HARSH KHUBCHANDANI

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EDUCATION:

University of Southern California **Los Angeles, CA**

B.S. - Bachelor's in Computer Science and Business Administration: Minor in Artificial Intelligence applications

Major GPA: 3.9 | CGPA: 3.9

Honors: USC's Dean list (All semesters), Alpha Lambda Delta (USC's honor society);

Relevant links: GitHub | LinkedIn

SKILLS AND INTERESTS:

Programming Languages: C++, Python, Java, JavaScript, HTML, CSS.

Frameworks and libraries: Scikit learn, Pytorch, TensorFlow, Git, GitHub, NumPy, Pandas, Flask, React, Nodejs, VS code, Valgrind, JIRA.

Relevant Coursework: Data structures and algorithms, Cloud computing with Dev ops, Discrete math, Linear algebra, Object-oriented programming, Intermediate Micro and Macroeconomics, Data Validation, and Business Valuation modelling.

PROFESSIONAL EXPERIENCE:

ASML **San Diego, CA**

Software engineer intern *June. 2023–August. 2023*

- Led scanner team of 5 other interns that focused on improving efficiency of Tin droplet scanner and cameras by 5%.
- Leveraged Speedboat and MATLAB services to simulate the tin droplet rate of switching from a 60khz system to 100khz.
- Worked on data ingestion pipelines with Big Query and Kubernetes to integrate machine learning in lithography simulations.
- Collaborated with the embedded software team to enhance and maintain the python codebase of the lithography systems.
- Led daily scrum meetings with other interns to track performance of metrology cameras and conducted weekly code reviews.
- Worked with data generated by metrology systems using TensorFlow image recognition to improve tin droplet detection.

Powerweave **Mumbai, India**

Software engineer intern *May. 2022–July. 2022*

- Built and maintained EWIZcommerce, a B2B e-commerce platform with built-in marketing automation and restful APIs.
- Leveraged SugarCRM to design and execute targeted email marketing campaigns and tracking of tasks and reminders.
- Implemented Apriori algorithm to understand returning purchases and increase retention using data visualization by 15%.
- Acted as a key troubleshooter to fix high priority bugs in the ewiz platform using debugging tools like GDP and Valgrind.

Practo pvt. ltd **Mumbai, India**

Software engineer intern *Feb. 2022–Apr. 2022*

- Created a web-based tool leveraging React to allow doctor consultations and find the closest doctor according to the location.
- Leveraged PostgreSQL databases in the healthcare platform to facilitate the secure storage of critical patient information.
- Conducted analysis of SQL queries to identify performance bottlenecks resulting in 15% reduction of query execution time.
- Assisted the quality assurance team in identifying test cases to enable a concise functional test of developmental deliverables.
- Created unit test documents to detect bugs and improve quality control which lead to a 12% increase in the reliability of code.

PROJECTS

AVL and BST visualization | C++ | JavaScript | React **July 2023**

- Developed a fully functional BST(binary search tree) and AVL tree to manage large datasets of strings and other types.
- Created an interactive and intuitive user-interface to allow users to insert, delete and search for elements within the trees.
- Utilized object-oriented principles such as Loose coupling and abstraction to inherit from basic properties from BST class.
- Implemented balancing mechanisms, such as rotations and height checks to ensure the validity and balance of the AVL tree.
- Gathered user-feedback by sharing the website to subjects which led to a more user-friendly visualization of the trees.

Stock market predictor| GitHub | Python | Scikit learn **May 2023**

- Developed a machine learning algorithm utilizing the scikit learn library and yfinance API to predict NASDAQ data
- Implemented data processing including fetching historical data, cleaning collected data and building a back testing system.
- Utilized a Random forest classifier model with additional predictors to improve the precision score of the trading algorithm
- Implemented the MATPLOT and Pandas library to create statistical graphs of trends and achieve efficiency through Series.

Maze solver | C++ | JavaScript | React **Feb 2022**

- Utilized a Breadth-first search algorithm using a dequeue to discover the shortest path in mazes of varying complexities.
- Created an interactive website where users can create mazes and would be able to find the shortest paths from point to point.
- Displayed the path that was found through BFS in real-time also allowing users to pause and change the end point of the path.
- The Standard template libraries provided constant runtime for insertion and removal while traversing through the maze.

Graph Isomorphism solver | Backend | C++ **May 2023**

- Developed a program that uses backtracking search and hashing to determine if two graphs (adjacency lists) are isomorphic.
- Built a social network using a personal example to formulate relationships between unknowns and solved for isomorphism.
- Implemented a hash table that uses quadratic probing for collisions to efficiently store and manage mapping between vertices.
- Conducted thorough testing on various graph sizes and complexities achieving an average of 3-second solve run time.