

# HARSHIT JAIN

+1 (582) 203-9755 ♦ [harshitj.cs@gmail.com](mailto:harshitj.cs@gmail.com) ♦ [linkedin.com/in/harshitjain17](https://linkedin.com/in/harshitjain17) ♦ [github.com/harshitjain17](https://github.com/harshitjain17)

## EDUCATION

**The Pennsylvania State University, University Park PA** Expected Graduation: Dec 2024  
Bachelor of Science in Computer Science  
**GPA:** 3.7/4.0 | Dean's List (5/5) | Technical Coach @ [CodePath](#) | AlgoPSU Captain @ [ACM](#) | Resident Assistant  
**Relevant Coursework:** Data Structures and Algorithms, Math of Machine Learning, Operating Systems Design, Systems Programming, [Supervised Machine Learning](#), [Advanced Learning Algorithms](#) (Deep Learning), [Generative AI with LLMs](#), Theory of Computation, CodePath: (Intermediate+Advanced) Software Engineering, Database Management Systems

## TECHNICAL SKILLS

**Programming Languages:** Python, C/C++, JavaScript, Java, HTML/CSS, MATLAB, Verilog, Assembly (64/32-bit x86)  
**Frameworks & Tools:** [AWS](#), TensorFlow/Keras, Scikit-Learn, Numpy, Node.js, React.js, Next.js, RESTful APIs,  $\text{\LaTeX}$ , Git  
**Softwares:** LLMs, MS SQL Server, MySQL Database System, Linux/UNIX, SonarQube, Postman, Bitbucket, JIRA

## WORK EXPERIENCE

**Software Engineer Intern** May 2024 - Present  
Hughes Network Systems, LLC Germantown, MD

- Working within their Aviation business (Aero program)

**Machine Learning Engineer Intern** Jan 2024 - May 2024  
Materials Research Institute (2DCC-MIP Team), Penn State University University Park, PA

- Leveraged SOTA LLMs like GPT-4, Jurassic2, and Llama2 for chatbot-integrated answer retrieval using the RAG Model
- Automated Python-based **AWS Lambdas** for video processing and transcription, handling **50% user upload surge**
- Implemented face recognition via **AWS Rekognition**, enhancing automatic tagging for improved content organization
- Leveraged **AWS EC2**, reducing launch time by 25% and achieving **20% cost savings** through optimal instance selection
- Utilized: Python, AWS, Next.js, LLMs, Deep Learning Models

**Software Engineer Co-op** May 2023 - Dec 2023  
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 PNT instruments, ensuring comprehensive test coverage and compliance with the SCPI protocol
- Debugged PNT unit's source code in **C/C++**, resulting in a **55% reduction** in bugs and a **30% increase** in code coverage
- Performed 35+ short-term and long-term tests on core devices using SCPI commands to uphold release-level quality
- Utilized: Python, C/C++, SCPI Protocol, Bitbucket, Confluence, SonarQube, Git, Agile, JIRA

**Software Engineer Intern - Research Associate** May 2022 - May 2023  
Materials Research Institute (2DCC-MIP Team), Penn State University University Park, PA

- Implemented front-end architecture using **React.js** to design 50+ user-facing features in 20+ **REACT** components with 100% accuracy (tested using JEST), built reusable components, and front-end libraries for continuous development
- Integrated **MS SQL Server** relational database which currently deals with **500+ instruments' data** in 18+ tables
- Automated **Python scripts** for data retrieval, manipulation, and integration with robust error handling and efficient filtering
- Research: **Developed 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

## PROJECTS

**Dynamic Memory Allocator [C/C++]** (Code available upon request; to avoid plagiarism) Jan 2024 - Feb 2024

- Designed **custom malloc, free, realloc**; segregated free lists and footer optimization to improve memory management
- Achieved a **utilization score of 69%** and benchmark **throughput at 100%** across diverse computing environments

**HiLite: AI AutoHighlighter [Python, Flask, React.js]** ([Try it here](#)) Mar 2023 - May 2023

- Designed an **AI system** that summarizes text using Long Short-Term Memory (LSTM) networks
- Created **LSTM-based** Encoder and Decoder to create a robust text summarization solution

**mdadm Linear Device [C/C++, Linux]** ([Try it here](#)) Feb 2023 - May 2023

- Configured **16 disks of size 64 KB as a 1MB** 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%**