Jiawei Gu

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Education

01/2017-05/2018

MS, Computer Science; University of Texas at Dallas(UTD); **3.91/4**

08/2013-12/2016

MS, Bioinformatic; University of Texas at Dallas(UTD); **3.73/4**

Relevant Coursework

• Artificial Intelligence • Big Data Management and Analytics

• Computer Architecture • Computational Biology • Computer Vision

• Design & Analytics Computer Algorithm • Database Design

• Machine Learning • Object-Oriented Analytics & Design • Operating System Concepts

• Statistical Methods in Data Science • Software Defined Network • Web Programming Languages

Proficient Skills

Computer languages

Python, Java, JavaScript, C++, R, SAS, SQL, PHP, Bash

Big data framework

Apache Spark, Apache Hadoop

Web stack

MEAN stack(MongoDB, Express JS, Angular JS, Node.js), Java Spring

Deep Learning Framework

TensorFlow, Keras

Certifications

SAS Certified Base & Advanced Programmer for SAS 9

edX Verified Certificate for Big Data Analysis with Apache Spark

Coursera Deep Learning Specialization

Experience

Research Assistant, Biology Department, UTD 01/2014-12/2016

- Machine Learning Prediction for RNA-chromosome interaction, UTD
  - Wrote a **Bash script** to collect genomic and epigenomic data from **online resources**
  - Built a pipeline in Bash and python to preprocess collected data
  - Coded a **Random shuffle** program to generate negative training data set
  - Applied **SVM**(support vector machine) on collected data set to generate a model
- DNA Sequencing Analysis of Brg1 in Cancer Cell, UTD

- Built pipelines for data process and ChIP-seq analysis using Linux bash shell
- Implemented a protein binding motif scan and enrichment analysis program in R
- Analyzed and Visualized data in **R** and **Python**
- **Article publication**: Shi, X., et al. "SMARCA4/Brg1 coordinates genetic and epigenetic networks underlying Shh-type medulloblastoma development." Oncogene (2016).

Teaching Assistant, Biology Department, UTD 01/2014-12/2016

- Assisted instructors to organize student experiment and lecture
- Communicated with students to help them understand materials and answered their questions

Academic Projects

Dog Breed Identification, Kaggle.com 05/2018

- A Kaggle machine learning competition Project
- Design and built a **convolutional neural network(CNN)** in **keras** to determine the breed of a dog in an image
- Applied a **integrated model** of Xception and InceptionV3 to extract bottleneck features from image
- Used three fully connected layers with **drop out** and **batch normalization** to get predicted probabilities
- Used **Adam** optimilzation algorithm to train the final model with **cross entropy** as loss function
- Get the final validation accuracy of 99.76%, can rank 102 out of 1286 teams

Facial Expression Detection, UTD 01/2018-05/2018

- A project uses **Viola–Jones object detection framework** of **openCV** to detect the facial expression (wink and shush) from image or video
- Used the built-in face recognition **Haar Cascades Classifiers** of **openCV** to locate the face from image or framework
- Then applied the eye/mouth recognition **Haar Cascades Classifiers** to detect whether it's winking or shush on the face
- Optimized the parameters and get the final accuracy of 73% on wink and 80% on shush detection.

Advanced Load Balancer for SDN, UTD 01/2018-05/2018

- Designed and coded load balancers for **Software Defined Network(SDN)**
- Defined the virtual network topology on **miniNet**
- Used the **POX** controller to control the packet flows on **vSwitches**
- developed the Statefull/Stateless random/Weighted Round Robin load balancers

TreasurePanning Online Auction Site, UTD 08/2017-11/2017

- Built an online auction site with **MEAN** stack
- Coded a backend server on **Node.js** with **Express JS** framework
- Designed and implemented a frontend one page web application using **AngularJS 1.4**
- functions include user authorization, post item, bid item, wish list, bid history, send message to administrator, and an administrator account to manage/soft delete user, item and biding
- Set a dedicated **MongoDB** server, and store everything except html in the database

CometSale Online Sale Site, UTD 08/2017-11/2017

- a team project developed under **Agile Unified Process** development framework
- Built an online sale system with **Java spring MVC** framework
- Users can post their selling posts in the system.
- All the data are stored in an dedicated **MongoDB** server

Five-In-a-Row Game Development, UTD 01/2017-05/2017

- Designed a Game UI with **libGDX** library in **Java**
- Built an evaluation function to estimate broad for each player
- Adapted alpha-Bate tree pruning algorithm as **AI** agent

Group-User Restaurant Recommendation System, UTD 08/2016-12/2016

- Designed and implemented a real-time restaurant **recommendation system** based on users' location
- Applied **ALS algorithm** implemented by **Spark** to predict user's preference to restaurants
- Connected to **Google Map's API** to get distance and estimate each user's travel time
- Presented a recommendation list based on **machine learning** predicted score and location

Boat rental database design project, UTD 09/2015-12/2015

- Designed **EER diagram** to represent requirement of Boat rental management system
- Mapped EER diagram to relational schema by **MySQL** workbench Populated database system and coded functional procedures