestern University Practicum   10/2022 – 06/2023
- Achieved a significant reduction in error, cutting **mean absolute error by ~95%** against the predecessor model.
- Developed and optimized cost prediction models for enhanced future cost and budget planning.
- **Collaborated closely with cross-functional teams**, leveraging diverse expertise and perspectives, to successfully present strategic initiatives to key stakeholder leadership, driving alignment and fostering innovation.

PROJECT EXPERIENCES

Property Price Predictor & Description Generator | github.com/hyeniii/aws-mlops   2023
Web application to estimate rental prices based on property descriptions and optimizes listings with AI-generated summaries.
- Created a scalable, cost-efficient web app for real-time rental price estimation using AWS serverless technology.
- Automated ML model training via **AWS Lambda** and **Step Functions** for consistent updates and enhanced efficiency.
- Implemented **generative AI** techniques to craft compelling property listings, optimized for real estate platforms such as Zillow.
- Created API endpoints using **AWS API Gateway** for real-time price predictions and AI-generated property descriptions.

Auto-README | github.com/hyeniii/auto-readme   2023
Program that automatically generates a README.md given the GitHub repository URL
- Parse GitHub repositories using **Github API** and parse code files using **Langchain**.
- Generate human-readable summaries using **OpenAI API**.

Phished | github.com/hyeniii/phishing-webpage-detection   2023
A web application that detects phishing URLs using machine learning models.
- Developed a **React.js-Fast API application** to detect phishing URLs via a machine learning model object.
- Leveraged **AWS services**: Deployed on **ECS**, stored data in **S3**, and utilized **ECR** for container registry.
- Instituted **rigorous unit testing protocols**, resulting in enhanced application stability and a significant reduction in bugs.

Nutri-AI | github.com/Nutri-AI   2022
Mobile application that utilizes an object-detection AI model to allow users to log meals and receive recommendations for supplements based on their nutrition status.
- Strategically designed an ERD and mapped its schema to **DynamoDB,** ensuring streamlined data retrieval and management.
- Benchmarked object detection models' performance utilizing **Weights and Biases (Wandb)**.
- Deployed the model with **ONNX runtime**, containerized via **Docker**, and hosted on **AWS EC2**.
- Engineered a seamless user experience with a **Fast-API backend and Flutter frontend**.
- Processed and trained on **30,000+ images** using Yolo v3 for object detection.

LANGUAGE AND SOFTWARE SKILLS

Programming: Python, SQL, JavaScript, Unix Shell Scripting, Java   **Certification**: AWS Certified Cloud Practitioner (2023)
Packages: PyTorch, Scikit-learn, Pandas, Numpy, Matplotlib, LangChain, MlFLow, HuggingFace   **Software:** Spark, Docker, Git, Fast-API, Node.js, Express, React.js, Tableau
Cloud: AWS (S3, RDS, DynamoDB, Lambda, Step Functions, ECS, EC2)