

Divyasri Lakshmi Alekhya Nakka

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Education

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- San Jose State University** – M.S. Software Engineering, **GPA: 3.8/4.0** Jan 2025 – Dec 2026
- **Coursework:** Software Systems Engineering, Enterprise Software Platforms, Software Quality Assurance Testing
- SASTRA University** – B.Tech Information technology, **GPA: 3.7/4.0** Jan 2025 – Dec 2026
- **Coursework:** Data Structures and Algorithms, Object Oriented Programming, C/C++/Java/Python, Web Development, DBMS, Operating Systems

Experience

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- Senior Firmware Engineer** | HP Inc., Bengaluru, India Oct 2022 – Nov 2024
- Led key firmware features including **Delayed Calibration**, **Jam Recovery**, and **Quiet Mode Scheduling**, improving recovery time by **20%** and reducing acoustic output by **35%**.
 - Designed and documented **RESTful APIs** using **OpenAPI 3.0** for seamless integration across **EWS**, **CDM**, and **UI** layers.
 - Enhanced communication layers and build pipelines using **C++**, **CMake**, and **JSON**, achieving **25% faster throughput** and **15% reduced build time**.
 - Mentored 3+ developers and implemented **unit**, **integration**, and **regression testing** with Python, raising test coverage to **92%**.
- Firmware Engineer** | HP Inc., Bengaluru, India Oct 2020 – Oct 2022
- Developed core firmware services in **modern C++ (14/17)** for Home, Enterprise, and Large Format printers under real-time constraints.
 - Built multi-protocol communication frameworks using **JSON schemas** and robust **RESTful APIs** to ensure consistent data flow.
 - Delivered automation with **Python/C++ test suites**, enabling hardware bring-up, integration, and validation across 10+ release cycles.
 - Verified end-to-end firmware–hardware operation on **ARM-based embedded systems**, integrating with CI/CD infrastructure.

Technical Projects

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- Real-Time Print Job Interruption Feature** | HP February 2024 – June 2024
- Engineered a collated-copy interrupt mechanism allowing high-priority copy jobs to preempt print jobs, resuming seamlessly post-copy.
 - Designed job state tracking using **C++ STL maps** for jobId/pageId, and implemented thread-safe coordination using **mutexes and locks**.
 - Reduced print pipeline latency by **15%** through concurrency-safe scheduling algorithms across multi-core environments.
- High-Performance Quiet Mode Scheduling Service** | HP August 2023 – January 2024
- Developed a time-based Quiet Mode scheduler in the **C++ CDM service**, allowing low-noise operation based on user-defined windows.
 - Implemented **state-aware scheduling logic**, time-wrap deferral, and RESTful endpoint exposure via CDM → EWS → UI. Leveraged **mutexes** and **STL maps** for thread-safe schedule tracking across embedded OS threads.
 - Achieved **99.9% scheduling accuracy** across 10+ printer models with 500+ automated test cases.
- Secure Document Stamping Pipeline** | HP January 2023 – August 2023
- Built a secure image-stamping firmware module in **C++** to decrypt, cache, and overlay client-provided stamps on raster pages.

- Managed secure caching in printer RAM (/mnt/images) and integrated upstream EWS and downstream raster layers. Ensured compliance for **20+ encrypted payload formats** across ARM-based firmware platforms.
- Boosted pipeline throughput by **25%** via optimized buffer management and multithreaded orchestration.

Technical Skills

- **Programming Languages:** C, C++, Python, Bash, Java, JavaScript, SQL
- **Web APIs:** HTML, CSS, Django, RESTful APIs, JSON, OpenAPI, Swagger
- **Firmware Development:** Embedded Systems, RTOS, Interrupt Handling, Memory-Constrained Programming, Multithreading, Real-Time Debugging, Peripheral Drivers, Printer Firmware, Jenkins, CI/CD Pipelines
- **Protocols Interfaces:** I2C, SPI, UART, USB, TCP/IP, HTTP
- **Testing Validation:** Unit Testing, Integration Testing, Regression Testing, Pytest, Python Scripting, System Testing
- **Tools Environments:** Git, GitHub, Jira, VS Code
- **Development Methodologies:** Agile, Scrum, Test-Driven Development (TDD)
- **Operating Systems:** Linux (Ubuntu), Windows, Mac OS

Leadership, Certifications & Recognition

- Completed certifications on **Understanding AI, Machine Learning, LLM Concepts, OpenAI Embeddings**, and **ChatGPT/Copilot** via the **DataCamp** platform.
- Trained interns during HP workshops; conducted “**Printer Teardown**” and “**Know Your Product**” sessions.
- Volunteered for HP’s **Hour of Code**, teaching coding concepts to government school students.
- Participated in hackathons and coding events; **won an award at HP Ideathon** for an innovative idea.
- Member of the **MY Culture** team—organized cultural programs and participated in dance performances.
- **Government Scholarship Recipient:** INR 1 Lakh for academic excellence.
- **HP Merit Award** for exceptional delivery and innovation.