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# Yizhou Xu

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## SUMMARY

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- Seeking for Software Engineer position, focus on backend/full stack. No need for H1B sponsorship
- 5+ years of hands-on coding experience, solid background in Algorithm, Data structure, Object Oriented Programming, System Design and Computer Science Fundamentals
- Proficient in Java and Python; Experience with C++, HTML5, CSS3, JavaScript/JQuery, R, Matlab
- Spring MVC, Spring Boot, Spring Data, Spring Cloud, Maven, Tomcat, RabbitMQ, MongoDB, Docker, IntelliJ
- TensorFlow, Keras, OpenCV, Scikit-learn, BeautifulSoup, SQLAlchemy, Jupyter Notebook
- Git/Github/Gitlab, AWS EC2, AWS S3, AWS Route 53, SQL/NoSQL, Sublime, Vim, Slack, Jira, Linux, Xenserver

## EDUCATION

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<b>Columbia University</b>	M.S. in Operations Research	<b>GPA 3.80/4.00</b>	Jan. 2015 - May 2016
<b>Columbia University</b>	M.S. in Electrical Engineering	<b>GPA 4.00/4.00</b>	Sep. 2013 - Dec. 2014
<b>Fudan University (Top 3 in China)</b>	B.S. in Electrical Engineering and Automation	<b>GPA: 3.63/4.00</b>	Sep. 2009 - Jun. 2013

## PROFESSIONAL EXPERIENCE

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**Software Engineer at XCG Design**, San Francisco, CA Apr. 2017 - Present

### *Food Delivery Tracking Service*

- Designed and developed a real-time food delivery tracking system using **Java, Spring MVC/Boot/Data/Cloud, Maven, JPA, Tomcat, RabbitMQ, MongoDB, WebSocket, HTML5, JavaScript, Bootstrap**
- Designed and implemented backend services based on MicroServices architecture. Used Maven to manage dependencies. Incorporated RabbitMQ as message broker to decouple backend services. Used in-memory database for development
- Implemented server-side **REST APIs** such as car location simulation and updater using Spring MVC/Data/Boot. Collaboratively developed client-side dashboard to integrate with backend using HTML5, CSS3, Javascript, Bootstrap, REST API, WebSocket
- Incorporated **Netflix Eureka** as service registration and discovery, automated system replica, increased the scalability, performance and robustness. Incorporated **Netflix Hystrix** as circuit breaker to monitor the system and improve the stability of Location Service comprehensively. Used Spring Boot Actuator to monitor application health

**Research Analyst Intern at CICC US Securities**, New York, NY Mar. 2016 - Apr. 2017

- Conducted thematic research reports and weekly reports focusing on the U.S. technology sector, with topics such as cloud computing, artificial intelligence, autonomous vehicle, virtual reality, etc.
- Built an IPO stock price predicting system using **Python, BeautifulSoup** and **SQLAlchemy**. Implemented Machine Learning algorithm from linear regression/logistic regression using **scikit-learn** to **recurrent neural network(RNN)** using **Keras**

## SELECTED PROJECTS

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*Highway Lane Lines and Vehicle Detector* Summer 2017

- Designed a highway lane lines detector that could measure the radius of lane curvature and vehicle position with respect to the center of road lanes in real time. Created a highway vehicles detection and tracking pipeline
- Implemented **OpenCV** to realize camera distortion correction, image rectification, color space converting, and edge detection. Used **scikit-learn** to extract Histogram of Oriented Gradients features from a labeled training set of images including both car and non-car images. Trained a **Support Vector Machine (SVM)** classifier on these features. Tuned parameters with **GridSearchCV**
- Used moviepy to evaluate the model on video data collected from an automotive front-facing camera taken during highway driving. Overcame environmental challenges such as shadows and pavement changes by combining different color spaces features and manually tuning parameters such as color thresholds, gradients thresholds, and window size

*Dog Breed Classifier* Spring 2017

- Built a dog breed classifier that could distinguish images of human beings from images of dog and identify 133 canine breeds
- Designed a six-layer **Convolutional Neural Network** (three convolutional layers with ReLU and MaxPooling, followed by three fully connected networks and a SoftMax activation function for the final classification, also added Dropout layers for reducing overfitting) from scratch using **TensorFlow**. Trained the model on **AWS EC2 p2.xlarge** GPU computing instance
- Detected certain dog breed from 133 dog categories with nearly 50% accuracy on test data after less than one minute of training, compared to 70% accuracy if implementing transfer learning that utilized bottleneck features from pre-trained VGG-19 model

*Simple Client-Server program and TCP-like transport-layer protocol* Fall 2014

- Designed a simple Client-Server network using `java.net.Socket` and `java.net.ServerSocket`. Clients could log in using client terminal and send requests to server. Server could respond to some commands from logged-in clients and broadcast messages
- Built a TCP-like transport-layer protocol provided reliable, in order delivery of a stream of bytes using **java.net** package. Allowed logged-in clients to transfer files in different format with other logged-in clients. Achieved self-recovery from in-network package loss, package corruption, package duplication, package reordering and coped with dynamic network delays using similar mechanism implemented in TCP such as sequencing, checksum, ACK, timer and sliding window

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