**About Me**

My name is Armanul Ambia, and I'm a Computer Science Major at CSUF. I'm currently a junior and am excited about pursuing my degree and working in the software industry. I'm interested in exploring web development, artificial intelligence, blockchain technologies, and data science. New technologies and advancements are exciting as a student and future developer.

My hobbies include running, cooking, reading, and playing video games. I play way too much league of legends … 🕹

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**Experience**

**Edison**

At SCE, I developed analytical scripts on electrical infrastructure to facilitate SCE’s transition to renewable energy. Currently, SCE’s solar analysis relies on data collected over five years ago and experiences inaccuracy due to changing climate, infrastructure, and commercial development. I took charge of collecting and extrapolating new 2020 data from SCE’s Photovoltaic (PV) solar circuits in conjunction with my team’s economic and electrical forecasts. To complete this project, I collaborated with various IT and backend data teams to address data and circuit specific anomalies. Afterward, I developed python scripts using pandas, NumPy, and Matplotlib to run numerical statistics, percentile analysis, reliability calculations, and find max PV activity. SCE relied on these scripts to formulate a new ten-year solar forecast ensuring high quality solar systems for Southern California residents and reach their goal of 100% renewable energy by 2045.

**KSC**

At KSC, I worked in the NE-XS division and developed software that directly impacts the launch of Artemis II in 2023. My work focused on creating a completely redesigned graphic engine to produce displays. These displays are integral to engineers working within the Firing Rooms during rocket launches and have high standards of readability, compatibility, and data generation. The previous iteration of the software relied on inefficient 3rd party software that needed replacement. I spearheaded the creation of an all-new engine using open-sourced Java Swing and JavaFX libraries. At the end of spring, I presented my engine and formed working prototypes of multiple displays. I highlighted the enhancements between the previous version and my new engine in display functionalities, readability, speed, and efficiency. This program was foundational in exploring new graphic tools and will be implemented further in preparation for Artemis II.

**theCoderSchool**

At theCoderSchool, I teach programming to over fifteen students aged 7 to 17 in one on one sessions and group lessons. My instruction starts with programming fundamentals using MIT’s Scratch platform to develop their skills before advancing to advanced scripting languages such as Python, C++, Java, HTML, and CSS. My experience as a code coach on a diverse team has developed a mindset centered on meeting the client’s needs through a personalized curriculum and constant community outreach. I have spearheaded programs such as Lego Mindstorms Robotics in local elementary and middle schools and completed code expos for girl scouts and local organizations. My work has earned recognition from the parents of motivated students eager to pursue STEM fields.

**Boeing**

The Engineering Practicum is a high school internship program at the Boeing Company that included 150 hours of exposure to Engineering fields, networking, professional development, and project work. In 10 weeks, I developed a cost-effective model for fighting California wildfires using Systems Tool Kit software. My work involved researching fire-fighting equipment, adaptations to climate change, fire-fighting vessels, available resources per capita, and long-term sustainability. After running simulations under various budget guidelines, architectural restraints, and feasibility requirements, I recommended a standard set of air carriers and task force sizes that project an estimated saving of $200,000 a year. I presented the model to Boeing Senior Tech Fellows and received praise for comprehensive analysis, project adaptations, and prioritized decision making.

**Projects**

**Smart Brain Web App**

This project is my first fully functional web app. It features a front-end design using ReactJS. With ReactJS, the app is split into different cards and components that efficiently communicate. Using React props and state property, the web page can render a sign-in screen, register page, and home page with functional components. The project also features a backend server using NodeJS and ExpressJS. It uses HTTP GET, POST, PUT requests to communicate with the front end and the database. The database is built on PostgreSQL and holds two tables, LOGIN and USERS. When users register, they provide a username, password, and email. They are registered into the USERS table, and their password is encrypted to be entered into the LOGIN table. After signing in, the user can submit images to the app, and any faces in the image will be highlighted using AI detection through the Clarifai API.

**Sorting Visualizer**

My sorting visualizer was a tool I built to help me prepare for technical interviews. I had trouble understanding some of the different sorting algorithms and their efficiencies. This app is built in C++ (the only language I was well versed in at the time 😊 ) and uses a visual library called SFML. It renders insertion sort, bubble sort, selection sort, and merge sort using colored bars. The user has the option to select a sort and run it at a speed they choose, 1 to 10. It slows down the sort enough to see the differences in speeds between different sorts. There is also a reset button to stop the sort at any time. The sorting visualizer gave me a boost of confidence in my development skills as it was pretty tricky for me as a starting CS major.

**Running Database**

My running database is a project completed during my senior year of high school. The project was designed to help my cross country coach and address the issue of relaying race results to students. After every cross country meet my coach would have to go in and update the records of over sixty runners and print them out to deliver to the team the next practice. This process could take hours, and my coach would have to complete this every week during season. The project is coded as a GUI using java swing libraries and databases. It maintains text files with data for each runner that can be easily updated, saving time and limiting errors. This makes it so my coach can focus less on logistics and more on what he loves, running!

**Data Structure Analysis**

In the wake of Covid-19, many systemic changes took place in my University's Data Structures course. The final project for data structures was converted into an analysis of all the structures we covered in the course. This allowed me to dive into arrays, vectors, linked lists, stacks, queues, trees, and maps to analyze their efficiencies. The project compares the time complexity of each of these data structures in regards to operations such as adding to the front, adding to the back, removing from the front, removing from the back, removing from the front, and searching. It is completely coded using C++ standard libraries and includes a graphic report to display the results of the tests.

**Connect 4 Game**

Following my python course in the spring of 2020, I began experimenting with different modules and utilities offered by python. One of the most versatile and exciting to me was the pygame library. I began using pygame to create small shooter games and platformers, following online tutorials, and gaining insight into the holistic method of game design. After a month of work, I grasped many of the concepts, and was able to recreate one of my favorite childhood games, connect 4. I had created both tic tac toe and connect 4 in a console-based format before fully developing a GUI in pygame for the connect 4 project. This allows the user to place pieces and play red against black, replicating the classic game.

**Extracurriculars**

**Presidents Scholars**

The President's scholarship program is the most prestigious scholarship offered by CSUF and recognizes leadership, service, and academics. This is a full-ride scholarship that brings together high school seniors who have displayed these qualities in diverse ways for a four-year program. By being a member of this scholarship group, I, along with 15 of my peers, contribute back to the CSU through several service activities and leadership roles. All members come from different educational backgrounds with different goals. Regardless, we all carry the spirit of the President's scholar program and are poised to contribute back to the CSU as well as our communities.

**TEDxCsuf**

I served as the vice president of the TEDxCSUF from August 2019 to January 2022. TEDxCSUF is a branch of the national TED organization committed to sharing ideas through public speaking. We provide a platform for knowledge and growth that brings together speakers from all over. TEDxCSUF is an opportunity for me to learn from my peers and high-profile individuals, professionals, and professors. I believe in the value of high-quality conversations and love learning from others. Over two years, we were able to put on a full-fledged virtual TEDx conference during the pandemic and an in-person conference at the end of 2021.

**Supplemental Instruction**

As a Supplemental Instruction (SI) Leader, I gave back to the CS community at CSUF by working as a tutor for struggling students. SI Leaders shadow some of the larger/ more difficult CS courses on campus and run two tutoring sessions every week. In these sessions, students can ask questions, clarify any topics from the class sessions, work with their peers, and gain advice on how to be successful as a CS major. SI is a fantastic resource that helped me succeed in some of my earlier coursework, and by working as a tutor, I was able to share my experience with many other students.