

MANAV MADHU

Software Engineering Student | Backend & Systems Developer | Linux Enthusiast

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PROFESSIONAL SUMMARY

Computer Science undergraduate (B.Tech, 2027) with 5+ years of hands on Linux experience and a strong foundation in backend systems, containerization, and embedded development. Proven ability to build and maintain production grade self-hosted infrastructure using Docker, Nginx, and Linux server administration. Seeking software engineering internship opportunities where I can apply systems-level expertise and a builder mindset.

TECHNICAL SKILLS

Languages: Python, Bash/Shell Scripting, C, Lua, Java, HTML/CSS

Infrastructure & DevOps: Docker, Docker Compose, Nginx (reverse proxy), Linux server administration, self-hosting

Tools & Systems: Git & GitHub, Virtualization (VMs), Linux Toolchain (gcc, make, systemd), cron

Core Competencies: Backend Development, REST API design, Automation & Scripting, Embedded Systems, Containerization

Currently Learning: Node.js / Express, PostgreSQL, React — actively building MERN stack projects

PROJECTS

Self-Hosted Server Ecosystem | *Docker · Linux · Nginx · Bash*

- Designed and deployed a multi-service home server running Jellyfin, Immich, and Minecraft using Docker Compose, managing container orchestration, persistent volumes, and internal networking.
- Configured Nginx as a reverse proxy with SSL termination, enabling secure public HTTPS access to self-hosted services at manavmadhu.space.
- Automated service health checks, backups, and update workflows using Bash scripting and cron jobs, reducing manual maintenance by an estimated 80% of operational overhead.
- Maintained uptime and troubleshooted container failures, gaining practical DevOps experience equivalent to real-world SRE tasks.

ASL-to-Speech Assistive Wearable | *C · Embedded Systems · Microcontrollers · Flex Sensors*

- Engineered a wearable assistive device that translates American Sign Language (ASL) hand gestures into audible speech output using flex sensor arrays and a microcontroller.
- Designed the gesture-recognition mapping algorithm in C, calibrating 5 flex sensors to classify 10+ distinct ASL gestures with reliable accuracy under real-world conditions.
- Demonstrated hardware-software co-design skills by integrating sensor input, signal processing, and audio output in a single embedded pipeline.

Unbeatable Tic-Tac-Toe (Minimax AI) | *Python · Algorithms · Game Theory*

- Implemented the Minimax algorithm with alpha-beta pruning from scratch, producing an AI opponent that plays perfect Tic-Tac-Toe, mathematically unbeatable.
- Strengthened core CS fundamentals: recursion, game-tree search, and adversarial decision-making logic.

Portfolio Website (Self-Hosted) | *HTML · CSS · JavaScript · Nginx*

- Designed and deployed a personal portfolio site (manavmadhu.space) from scratch, self-hosted on own Linux server with Nginx reverse proxy.
- Demonstrates end-to-end ownership: frontend development, DNS configuration, SSL/TLS setup, and ongoing server maintenance.

EDUCATION

Bachelor of Technology in Computer Science Engineering

Vidya Academy of Science and Technology, Kerala, India | *Expected Graduation: 2027 (Currently 3rd Year)*

- Relevant Coursework: Data Structures & Algorithms, Operating Systems, Computer Networks, Database Management Systems

ADDITIONAL STRENGTHS

- Strong command-line proficiency; comfortable navigating and administering Linux systems without a GUI.
- Genuine passion for open-source software actively uses, learns from, and contributes to open-source ecosystems.
- Self-taught in most technical skills demonstrated above; shows initiative and ability to learn independently.
- Experienced in troubleshooting real production issues (container crashes, proxy misconfigurations, hardware sensor calibration).

GitHub portfolio and live projects available at manavmadhu.space