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, CA Expected Graduation: June 2023
Engineering Master of Science, Major: Computer Science and Engineering

Professional Experiences

uSens Inc., 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 techniques
- 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

Visionary Intelligence (Beijing) LLC., Beijing, China Jun 2019- Aug 2019
Front-End Engineer Intern

- Designed and built a human-computer interaction (HCI) website, with HTML5 and JavaScript, using tomcat and apache, to help users create, retrieve, update, delete (CRUD) test case data, in order to train a 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' feedback

Microsoft (China) Co., Ltd., Beijing, China Jun 2018- Aug 2018
Software Engineer Intern

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

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

- Developed Augmented Reality (AR) and Mixed Reality (MR) Industrial Application with JavaScript based on Microsoft HoloLens and PTC ThingWorx Studio platform for the McKinsey&Company's new program on Augmented Reality on the Internet of thing
- Connected with PTC ThingWorx Studio and update and demonstrated AR and MR product on production lines in real factories with IoT technology

Project Experiences

React Native Fitness App Project, Madison, WI Oct 2020- Present
Front End Developer, UI Designer

- Design and implement a mobile fitness application based on React Native framework with React-Redux, React-Navigation, and Async-Storage Libraries, enabling users to set goals and easily track their everyday calories and other macronutrients' intake by recording their diets and daily exercises on either IOS or Android platforms.
- Design and implement an Authorization View, which allows users to smoothly sign up an account or login their accounts.
- Design and implement 4 different parts for users to operate with various modularized components. The main app parts includes Profile View, which gives users the ability to edit their personal info and adjusts their daily nutrient goals; Today View, which shows users their meals and exercises for today and their process to their daily goals; Exercises View, which enables users to view all past exercises, to create a new exercise, or edit/delete any of their past exercises; Meals View, which enables users to view all past meals with all consumed foods, to create a new meal, or edit/delete any of their past meals.

- Apply paper, interactive, and experience prototyping techniques as well as visual design principles to the UI design and enable users with visual impairments to efficiently use the application using React Native's accessibility features and assistive technologies

Data Dashboard& Image Annotation, ML Integrated Project, Madison, WI Feb 2020- May 2020

Front End Developer, Project Member

- Designed and implemented a data-visualization and image annotation web application based on React framework, which enables users to present their data in various kinds of charts and graphs, also allowing users to annotate image of their choice with polygon and text attributes, to feed their Machine Learning projects as image training data
- Implemented over 30 classes for the program, using Object-oriented programming paradigm, including two main applications— the Data Dashboard application and the Image Annotation application
- Designed and implemented the Data Dashboard application, enabling users to upload several desired data files in CSV or JSON format, select columns of each data file they intend to analyze, and select the kinds of graph they want to visualize their data in; the application can also recommend chart types which can visualize the data best, based on a backend ML model; users can also save a complete visualization result as a data dashboard to the backend assorted with their account, each user can create up to 5 data dashboards
- Designed and implemented the Image Annotation application, allowing users to upload an image, and get annotation result from a customized backend ML model, they can also edit or create new annotations on the image as they desired, to provide better training data for their only ML project

AI-Handwriting Reader Project, Madison, WI Oct 2019- Dec 2019

Project Leader

- Designed and implemented a 2-layer, feed-forward neural network and trains it by using the back-propagation algorithm with the ReLU and Softmax activation functions to read users' handwriting
- Implemented the program in Java with 5 classes, using Object-Oriented Programming paradigm, establishing a Node class to organizing the 5 types of nodes in the network (input nodes, bias nodes connecting to all hidden layer nodes, hidden layer nodes, bias nodes connecting to all output layer nodes, and output layer nodes), an Instance class to hold data for each instance in a whole dataset, a NodeWeightPair class to identify connections between different layers, a NeuralNetworkImplement class as the main class to handle the entire network by creating the nodes necessary for the neural network, connecting the nodes of different layers, and training the neural networks, as well as a DigitClassifier class to handle parsing of the training and testing datasets, establish the network, and present test dataset results

Food Query and Meal Plan Project, Madison, WI Oct 2018- Dec 2018

Project Leader

- Designed and implemented a GUI to help users plan their meal based on the different nutrient information of the various type of food on the food list on the UI;
- Implemented the program in Java with 3 interfaces and 12 classes, using Object-Oriented Programming paradigm, establishing the Main class to generate primary GUI and instance of data back end, a group of UI classes for creating a food list to show all the food in the data back end, a meal list which enabled users to drag food they intend to eat in their meal on the list, and a pie chart to show the overall nutrient value in the meal user chose, a FoodData class as the main backend class which interacts with different components of UI classes, a FoodItem class to represent a single food item, a BPTree class to represent a single instance of B+ tree (each B+ tree stores a type of nutrient value)

Research Experiences

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

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 models and techniques, including CoverNet mode, MultiPath mode, and Multi-agent trajectory forecasting technique, etc., described in contemporary machine learning literature for the Lyft Level 5 (fully automated driving) dataset.

Environment Economics Research Group Led by Professor Junjie Zhang of Duke Kunshan University,
Madison, WI Aug 2019- Present
Remote Research Assistant & Developer

- Design two web applications for the ESG (Environment, Social, and Governance) team. The first is a web application based on a flexible React.js framework that enables users to retrieve the live ESG ratings and rankings for their own companies from three major ESG rating agencies databases and simulate their rate by customizing weights of a classic ESG rating model
- The other application retrieves data from the three major ESG rating agencies' databases, enabling users to search and compare trends of the various companies' average stock price within a particular industry or at a certain rating level in the past five years
- Assist the AQI (air quality index) team's project and develop a questionnaire application based on WeChat applet, enabling over 400 research subjects in four groups (three experimental groups and one control group) to answer questions simultaneously. These questions are randomly select questions from a database based on answerers' group

Research Group Led by Jane Zhang of the University of Wisconsin-Madison, Madison, WI Feb 2018-Dec 2019
Team member & Teach Assistant

- Participated in the 2018-2019 Foxconn's Smart Cities - Smart Futures Competition under Jane Zhang's guidance, proposed a project of forecasting the probability of damage to civil engineering structures (e.g., bridges) based on big data systems, won President's Award in the final
- Learned to use Canvas (a course management system), assisting Jane Zhang in establishing the contents of project management courses at Wisconsin School of Business by designing surveys, quizzes, classroom activities, and grading criteria

Leadership Experiences

Badger Mentorship Program, Madison, WI Oct 2017- May 2019
Vice President

- Lead my team to design framework and major events for the mentorship program to build up and maintain connections between mentees and mentors
- Apply project management skills to our work, design and hold team-building activities for my team
- Design and operate the website with WordPress for the mentorship program to present information of current mentors,
  upcoming events, and professional advisory resources on and off-campus

Skills & Interests

- **Computer Skills:** C, C++, Java, HTML, JavaScript, React.js, React Native, Three.js, CSS, AobdeXD, Adobe Illustrator, SQLite, TensorFlow, OpenCV, Swift 5, Python, WordPress, Shell, Bash, ThingWorx Studio, Adobe Premiere
- **Other Skills:** Agile Project Management, @Risk Analysis on Excel, Excel Solver
- **Platform:** Web, Windows, Unix, Linux, Git