SHANGWAY CALVIN HSU

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EDUCATION

University of California, San Diego — Expected Graduation: 2018
B.S. Computer Science, Minor - Cognitive Science — Cumulative GPA: 3.72 - Major GPA: 3.82

Related Coursework:

Networked Services	Operating Systems	Database System Principles	Computer Security
Parallel Computing	Advanced Data Structures & OOP	Design & Analysis of Algorithms	Software Engineering

EXPERIENCE

Qualtrics — Seattle, WA
Software Engineering Intern | NodeJs, AngularJs, SQL, Amazon Web Services S3 — Jun 2017 – Sept 2017
- Developed file upload for all file types within Qualtrics' world class Customer Experience Management product used by major customers such as Microsoft, Yahoo, BMW.
- Implemented backend with RESTful API endpoints to upload, retrieve and delete files to AWS S3 and Qualtrics' database.
- Architected additional API endpoints and data tables in order store file metadata before uploading to AWS S3.
- Integrated and tested feature on the product's main page to be used by major customers around the world.

SSL – Space Systems Loral — Palo Alto, CA
Software Engineering Intern | Python, Javascript, HTML, CSS — Jun 2016 – Sept 2016
- Designed an internal RESTful Web Server using various Python frameworks such as Flask and Tornado with the goal of distributing satellite telemetry to other programmers in a standardized manner.
- Implemented REST styled realtime data streaming with WebSockets on both server and client sides.
- Created front-end web interfaces using Javascript/CSS/HTML to generate queries and plot historical and streaming data.
- Gained thorough understanding of networking through the development of RESTful APIs and socket connections.

SLAC (Stanford Linear Accelerator Center) National Accelerator Laboratory — Menlo Park, CA
XFEL Software Intern | Python, C++ — Jun 2015 - Aug 2015
- Implemented an optimization algorithm in C++ called Particle Swarm to find an optimal configuration for SLAC's LCLS (particle accelerator) in order to form a coherent electron beam.
- Used the Python MATLAB library for data visualization of the optimization results from the accelerator simulation.
- Made improvements to the algorithm responsible for the electron beam bandwidth calculation.

PROJECTS

Cloud-Based File Storage Service | Python, gRPC — Nov 2017
- Created using 2 separate services: one to upload blocks of file data, one to upload file metadata.
- Implemented both centralized and distributed services which are backed-up with replicated logs and 2-phase commit.
- Crashed backup metadata servers are restored with the most updated logs within 3 seconds once revived.
- Supports concurrent client file upload, retrieval and deletion.

Chorus, Chore Management Web App - http://chore-us.herokuapp.com | NodeJs, ExpressJs, MongoDB — Jan 2017
- Developed using NodeJs paired with ExpressJs framework and MongoDB/MLab as database.
- Implemented REST server to allow front-end application retrieve, add, edit and delete user, chore, and group data.
- Implemented front-end with Google's Material design and created responsive and pop-up behavior using jQuery.
- Applied human-computer-interaction design elements learned from the Human-Computer-Interaction course offered at UCSD.

Free & For Sale 3.0 Web App | Typescript, Angular 2, NodeJs, Ionic 2 — Oct 2016
- Developed using Angular 2 TypeScript framework paired with Ionic 2 and Firebase as database.
- Created majority of the front-end such as the item-listing-details, inbox/messages, home-page item displays, etc.
- Implemented middle-layer services that communicated with the database for posting listings, updating ratings, updating bids, manage purchase and sending out notifications.
- Worked in a fast-paced 7 person team practicing agile software development.

Instagram Replica iOS App | Swift — May 2016
- Developed using Parse as a backend cloud database in order to create custom data entries such as user logins/passwords, followers, posts, etc. Deployed using Heroku cloud platform.
- Extensive transfer of user data between application and the Parse server using Swift.
- Obtained a comprehensive grasp on application development in iOS/Swift/xCode.

Autocomplete | C++ — Jan 2016
- Used Multiway Trie to implement a dictionary capable of Autocomplete.
- Use of Priority Queue to store relations between nodes to decrease autocomplete time at the cost of space.
- Multiway Trie guarantees $O(L)$ in find() and autoComplete(), where L is length of the longest word.

SKILLS

Experience in: REST, Web Development, Networking, Databases
Tools: NodeJS, AngularJS, MongoDB, Git, Unix — **Languages:** Java, Javascript, Python, C/C++, HTML, CSS, SQL