Haotian Wang

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EDUCATION

University of Illinois at Urbana-Champaign *Aug 2022- Dec 2023*
Master of Computer Science

University of Florida *Aug 2018- May 2022*
Bachelor of Science in Computer Science Upper Division GPA: 3.8/4.0
Minor: Statistics Cumulative GPA: 3.64/4.0

TECHNICAL SKILLS

Programming languages: Python, Java, C++, JavaScript, HTML, CSS, SQL, Julia, R
Frameworks & Libraries: React, NodeJS, Bootstrap, Mongoose, Django, Flask, PySide, Tensorflow, Scikit-learn, NumPy, Pandas
Tools: Git, Postman, Heroku, MongoDB, Trello, Jira, Qt, Ubuntu, CUDA, CMake, Google Cloud Platform, Sphinx, Wireshark

EXPERIENCE

Research Assistant, *Speech, Lexicon and Modeling (SLaM) lab at UF* *May 2021- May 2022*
Topic: Demystifying perceptual evaluations of parkinsonism sub-categorizations using machine learning ***(Python**, **R)***

- Developed an automated speech analysis pipeline that reduced processing time that once took hours to under 2 minutes
- Extracted speech characteristics data using **openSMILE**, cleaned and organized datasets using **Pandas** and **NumPy**
- 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 different types of patients
- Executed WaveGAN, a **generative adversarial network**, as a data augmentation tool to handle the scarcity of clinical data

Research Assistant, *Biomechanics, Robotics, and Imaging in Orthopedics (BRIO) Lab at UF* *Jan 2022- May 2022*
Topic: Cost Function Analysis of Symmetric Knee Implants ***(C++, Python)***

- Contributed to the **Qt**-based desktop application Joint Track Auto (JTA) which allows users to upload X-ray fluoroscopy and 3D implant models and automatically optimizes the correct orientation of the model to the image
- Embedded data visualization into JTA using **Matplotlib** and applied **Random Forest** to analyze the relationship between symmetric poses of the total knee replacements
- Built, tested, and integrated a cost function analysis feature into JTA using **CMake** to discover the global minimum of the cost function (the true implant's rotation) among other local minima (the symmetric positions)

PROJECTS

AirPrediction | *Data & Front-end Developer* *May 2021- Aug 2021*

- Built a **Python** framework that predicts the Air Quality Index of granular pollutants in 144 cities across 47 states
- Demonstrated the usage of the framework by creating a sample GUI desktop application using **PySide**
- Conducted data cleaning using **Pandas** and **NumPy** on a million-row time series dataset to maximize prediction accuracy and reduce training time to under 15 seconds
- Delivered promising forecast through hyperparameter tuning on **ARIMA**, **LSTM-RNN**, and Facebook's **Prophet** API

Vessel Viewer | *Full Stack Developer* *Sep 2020- Dec 2020*

- Constructed a **MERN** stack web application for the company Digital Twin Marine in an **agile** development environment
- Allowed admins to modify vessels' information and roles/permissions of registered users using **Mongoose**
- Enabled users to securely share vessels' data, receive notifications, and send contact forms to DTM through **Nodemailer** API
- Embellished the front end with **MDBootstrap**, tested functionalities by writing **Postman** POST/GET requests, and inspected the CRUD operations made to test accounts within **MongoDB Atlas**

AirPick | *Full Stack Developer* *Apr 2019- Aug 2019*

- Designed an airport pick-up coordination system for international students to find volunteer drivers through online matching
- Developed a responsive mobile compatible front-end web application using **React**
- Implemented **RESTful** API as the back-end service using **NodeJS** and **Express**
- Designed database schema in **MongoDB** and supported backend CRUD operations using **Mongoose**
- Served 244 users, 176 requests, and completed 119 trips in 2019 (Termination of service since 2020 due to COVID-19)

EXTRACURRICULAR ACTIVITIES & LEADERSHIP

Co-Director, *IT Department of UF Chinese Student Association (UF CSA)* *Aug 2019- Nov 2021*

- Collaborated with campus technicians and provided technical support for UF CSA events
- Maintained and updated the UF CSA's website in **JavaScript, HTML, CSS,** and **YAML**

Teaching Assistant, *National Taiwan University of Science and Technology* *May 2021- Aug 2021*
CPM 101: Introduction to Programming

- Assisted course professor in improving course objectives and lesson plans by having weekly meetings
- Hosted office hours and lab sessions to collect feedback and help students understand the course materials