Harshika Jha

harshikajha@utexas.edu • https://www.linkedin.com/in/harshikajha/

EDUCATION

The University of Texas at Austin Bachelor of Science, Electrical and Computer Engineering May 2023

- **Relevant Coursework**: Introduction to Computing and Computing Systems, Introduction to Electrical Engineering, Spatial Visualization, Circuit Theory, Introduction to Python, Differential Equations, Multivariable Calculus, Linear Algebra w/ MATLAB and Python, Introduction to Embedded Systems, Linear Systems and Signals, Discrete Mathematics, Software Design and Implementation, Algorithms, Digital Logic Design, Digital System Design Using HDL, Software Design and Implementation II, Computer Architecture
- **Relevant Certifications:** AWS Fundamentals: Going Cloud-Native, AWS Fundamentals: Addressing Security Risk, AWS Fundamentals: Migrating to the Cloud, AWS Fundamentals: Building Serverless Applications, Bloomberg Market Concepts

Professional Experience

Raytheon Intelligence and Space McKinney, TX
FPGA/Electrical Engineering Intern May 2022--August 2022

- Built an emulator for an RFID chip that generated an axi bar in JTAG master/slave mode; this worked to verify an RFID chip through faster generated test cases (in comparison to regular software)
    - utilized VHDL to develop the port connections for the processing system; obtained experience with Linux, QuestaSim, Xilinx Vivado/Vitis technologies to create block diagrams and simulations of the ZC706 board

Advanced Micro Devices (AMD) Austin, TX
Product Engineering Intern August 2021--December 2021

- Generated PowerBi pareto charts that establishes a relationship between failure mechanisms and their respective wafers they occurred on using SQL and DAX
- Created an interface that clearly expresses how yield data can be dynamically filtered by establishing a connection between Yield Explorer Dashboard and Scan Visualization through my understanding of test, yield, and device processing fundamentals

Straviso Frisco, TX
Software Engineering Intern June 2021--August 2021

- Evaluated the client needs for business-directed services by utilizing the modular platform built through machine learning models -- primarily random forests and decision trees
    - Obtained experience with machine learning basics, expanded my knowledge of algorithms, and further developed chatbots on a complex level

University of Texas at Dallas Richardson, TX
Bioinformatics Intern January 2017--2019

- Analyzed large molecular datasets such as raw microarray data, genomic sequence data, and proteomics data for research purposes using Python and R -- statistical analysis was utilized to differentiate genomic differences between tumor positive and negative samples from various libraries

Programming and Research Projects

- Design of Sprinkler Valve Controller and a BCD to 7-Segment Display
    - Using Basys board, I designed and synthesized a sprinkler valve controller using a 4-by-2 multiplexer using Xilinx Vivado and subsequently learned the board components and FPGA pin routing
    - Utilized k-maps showing the minimization of the logic functions to provide the 7-segment display and implemented the algebraic expressions through verilog codes of module and testbench for structural modeling
- Engineered a Mastermind Game in Java
    - Utilized software design principles to replicate the otherwise notorious board game through the implementation of object-oriented programming (OOP) to output the game on any terminal
    - *Relevant Programming Languages: Java*
- Programmed a digital piano using a digital-to-analog converter
    - Instantiated GPIO ports to input desired notes and output specific wavelengths of sounds on a breadboard; used oscilloscopes and spectrum analyzers through a simulator to test the functions first and subsequently implemented on a breadboard and launchpad
    - *Relevant Programming Languages: C*
- Created a traffic light simulation using a TM4C123 LaunchPad board
    - Applied the principles of embedded system to create a Moore finite state machine to model a traffic light intersection; used oscilloscopes and spectrum analyzers through a simulator to test the functions first and subsequently implemented on a breadboard and launchpad
    - *Relevant Programming Languages: C*

Leadership

Relevant Organizations

- **Kendra Scott WEL Institute -** Student Advisory Board Member, **Society for Science and the Public** - Regeneron Science and Engineering Scholar, **IEEE -** UT Austin Engineering Member; **Refugee Care Initiative** - Founder and Former President and Director of Partnerships

Achievements

- State qualifier for TXSEF (Texas Science and Engineering Fair) in 2014 -2017 - awarded the Stockholm Water Prize 2017
- Gold Medalist of the International GENIUS Olympiad 2018-2019 in the Science Category
- BROADCOM Master Semifinalist 2014- National Competition of the Society for Science Public - **REGENERON National Semifinalist 2019**
- Recognized by Dallas County Veterinary Medical Association; The Surgeon General's Science Award by the U.S. Public Health Service

Skills

Technical: Java, Python, Linux, Microsoft Office, R, C , HTML, CSS, Javascript, React, Arduino, Unity, LC3 Assembly, ARM Cortex Assembly, Mac OS X, Digital Logic Design, RF circuit design, PCB design, CPU & GPU Architecture, LTSpice, Power Bi, DAX, SQL, System Verilog, FPGA systems, Xilinx Vivado (for digital logic design/verilog usage), Bash. Python Scripting, Networking Protocols, VHDL, design verification, ASICs, object oriented programming, Game Design
Language: English, Hindi, Spanish (limited)