Kavin Suraj Jeyasankar

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Education

Bachelor of Science	**Colorado School of Mines**	**Golden, CO, USA**	**08/2021-12/2024**

- Major: Computer Science   Focus Area: Computer Engineering   GPA: 3.52

Experience

Undergraduate Software Engineer Researcher	**The Center for Hydrate Research**	**08/2023 - Current**

- Designed and modernized one-of-a-kind software used to predict stability of hydrates in nature using the latest technologies available with C++ version 20.
- Significantly optimized existing software through the integration of new C++ versions to bring runtimes from 1 hour on older versions down to 4 seconds.
- Improved software readability and modularity for the implementation of future features as the science behind hydrates is further researched.
- Continuous code reviews, professional benchmarking/unit testing frameworks, compile time evaluations leveraged to produce optimal results for industry success.

Mentor	**FTC Robotics**	**09/2021 – 04/2022**

- Led the team to 2nd place in the state championship while teaching path following algorithms and frameworks such as pure pursuit as well as Java programming principles.
- Utilized real-time computer vision such as OpenCV to improve special awareness and performance of our robot.
- Implemented odometry to significantly improve position accuracy with variation per run going from an average of 11.8 inches to 3.4 inches, an improvement of 71%.

Projects

AI Board Game (~7000 lines) - Java

- Designed and developed Clue board game with clean and complete UI as well as clean and modular code with the implementation of SOLID programming principles.
- Used JFrame to implement graphics, movement animations and button functionality.
- Created artificially intelligent computer players to make smart decisions derived from human players movement, accusations, and suggestions.
- Implemented Junit to ensure functionality of the code throughout the development process. SOLID programming principles were utilized for object-oriented design.

Parallel ZIP (~500 lines) – C

- Program inputs a large string and outputs a compact version of the same string with character counts with the utilization of multiple threads to improve efficiency.
- Array was split into equal parts with each part being processed in parallel with different threads to ensure performance standards are met.
- Memory allocation and deallocation was strictly kept track of to ensure memory safety when creating and accessing arrays in C.

Fullstack AI Powered Quiz Creator – Python

- Utilized openai API, python, and flask to create a web application that generates quizzes based on topics inputted. This app increases the efficiency at which students are able to learn different topics.
- Applied basic security measures and hashing technology to secure used data, passwords, and quiz generations in a database for future access.
- Created a modern and sleek frontend using Bootstrap for simple navigation while keeping performance high.

Skills

- C++ | Java | Python | C | C# | SQL | HTML | JS | CSS | Unit testing | JFrame | Junit | OOP | Git | Data Processing
- PostgreSQL | Verilog | Numpy | SolidWorks CSWA | pandas | NumPy | matplotlib | scikit-learn | Flask
- SQLAlchemy | openai API | Bootstrap | React.js

Relevant Coursework

- Operating Systems | Data Structures | Software Engineering | Algorithms | Intro to Linux OS | Web Apps
- Data Science | Discrete Math | Linear Algebra | Differential Equations | Cryptography | Embedded Systems
- Principles of Programming Languages | Computer Organization | Digital Logic | Database Management