

James Huang

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Skills

Languages: Python, SQL, R, MATLAB, TensorFlow, PyTorch, Scikit-learn

Tech Stack: Git, DataBricks, Snowflake, AWS, Azure, GCP, Jupyter Notebook, Spark, Hadoop, Power BI, Tableau

Experience

Data Scientist, Croptix – State College, PA Aug 2023 – Present

- Worked in a cross-functional startup team with Software Engineers, Data Analysts, and Product Managers within the Forecasting and Optimization domains
- Developed a suite of models including an autoencoder to predict crop nutrient deficiencies, saving each of our grower clients an average of \$4000 annually by avoiding expensive sap tests
- Architected a end-to-end nutrient prediction pipeline on GCP with continuous integration and deployment (CI/CD) to enable real-time extract, load and transform (ELT), inference and web reporting of nutrition results
- Analyzed diffuse reflectance spectra of citrus trees using a novel feature extraction technique and support vector machine (SVM) to reach an accuracy of 91% in detecting diseased trees

Research Associate, Center for Imaging and Surgical Innovation – Dallas, TX Jan 2021 – July 2023

- Built a novel UNet model to improve segmentation of the uterus and placenta by 6.7% similarity score over existing models in prenatal magnetic resonance images (MRIs), leading to improved diagnosis of placenta complications
- Developed a new topographical algorithm for extracting 2D features from 3D prenatal MRI volumes which has been used in recent applications of automated diagnosis of placenta accreta spectrum
- Decreased the motion effects of patient breathing on 4D MRI timescans, reducing slice misalignment error by 2.09 mm by constructing a novel cascaded convolutional neural network (CNN) and spatial transformer
- Led the medical AI/ML journal club, where we regularly presented and discussed the latest research in the field

Research Assistant, Quantitative BioImaging Laboratory – Richardson, TX Jan 2018 – Jan 2021

- Created an augmented reality (AR) surgical guidance app for brain tumor removal which visualized tumor boundaries predicted using a deep neural network trained on brain hyperspectral imaging scans
- Reduced target error in mock biopsy procedures by an average of 0.77 cm using my custom AR-guided biopsy app

Projects

Stock Price Prediction App

- Deployed an interactive web app with AWS Elastic Beanstalk which makes predictions on single-day stock movements using an ensemble of models including large language models (LLM) and long short-term memory networks (LSTM)

Physical Therapy App for Stroke Rehabilitation

- Interfaced a custom-made sensor glove with the Oculus Quest in a virtual reality app with a catalog of interactive games targeting upper extremity strength and flexion exercises for stroke patients

Education

Master of Science (MS) in Biomedical Engineering, The University of Texas at Dallas Dec 2022

Bachelor of Science (BS) in Biomedical Engineering, The University of Texas at Dallas Dec 2020

Activities

- Active on Kaggle in data science competitions, subscribed to machine learning newsletters to stay up to date
- Microsoft Certified Azure Data Science Associate and working towards my AWS Data Science certification
- Tennis player since 4 years old and food/cooking enthusiast, I also like digital art and playing the violin