

Brian Lucero

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Education

California State University, Fullerton | Fullerton, CA

May 2022

Bachelor of Science, Computer Science

Relevant Coursework

Object Oriented Programming, C++ Programming, Data Structures, Statistics applied to Natural Sciences, Swift Programming, x86 Assembly Programming, File Structures and Databases, Algorithm Engineering, Engineering Economics and Professionalism, Professional Ethics in Computing, Compilers & Languages, Operating System Concepts, Software Engineering, Introduction to Data Science & Big Data, Artificial Intelligence, Computer Communications, Front End Web Development, Computer Architecture, Software Design, Computer Security

Experience

Bytes and Bots | Irvine, CA

Jan. 2020 – July 2020

Teacher/Mentor - Part time

- Designed and taught 346 lessons on topics such as Arduino, Raspberry Pi, Python, C++, Basic Programming, Robotics, and Electronics at the Bytes and Bots Laboratory in Irvine, and Ross Elementary, Ponderosa Elementary, and Stoddard Elementary schools

Private Tutoring Services | Los Angeles/Orange County, CA

Jan. 2017 – Present

Tutor - Part time

- Re-engineered lesson content to be more effective in a virtual environment, for Mathematics, Computer Science, Saxophone Performance, and Music Theory; a solution to not having in person lessons, and making content more absorbable

Project Experience

Custom Lexical/Syntax Analyzer --- Program | Compilers

Feb. 2021 – Mar. 2021

Software Development Team

- Constructed a 5 component Finite State Machine (FSM) which handles various lexer states, and is contained by the SA parser
- Reinforced several compiler concepts such as Tokens & Lexemes, Buffering, Finite-State Automata, and Regular Expressions

Multi-Threading Application | Operating Systems Concepts

Feb. 2021 – Mar. 2021

Software Development Team

- Conducted evaluation analysis on 4 of the most common process & disk scheduling algorithms; First Come-First Serve (FCFS), Shortest Job First (SJF, non-preemptive), Round Robin (RR, quantum = 5 milliseconds), and Priority (with 3 priority levels)
- Related the threading, process synchronization, and deadlock concepts covered in class to a real-world problem
- Discovered the challenges of debugging race conditions and deadlocks, and learned how to prevent them

Triangle Area --- Program | x86 Assembly Programming

Oct. 2020 – Nov. 2020

Software Development

- Implemented the feature which accepts input three quadword float numbers representing the sides of a triangle. After confirming that the inputs are in fact valid floats then compute the area of the triangle using Heron's formula
- Equipped the program with error handling, avoids crashing when a user inputs a length value outside acceptable parameters

Sorting Race --- Web Application | Algorithm Engineering

Sep. 2019 – Oct. 2019

Software Development Team

- Revamped the traditional Sorting Algorithm Race into a program that launches in web browser of choice
- Illustrated the various algorithm steps and the generational (i.e. one row per pass) progress of several different sorting algorithms, side by side in their own columns; Insertion Sort, Merge Sort, Pore's Gold Sort, Quick Sort
- Coded all of the visuals, logic, and algorithm implementations in P5 Javascript, HTML, and CSS
- Documented several sections of concept integration, development process, setup & installation, external requirements, features, and contents

Grocery Database --- Program | Data Structures

Jan. 2020 – May 2020

Software Development

- Implemented 10 data structures including the Array, Vector, SL List, DL List, Stack, Queue, Map, Binary Search Tree, AVL Tree Unordered Container (Heap), using STL and non-STL design
- Performed 2 comparison analysis tests between the containers, highlighting their respective Big-O Complexity on various container operations and search algorithms

Pi Kappa Alpha Event Planning Committee | Fullerton, CA

Aug. 2018 – Dec. 2018

Special Interest Group Leader

- Hosted over 20 workshops on personal, social, and career development, featuring guest speakers such as alumni, advisors, and current members of the organization

Affiliations & Organizations

- Society of Hispanic Professional Engineers (SHPE) April 2021 - Present
- Association for Computing Machinery (ACM) Aug. 2018 – Present
- Institute of Electrical and Electronics Engineers (IEEE) Aug. 2017 – Present
- Pi Kappa Alpha Fraternity Aug. 2017 - Present
 - Served on Executive Board, Event Planning Committee

Skills & Interests

- Proficient in C++ Programming, iOS Application Development, Object-Oriented Programming, Software Engineering models and concepts
- Languages: C++, Python, Swift, R, SQL, JavaScript, HTML, CSS, x86 Assembly (Intel Syntax), C, Shell script
- Platforms/Applications: Windows, macOS, iOS, Linux, Ubuntu, Debian, Raspberry Pi OS, Arduino, Git, Github, Vscode, Xcode, Simulator, Atom, MySQL, PyCharm, RStudio, Oracle VM Virtualbox Manager, Unreal Engine, Matlab
- Personal Interests: traveling/outdoors, sports, computer gaming, skateboarding, music education/production, saxophone performance