

# SHANGWAY CALVIN HSU

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## EDUCATION

**University of California, San Diego**  
B.S. Computer Science, Minor - Cognitive Science

Expected Graduation: 2018  
Cumulative GPA: 3.72 - Major GPA: 3.82

### Related Coursework:

CSE 100: Advanced Data Structures and Object-Oriented Design  
CSE 160: Introduction to Parallel Computing  
CSE 120: Introduction to Operating Systems  
CSE 101: Design and Analysis of Algorithms  
CSE 110: Software Engineering  
CSE 132A: Database System Principles

## SKILLS

**Experience in:** REST, Web Development, Networking, Databases

**Tools:** NodeJS, AngularJS, MongoDB, Git, Unix

**Languages:** Java, Javascript, Python, C/C++, HTML, CSS, SQL

## EXPERIENCE

### Qualtrics

Software Engineer Intern

Seattle, WA

Jun 2017 – Sept 2017

- Developed a highly requested file upload feature using NodeJs, AngularJs, SQL Database and AWS S3.
- Implemented REST API endpoints to support PUT, GET and DELETE requests to securely upload, retrieve and delete files.
- Integrated and tested feature on the product's main page to be used by major customers globally.
- Created unit tests, API tests, and End-to-End tests to ensure stability and reliability of feature.

### SSL – Space Systems Loral

Software Engineer Intern

Palo Alto, CA

Jun 2016 – Sept 2016

- Developed 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

XFEL Software Intern

Menlo Park, CA

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

**Personal Website – <https://shangwayhsu.github.io>**

Continuous

- Implemented personal website to showcase projects through the use of Bootstrap/HTML/CSS/Javascript.
- Single-page website with scrolling animations and dynamic background.
- Responsive page with mobile support such as collapsible navigation bar to fit devices with smaller screen sizes.
- Email Contact form powered by Formspre.io.

**Chorus, Chore Management App – Web App Development - <http://chore-us.herokuapp.com>**

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 App – Web App Development**

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 App – iOS App Development**

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.