Chengzhu Duan

/chengzhu-duan /c3duan c3duan.github.io (267)-438-8270 Chengzhu.Duan@gmail.com

EDUCATION

University of California, San Diego — *La Jolla, CA*
Computer Science, B.S. — *Sept. 2017 – Jun. 2021*
GPA: 3.78 / 4.00 (Provost Honors)
Relevant Courses: Advanced Data Structures, Computer Organization & System Programming, Design & Analysis of Algorithms, Software Engineering, Deep Learning & Natural Language, Computer Vision

WORK EXPERIENCE

Omniscience Corporation — *Palo Alto, CA*
Software Engineer Intern — *Jul. 2019 – Sept. 2019*
- Expedited image resizing and uploading to **S3 bucket** by using **Thumbnailator** to reduce **30%** thumbnail load time
- Constructed an scalable **RESTful Flask** app with **Swagger Codegen** and **SQLAlchemy** for reliable underwriting automation
- Designed an enterprise software user interface with **Angular** and **Clarity** to support customizable document note-taking
- Implemented document uploading, sharing, editing, and labeling across multiple online platforms with **Angular**, **Spring Boot**, and **AWS S3** for thousands of underwriters from large insurance companies (e.g. RGA Insurance, AIA Group)

Voyager Space Technologies — *La Jolla, CA*
Software Engineer Intern — *Jan. 2019 – Apr. 2019*
- Avoided excessive database queries by implementing pre-fetching cache with **Django** Serializer to reduce **80%** load time
- Built a custom app loading module with **Angular** to ensure browser compatibility and compile the appropriate CSS
- Streamlined an efficient satellite design process for **300+** aerospace engineers by conducting robust backend and frontend tests with **Django** testing framework and **Jasmine/Karma**

Yi Yun Information Technology Corporation — *Guangzhou, China*
Software Tester Intern — *Jun. 2018 – Aug. 2018*
- Conducted automated and manual tests with **Selenium** on an e-commerce web application with **10000+** users
- Implemented a reusable **regression test** module with **Selenium** to speed up the testing process by **60%**
- Followed practice of **parallel testing** and **atomic testing** with flexible and efficient usage of locators

RESEARCH PROJECTS

Predicting Video Game Playtime Before Purchasing
Mentor: Prof. Julian McAuley, UCSD — *Sept. 2018 – Jun. 2019*
- Developed a **Bayesian Personalized Ranking** model that predicts whether or not users will play a game before purchasing from Steam with **93%** accuracy
- Utilized **Scipy** and **Scikit-Learn** to apply popular visualization and data-processing practices (e.g. **t-SNE**) on huge real world data and build custom machine learning pipeline (e.g. BPR with a sigmoid activation function)
- Optimized the model training with **stochastic gradient descent** through **map-reduce** and **negative sampling**

PROJECTS

Swag-Bot — ★ *26* ⑂ *26*
</> *Node.js, Mongoose, MySQL* — *Jul. 2018 – Jun. 2019*
- Established a point/coin system for **15** Discord servers with **500+** users by combining usages of both **MySQL** and **MongoDB**
- Created 77 commands capable of manipulating texts and images and visualizing data and statistics through third-party APIs
- Designed a **Music Task Scheduler** on top of Discord's audio stream in voice channels with YouTube API and **Node.js**
- Implemented an **Anti-Spam Filter** to prohibit members from spanning, cursing, and other inappropriate conducts in channels

IoT Monitor
</> *Angular, Plotly, Python, Node.js, MySQL, Docker* — *Jan. 2020 – Present*
- Coupled **Angular** components with **Plotly** to display interactive visualizations for terabytes of IoT time-series data
- Optimized query evaluation with **Sliding Window Feature Extraction** and **Locality-Sensitive Hashing** of metadata
- Managed the web application, the time-series database, and the search engine with **Docker Containers** and **Bridge Network**

Celebrity Face Classifier
</> *Python, PyTorch, CUDA* — *Oct. 2019 – Nov. 2019*
- Optimized custom **CNN** architecture performance with **Xavier Initialization**, **Batch Normalization**, and **K-Fold Cross-Validation** to increase Balanced Classification Rate by **15%**
- Performed **Transfer Learning** on **ResNet18** which outperformed baseline model by **20%** and significantly reduced training time
- Incorporated **Data Augmentation** into the pipeline to avoid overfitting and achieve translational and rotational invariance

SKILLS

Programming & Markup Languages: Python, Java, Javascript/Typescript, C/C++, HTML/CSS, LaTeX
Frameworks & Libraries: PyTorch, Scikit-Learn, Angular, React, Node.js, Django, Flask, jQuery, Spring Boot, Selenium
Databases: MySQL, MongoDB, Firebase
Tools & Methodologies: Unix/Linux, Git, Continuous Integration, Agile Methodology, Design Patterns
Extracurriculars: Project Manager @ Triton Software Engineering, Member @ Tau Beta Pi Engineering Honor Society