SHANGWAY HSU

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EDUCATION

University of California, San Diego Expected Graduation: 2018
B.S. Computer Science, Minor - Cognitive Science Cumulative GPA: 3.66 - Major GPA: 3.86

Related Coursework:

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

I**ntern**
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 MATLAB library in Python to analyze data gathered from optimization simulations by creating graphs, charts and movies.
- Made improvements to the algorithm responsible for the electron beam bandwidth calculation.

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 JAVAFX 8 and supports window resizing.
- Additional functionality includes: saving game states, loading game states from text file, and multiple game grid sizes.