Haotian Wang

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EDUCATION

University of Illinois Urbana-Champaign — Champaign, IL
Master of Computer Science; GPA: 3.89/4.0 — *Aug 2022 – Dec 2023*

University of Florida — Gainesville, FL
B.S. in Computer Science; Minor in Statistics; Major GPA: 3.8/4 — *Aug 2018 – May 2022*

EXPERIENCE

Speech, Lexicon, and Modeling (SLaM) Lab — Gainesville, FL
Data Scientist Intern — *May 2021 – May 2022*

- **ETL Pipeline:** Created an automated ETL pipeline in **Python** that can be executed with minimal human interaction. Reduced processing time that once took days to under 10 minutes. Produced high-quality datasets that were directly used by the project supervisor. The pipeline was still used by new employees up to today
- **Data Analysis:** Applied **PCA** with **Scikit-learn** and statistical correlation analysis for dimensionality reduction. Implemented and analyzed **K-means**, **Hclust**, **SVM**, and **KNN** to develop robust categorization among patients with different types of Parkinson's disease. The prediction accuracy reached **87%** after **hyperparameter tuning**
- **Neural Networks:** Executed and trained **WaveGAN** with **Tensorflow** for audio generation to handle data scarcity

Biomechanics, Robotics, and Imaging in Orthopedics (BRIO) Lab — Gainesville, FL
Software Developer Intern — *Jan 2022 – May 2022*

- **Software Development:** Built, tested, and integrated a cost function analysis feature into the **Qt**-based **C++** desktop application Joint Track Auto (JTA) with **CMake**. Generated structured log files for advanced analytics
- **Cost Functions:** Embedded data visualization into JTA using **Matplotlib** and applied **Random Forest** to analyze the relationship between symmetric poses of the implants. Optimized the correct orientation of the 3D knee implant models to the X-ray fluoroscopy by finding global minima instead of local minima

PROJECTS

ShareRoom: Rental Listing Platform — MySQL, GCP, Flask, Javascript, CSS, HTML

- Designed ER/UML diagram and relational schema of the database. Implemented **MySQL** cloud database hosted on the **Google Cloud Platform** and improved query performance by **43.8%** on average using **B-Tree** and **Hash** indexes
- Connected the GCP database to the **Flask** back-end application that performs CRUD operations with a front-end written in **JavaScript**, **HTML**, and **CSS**

3D Vessel Viewer — React, RESTful, Node.js, Express, MongoDB

- Proposed a MERN stack web application for the company Digital Twin Marine in an **agile** development environment.
- Built and embellished the front-end with **React** and **Bootstrap**. Implemented a RESTful API as the back-end service using **Node.js** and **Express**. Designed **MongoDB** schema and supported CRUD operations using **Mongoose** and **Axios**

AirPick — MERN, RESTful, Heroku, Postman

- Developed a responsive airport pick-up coordination web application using **MERN** stack. Front-end communicates with back-end through **RESTful** APIs and JSON. Deployed to **Heroku** after reliability testing with **Postman**
- Collaborated with international student organizations, served 244 users, 176 requests, and completed 119 trips in 2019

AirPrediction — Python, Django, Pandas, NumPy, Time Series

- Built a **Django** web application that predicts the AQI of granular pollutants in 144 cities across 47 states
- Conducted data cleansing using **Pandas** and **NumPy** on a million-row **time series** dataset to maximize prediction efficiency. Trained and analyzed **ARIMA**, **LSTM-RNN**, and Facebook **Prophet** forecasting models. Delivered forecasts with **91%** accuracy on average through hyperparameter tuning. Presented data visualization using **Chart.js**

Anitime — Java, Android, Firebase, Google API, UI/UX

- Developed a social network mobile application for pet owners in **Java** using **Android Studio**. Improved presentation and interactivity on all Android mobile devices by continuously improving UI/UX design
- Secured user data with **Firebase** authentication and realtime database. Integrated Google API for the location feature

SKILLS

Languages: Python, Java, C, C++, JavaScript, HTML, CSS, SQL, Cypher, MongoDB, Ruby, Julia, R

Frameworks & Libraries: React, NodeJS, Express, Bootstrap, Mongoose, Django, Flask, Spring Boot, Qt, Sklearn

Tools: Git, Ubuntu, GCP, AWS, Spring Cloud, Kubernetes, Docker, Postman, Heroku, Neo4j, Tensorflow, Jupyter