Fangwei Lin

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Education

University of Southern California (USC), Los Angeles, CA 01/2018 – 12/2019
- M.S. in Electrical and Computer Engineering
- GPA: 3.64/4.00

Kunming University of Science and Technology (KUST), Kunming, China 09/2012 – 07/2016
- B.S. in Electronic and Information Engineering
- Major Ranking: Top 2%

Work Experience

Edtera, Inc (an EdTech company in K-12 and college learning), Los Angeles, CA
Software Development Engineer Intern 01/2020 – Present
- Built a web application with Spring Boot framework, creating entities and relationships. Created RESTful APIs to handle HTTP requests and responses.

WitsMo (a financial services firm), Los Angeles, CA
Software Development Engineer Intern 09/2019 – 12/2019
- Collaborated with UI/UX designers to create features, and built an "Order History" feature for customers to view orders' status and details.
- Applied Machine Learning to analyze users' financial personalities based on users' data to help experts provide better service.

Hangzhou Huaxing Chuangye Communication Technology Co., Ltd., Hangzhou, China
Network Optimization Engineer (Full-time) 01/2017 – 05/2017
- Cooperated with Huawei engineers to build new cell sites (3G & 4G), ensuring that these sites are properly integrated into the network and optimized for peak performance.

Research Experience

BoardViz: An Augmented Reality Tool for PCB Debugging (*Advisor: Prof. Yuntao Wang*) [Link] 08/2020 – 09/2020
Research Assistant at Ubiquitous Computing Lab of the University of Washington (Telecommuting)
- Designed and built an augmented reality workbench to assist and automate debugging and validation of printed circuit boards (PCB).
- Conducted a function with OpenCV to track stylus (When users touch a component, the program outputs the component they touched).

Project Experience

Postgraduate (2018 – 2020)

House Price Prediction using Machine Learning (*Advisor: Prof. B. Keith Jenkins*) [Link]
- Used machine learning algorithms to develop a housing price prediction model, aiming to analyze the price predictability of different algorithms along with other attributes, such as sparsity, algorithmic complexity, etc.
- Completed Exploratory Data Analysis (EDA) and data wrangling.
- Used models from Python sklearn, including Linear Regression, Lasso, Ridge, SGD Regressor, Elastic Net, Decision Tree Regressor, and Random Forest Regressor to predict the house prices.
- Evaluated the performance of each model using two metrics, namely, the R2 value and RMSE. The performance of all the applied regressors is very similar, and the R2 value is about 0.85.

Emotion Detection from Facial Expressions using Deep Learning (*Advisor: Prof. Keith Michael Chugg*)
- Implemented data augmentation to expand facial expressions data.
- Developed a CNN model with Keras (TensorFlow backend) for emotion classification to distinguish eight facial expressions and trained the model via AWS GPU.
- Evaluated the model's performance, and the model obtained an 85% accuracy rate.

Spoken Language Identification (*Advisor: Prof. Keith Michael Chugg*)
- Collected the audio dataset and extracted MFCCs from the audio clip.
- Built a GRU model to classify three languages (English, Hindi, and Mandarin).

A Location-based Android Social App (*Independent Project*)
- Developed an Android app for users to share updates, photos, and comments.
- Created a map using Google Map API that allows users to customize the search scope and then display nearby posts for exploring potential friends.
- Used Google Firebase to authenticate the app's users, store user-generated content, and send notification messages.
- Inserted targeted ads between posts using Google AdMob to keep users engaged.

Flash Sale System Development: Spring MVC Web Development (*Independent Project*)
- Developed a high-availability and high-concurrency system for users to purchase products in a limited time.
- Implemented proto stuff to provide a serialization method for Red is to store the serialized objects.
- Deployed the app on the Docker container and applied Kubernetes to manage the cluster running the app.

Java Web Development: Event Search and Ticket Recommendations (*Independent Project*) [Link]
- Developed an interactive webpage for users to search for events and purchase tickets.
- Improved personalized business recommendations based on search history and favorite records.
- Created Java servlets with RESTful APIs to handle HTTP requests and responses.
- Built MySQL and MongoDB databases to capture real business data from Ticketmaster API.
- Designed algorithms (e.g., content-based recommendation) to implement business recommendations.
- Deployed server-side to Amazon EC2.

Go Web Development: A Cloud-Based Social Network API (*Independent Project*)
- Launched a web server in Go to handle posting and search requests and deployed it to GAE for better scaling.
- Implemented a JWT-based authentication via Auth0 and stored users' information in Elasticsearch.
- Created a location-based search service using Elasticsearch for the user to search nearby posts.
- Utilized Bigtable to capture posts data and dumped the data to BigQuery via Dataflow for offline analysis.

HTML5 Web Development: Food Delivery Service (*Independent Project*)
- Developed a responsive webpage for a chain restaurant to offer food delivery service.
- Implemented performance optimization: compressed heavy images and minified CSS and jQuery code.
- Used search engine optimization (SEO) to increase the visibility of the webpage.
- Added google analytics to monitor users' behavior.

Sentiment Analysis on Movie Reviews (*Independent Project*)
- Built a Long-short Term Memory (LSTM) model on the data from the Rotten Tomatoes dataset and analyzed sentiments based on movie reviews.

Undergraduate (2012 – 2016)

Design and Manufacture of Automatic Fire Alarm Control System (*Advisor: Prof. Yuexian Zhang*)
- Used STC90C51 SCM as the core controller, used MQ-2 to realize smoke and combustible gas detection, and adopted DS18B20 as the temperature sensor.
- Completed the design of hardware circuit and software program and conducted system testing.

Design of a Water Environment Monitoring System (*Advisor: Prof. Qun Yin*)
- Drew the graphical interface of the host computer and set the configuration of different device parameters.
- Accomplished program writing and debugging.

Design and Manufacture of Metal Detector (*Advisor: Prof. Weiliang Hu*)
- Learned the principle of metal detector, mastered the design and fabrication of electronic circuits, and skilled in using Protel and Multisim.

Automatic Garage Door Closing System (*Advisor: Prof. Qun Yin*)
- This system consists of a host computer and a slave computer (STC52 as the core controller).
- Realized the communication between the host and slave computers by MX232 serial communication.

Extracurricular Experience

- *Member*, USC Data Science Club 02/2018 – 12/2019
- *Director of Planning* of Chinese Young Volunteers Association, KUST 05/2013 – 04/2015
- *Commissary in charge of studies*, KUST 09/2012 – 06/2016

Honors and Awards

- Honorable Mention of Marshall Data Analytics Competition, USC 10/2018
- Graduate with Honors, KUST 06/2016
- National Scholarship, China (Top 0.2% of Winners) 12/2014
- Third Prize of Physics Experiment Innovation Design Competition for College Students, KUST 06/2014
- Honorable Mention of Mechanical Drawing and Designing Competition, KUST 07/2013

Skills

- **Programming:** Java, Python, C/C++, and Assembly Language.
- **Technologies:** Amazon Web Service (AWS), Google Cloud Platform, MySQL, Firebase, Cassandra, Redis, Git/GitHub, React.js, Angular.js, Docker, Kubernetes, Spring Boot, and HTML/CSS.
- **Machine Learning & Deep Learning:** TensorFlow, PyTorch, Keras, Jupyter Notebook, Pandas, Scikit-learn, and Matplotlib.
- **Languages:** Chinese (Mandarin) and English.