Jiahong (Harvey) LI

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Education

University of Wisconsin-Madison Madison, WI Graduated: May 2021
Bachelor of Science, Major: Computer Science
Santa Clara University, Santa Clara, CA Expected Graduation: June 2023
Engineering Master of Science, Major: Computer Science and Engineering

Skills & Interests

- **Computer Skills:** C, C#, C++, Java, HTML, JavaScript, React.js, React Native, Unity 3D, Three.js, CSS, Swift 5, Objective C, Adobe XD, Adobe Illustrator, Blender, SQLite, TensorFlow, OpenCV, Python, WordPress, Shell, Bash, ThingWorx Studio, Adobe Premiere
- **Other Skills:** Agile Project Management, heuristic evaluation, @Risk Analysis on Excel, Excel Solver
- **Platform:** Web, Windows, Android, Unix, Linux, Git, MacOS, IOS, iPadOS

Professional Experiences

uSens San Jose, CA Jun 2020- Aug 2020
Computer Vision & deep learning Intern

- Designed a safe driving detector with team, which analyzes **real-time streaming** videos and detects if the driver is smoking, using a cellphone, or driving without a seat belt based on **face detection** and **gesture analysis** technology.
- Developed the safe driving detector using **Python**, based on **OpenCV**, **TensorFlow**, and **NumPy**, and trained by a dataset with over **102k images** and videos retrieved from related websites using Python scripts.

Microsoft Beijing, China Jun 2018- Aug 2018
Software Engineer Intern

- Developed and edited SDK with **C#** for Azure products including Azure IoT and Azure IoT Edge.
- Tested algorithm modules for machine learning of facial recognition and detectors for mechanical. Components.
- Learned and presented Azure Stack and Azure Cloud Technology to other departments.

Visionary Intelligence Beijing, China Jun 2019- Aug 2019
Front-End Engineer Intern

- Designed and built a **human-computer interaction** (HCI) website, with **HTML5** and **JavaScript**, using **Apache Tomcat**, to help users **create, retrieve, update, delete** (CRUD) test case data, in order to train an AI customer service system.
- Designed and implemented **API layer interface** connecting back-end and front-end.
- Improved front-end interface and back-end functions according to users' feedbacks.

Fundamental Industry Center, Tsinghua University Beijing, China Jan 2018- May 2019
Part-time AR & MR Developer

- Developed **AR** and **MR** (Mixed Reality) Industrial Applications using **JavaScript** based with Microsoft **HoloLens** and PTC ThingWorx Studio for the McKinsey&Company's AR & IoT program.
- Connected finished product on production lines in real factories with **IoT** technology via HoloLens.

Project Experiences

AI Shopping Assistant with DialogFlow Dec 2020- Dec 2020

- Developed a smart AI shopping assistant with Google's **DialogFlow**, using **React Hooks** to connect with the target college clothing retail website, helping customers to find, purchase items, and interact with cart more efficiently by simple commands.
- Designed the assistant with **experience prototyping** and **usability testing** to enhance user experience.

Course Navigator Web App Oct 2020- Nov 2020

- Developed a course selection and enrollment web app based on **React** framework, with **REST API, React-Redux**, **React-Navigation, jQuery,** and **Bootstrap** to help users find, filter, and enroll courses, check course availability, examine current prerequisite level, and see potential future course plan.

- Implemented a **course recommendation algorithm** to recommend courses that users may interested to based on users' course history, major and minors, as well as past rating of taken courses.
- Designed front-end UI using **Adobe XD** and enhanced usability through **heuristic evaluation**.

React Native Fitness App Project Aug 2020- Sep 2020

- Designed and implemented a mobile fitness application based on **React Native** framework with **REST API**, **React-Redux**, **React-Navigation**, and **Async-Storage** Libraries, enabling users to set goals and easily track their daily calories and other macronutrients' intake by recording their diets and daily exercises on either IOS or Android platforms.
- Designed front-end UI components with **Adobe XD**, using **paper**, **interactive**, and **experience prototyping** techniques as well as visual design principles.
- Improved application to allow users with visual impairments to efficiently use the application using **React Native's accessibility** features and assistive technologies.

Data Dashboard, ML Integrated Web App March 2020- May 2020

- Designed and implemented a data-visualization based on **React** framework, which **takes CSV or JSON** data as input and allows users to present their data in various kinds of charts and graphs efficiently.
- Implemented interactive chart for each data entry using **React Bootstrap** and **Chart.js**, enabling users to select, compare, and analyze different data charts with ease.
- Implemented saving and loading chart features with **REST API**, allowing users to save visualization results as a data dashboard to the back-end assorted with their accounts.
- Developed functions to connect with back-end application based on **MongoDB** which, based on a trained machine learning model, analyzes users' data and recommends the most efficient charts to present.

Image Annotation, ML Integrated Web App Jan 2020- March 2020

- Designed and implemented an image annotation app based on **React** framework and **React Bootstrap**, which **takes a great variety of image format** as input and allows users to annotate images of their choices with polygon and text attributes, to feed their Machine Learning projects as image training data.
- Implemented saving and loading chart features with **REST API**, allowing users to save annotation results as to the back-end assorted with their accounts.
- Developed functions to connect with back-end application based on **MongoDB** which, based on a trained machine learning model, analyzes users' image and designed target, then generate suggested annotations that can be edited later on in the front-end as users desired.

AI-Handwriting Reader Project Oct 2019- Dec 2019

- Designed and implemented a **2-layer, feed-forward neural network** to read users' handwriting using **Java Object-Oriented Programming** paradigm.
- Implemented program to parse handwriting images and trains the neural network using the **back-propagation** algorithm with the **ReLU** and **Softmax** activation functions.

Food Query and Meal Plan Project Oct 2018- Dec 2018

- Designed and implemented a meal planning app using **Java** and **JavaFX** to help users record and plan daily meal with various food nutrient information on the food list.
- Implemented a database with **B+ tree** to store and retrieve food nutrient data efficiently.
- Implemented **JUnit Tests** with **Black-box Testing** method to reduce errors, ensure coding quality and efficiency

Research Experiences

Connected and Automated Vehicle & Highway Research Group Led by Professor Ran Bin of University of Wisconsin-Madison, Madison, WI Sep 2020- May 2021

Undergraduate Researcher & Developer

- Competed in the Lyft Motion Prediction for Autonomous Vehicles Kaggle competition with project team.
- Developed and tested Machine Learning models using **PyTorch** and **SciPy's numpy** based on **Lyft's extensive dataset and l5kit**.
- Implemented and tested models and techniques, including **CoverNet**, **MultiPath**, and **Multi-agent trajectory forecasting technique**, etc., on our algorithm to improve prediction accuracy.
- Described research methods, data, and results in contemporary machine learning literature using the Lyft Level 5 (fully automated driving) dataset.