HARSHIT JAIN

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EDUCATION

The Pennsylvania State University, University Park PA Expected Graduation: Dec 2024
Bachelor of Science in Computer Science | Minor in Mathematics
GPA: 3.7/4.0 | Dean's List (All Semesters) | Recipient of The President Walker Award | Webmaster @ NDL | Resident Assistant
Relevant Coursework: Data Structures & Algorithms, Systems Programming, Artificial Intelligence, Programming Language Concepts, Programming and Computation II: Data Structures (in Python), CodePath: (Intermediate + Advanced) Software Engineering, OOP with Web-based Applications (in Java), Linear Programming, Discrete Mathematics

TECHNICAL SKILLS

Programming Languages: Python, C/C++, JavaScript, Java, HTML/CSS, MATLAB, Verilog, Assembly (64/32-bit x86)
Frameworks & Tools: Node.js, React.js, React Native, RESTful APIs, LaTeX, Git, Agile (Scrum) Methodology
Softwares: Visual Studio, MS SQL Server, MySQL Database System, Linux/UNIX, SonarQube, Postman, Bitbucket, JIRA

WORK EXPERIENCE

Software Engineering Co-op May 2023 - Present
VIAVI Solutions Inc. Germantown, MD

- Collaborated with the 6-person R&D team to design and implement a Python-based automated test suite on Linux systems for the EGR 2.0 (instrument), ensuring comprehensive test coverage and compliance with the SCPI protocol
- Debugged PNT-62xx unit's source code in C/C++, resulting in a 55% reduction in bugs and a 30% increase in code coverage
- Performed 35+ rigorous short-term and long-term tests on core devices using SCPI commands to uphold release-level quality
- Coordinated automation and security practices to support an Agile Development Engineering environment utilizing Scrum
- Utilized: Python, C/C++, SCPI Protocol, Bitbucket, Confluence, SonarQube, Git, Agile, JIRA, Office 365

Software Engineering Intern - Research Associate May 2022 - May 2023
Materials Research Institute (MRI), The Pennsylvania State University University Park, PA

- Implemented front-end architecture using React.js to design 50+ latest user-facing features in 20+ REACT components with 100% accuracy (tested using JEST), built reusable components, and front-end libraries for continuous development
- Saved weeks of development efforts by integrating modular code using popular REACT libraries, improving efficiency by 40%
- Integrated MS SQL Server relational database which currently deals with 500+ instruments' data in 18+ tables
- Developed and tested Python scripts automating the process to retrieve data from various sources, manipulate and analyze the data, filter out irrelevant data, look up similar data in the server, import it into the server, and handle errors gracefully
- Developed and completely automated a Python library for the Raman Fitting model, to perform deconvolution on Raman spectra, and enable interactive preprocessing, effective fitting, and export of data files, reducing analysis time by 40% (tested)
- Utilized: Python, JavaScript, React.js, Node.js, MS SQL Server, RESTful APIs, Git, HTML/CSS, JIRA, Office 365

PROJECTS

HiLite: AI AutoHighlighter (Try it here) Mar 2023 - May 2023

- Designed an AI system that automatically identifies and summarizes text using Long Short-Term Memory (LSTM) networks
- Created LSTM-based Encoder and Decoder to create a robust text summarization solution
- Trained the model on the training set, using the validation set to monitor its performance and prevent overfitting
- Utilized Python, Flask, and React.js for the implementation, ensuring a seamless and user-friendly interface

mdadm Linear Device (Try it here) Feb 2023 - May 2023

- Developed the mdadm tool in *C* for managing multiple disks in Linux systems
- Configured 16 disks of size 64 KB as a 1 MB linear device, providing users with a unified address space for data access
- Implemented mount/unmount operations to the linear device, mitigating potential data loss and system crashes
- Designed the read/write functions to set up in the linear device, providing users with comprehensive data access capabilities
- Engineered data caching solution to enhance system latency reduced I/O wait time by 60%
- Enforced JBOD Networking feature to enable communication with JBOD servers over the network

Library Management System (Try it here) Nov 2021 - Dec 2021

- Built a Python-based professional library management system that streamlines basic and advanced tasks in a library setting; the system passed tests on 500+ library logs
- Rolled out 10+ features and functions for the system, including:
  - Checks the eligibility of students to borrow books on a particular day for a certain number of days
  - Finds the book that has the highest borrowing ratio
  - Produces a sorted list of the most borrowed books (books with the highest usage ratio)
  - Calculates the pending fines at the end of the log and on a specific day in the log