MENGDIE (FLORA) WANG

San Mateo, CA, 94401
(650)-759-8813 ⋄ mengdie.fwang@gmail.com
github.com/farfallawang ⋄ linkedin.com/in/mengdie-flora-wang

EDUCATION

Master of Science in Computer Science *Fall 2020*
University of Minnesota - Twin Cities, Minneapolis, MN

Bachelor of Arts in Applied Math and Computer Science *May 2016*
Macalester College, Saint Paul, MN

TECHNICAL STRENGTHS

Programming Languages	Proficient in Python, SQL, R, Familiar with Git, Linux, Java
Packages & Platforms	Pytorch, Tensorflow, Docker, Snowflake, AzureML, Astronomer, Airflow
Foundation Models	Transformer, BERT, CLIP, Stable Diffusion, Vision Transformer
LLM Toolings	LangChain, LLamaIndex, Vector Database (Weaviate, Chroma)

INDUSTRY EXPERIENCE

Senior Data Scientist, C.H. Robinson (Fortune 500), Remote *Feb 2021 - Present*

Modeling work
· Developed the company's first machine learning model to predict vessel arrival time (ETA); The model achieved a 12% increase in correct predictions and is in progress to replace manual process and realizing annual cost savings of 430K
· Managed end-to-end model development in Docker containers hosted on Azure cloud services; Further enhanced first-pass model performance by 6% by significantly improving the quality of vessel schedules
· Regularly present to and address questions from business leaders as the owner of ocean ETA space

Engineering work
· Established critical data pipelines with Astronomer Airflow to download vessel schedules from AWS S3 to Azure blob storage, followed by data cleaning and formatting, and storage in Snowflake tables
· Implemented a systematic process to refresh model training data monthly and register the cleaned data frames on Azure ML Datastore
· Built fastAPI in Python to test model endpoints and deployed tested model on Azure ML
· Designed a real-time monitoring dashboard to ensure continuous model performance tracking

Stable Diffusion Fine-tuning (Personal Project) *Aug 2023*
· Fine-tuned stable diffusion model using DreamBooth to generate jewelry images of consistent style as the training images (https://github.com/farfallawang/stable-diffusion/tree/main)
· Applied techniques such as prior preservation loss and included special tokens in the instance prompts to achieve a balance between preserving the original style and learning newly introduced semantics
· Produced a 9-page report detailing fine-tuning process and qualitative evaluation of generated images

RESEARCH EXPERIENCE

Research Assistant, University of Minnesota - Twin Cities *Sept 2016 - Aug 2020*

Deep Sequential Generative Model for Satellite Image Classification
· Designed a mechanism to address the challenge of classifying land crops using satellite data with different resolution and temporal frequency
· Developed a variational RNN-based sequential generative model in Pytorch that extracts temporal patterns from low-resolution data and guides the generation of high-resolution data
· Improved the classification accuracy of the best long short-term memory model (LSTM) by 13%. Published paper and presented on IJCAI 2019

Time Series Forecasting for Electronic Health Record
· Constructed linear and neural network models in Tensorflow to detect kidney failure 24 hours ahead
· Boosted linear model performance by 22% by incorporating insights learned from LSTM
· Addressed LSTM's interpretability issues through attention mechanism and heat map visualization

PUBLICATIONS

M. Wang, A. Banerjee, Flow-based Generative Models: Review and Stability Discussion (Manuscript)

X. Jia, **M. Wang**, A. Khandelwal , A. Karpatne, and V. Kumar, "Recurrent Generative Networks for Multi-resolution Satellite Data: An Application in Cropland Monitoring," IJCAI 2019. International Joint Conferences on Artificial Intelligence, 2019.

J. Li, **M. Wang**, M. S. Steinbach, V. Kumar, and G. J. Simon, "Dealing with Informative Missing Values in EHR Data Analysis," 2018 IEEE International Conference on Big Knowledge (ICBK), 2018.

HONORS & AWARDS

· First-Year Computer Science & Engineering Graduate Fellowship Award *2016*
· Best Computer Science Capstone Presentation Award (Top 1 of 84 presentations) *2016*
· Kofi Annan Scholarship (Awarded to few distinguished international students every year) *2012-2016*