

SHANGWAY HSU

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EDUCATION

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

Expected Graduation: 2018
Cumulative GPA: 3.66 - Major GPA: 3.86

Related Coursework:

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| CSE 100: Advanced Data Structures and Object-Oriented Design | CSE 20: Discrete Mathematics |
| CSE 30: Computer Organization and Systems Programming | CSE 21: Mathematics for Algorithms and Systems |
| CSE 105: Theory of Computability | CSE 101: Design and Analysis of Algorithms |

SKILLS

Proficient in: Java, Python, HTML/CSS/Javascript, Unix, Git
Working Knowledge: C, C++, Swift/iOS/Xcode

EXPERIENCE

Intern

SLAC (Stanford Linear Accelerator Center) National Accelerator Laboratory: 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 Python MATLAB library for visualization of optimization simulation data.
- Made improvements to the algorithm responsible for the electron beam bandwidth calculation.

Swim Instructor

De Anza Cupertino Aquatics Jun 2014 - Sep 2014

- Taught students ranging from ages 3 to 40 year olds using DACA's swimming curriculum.
- Learned how to communicate effectively with students and how to be creative in creating lesson plans.

Front Worker

Dim Sum King Mar 2014 - May 2011

- Serve customers Chinese take out food.
- Duties include: operating the cash register, packing food, taking orders in Chinese.

PROJECTS

Personal Website [<http://shangwayhsu.github.io>]

- Implemented personal website to showcase projects through the use of Bootstrap, HTML/CSS/Javascript.
- Single-page website with scrolling animations and dynamic background
- Resizable page with mobile support and collapsible navigation bar.

To-do List App - iOS App Development

- Written in Swift and Xcode
- Xcode StoryBoard for UI elements and navigation control
- Functionality includes adding new items with title of even and a short description, and deleting/editing existing fields.

Autocomplete - C++

- Used Multiway Trie to implement a dictionary capable of Autocomplete.
- Use of Priority Queue to store additional relation 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.

Replica of 2048 Puzzle

- Backend created using Java using matrices to represent the tiles of the game.
- GUI created using JAVA FX 8 and supports window resizing.
- Additional functionality includes: saving game states, loading game states from text file, and multiple game grid sizes.