

# AASHISH THAPA

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## EDUCATION

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**The University of Southern Mississippi**  
*B.S. Computer Science & B.S. Mathematics (Dual Degree)*

Hattiesburg, MS  
Aug. 2023 – May 2027

## EXPERIENCE

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### Systems & Software Engineer

*Arroyodev, LLC*

Apr. 2025 – Present  
*Hattiesburg, MS (Remote)*

- Lead system design and architecture for a 4-person engineering team, owning the full embedded-to-cloud stack across hardware deployment, IoT services, AI inference, and mobile.
- Architected a Python async monorepo (18 packages) replacing a legacy Node.js IoT agent, building an adapter/transformer registry for MQTT command handling and shared Pydantic schemas for cross-platform (Flutter/MQTT) serialization.
- Designed and maintained production Yocto-based Linux images with systemd orchestration; built distributed AI inference workers routing ComfyUI and Stable Diffusion jobs over NATS JetStream.
- Instrumented the full stack with OpenTelemetry tracing and Prometheus metrics, and shipped a Flutter **Illumibot** app (live on App Store) for projector management via PJLink, CEC, and IR with OTA updates through AWS IoT Core and Mender—reducing field-debugging time via real-time device diagnostics.

### Undergraduate Research Assistant

*The University of Southern Mississippi*

Oct. 2024 – Jan. 2025  
*Hattiesburg, MS*

- Researched IoT device fingerprinting for network security using the IoT-23 dataset; trained ML classification models achieving accurate device identification from network traffic patterns.

### Web Developer Intern

*Islington College*

Dec. 2022 – July 2023  
*Kathmandu, Nepal*

- Cut page load times by 30% via image compression, file minification, and server-side optimization with Node.js and Express; boosted site interactivity by 20% with a React/MongoDB blog and contact form.

## PROJECTS

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**wlctl** | *Rust, Ratatui, DBus, NetworkManager* | *Published on crates.io*

Dec. 2025 – Present

- Built and published a terminal UI WiFi management tool for Linux in Rust using NetworkManager D-Bus APIs.
- Supports WPA Enterprise auth, access point mode, QR network sharing, and speed testing via an interactive TUI; installable system-wide via `cargo install wlctl`.

**SayItLoud** | *Next.js, FastAPI, RoBERTa, LangChain, Llama, MongoDB*

May 2025 – Present

- Built a full-stack social platform with JWT auth, posts, follows, notifications, and Cloudinary media; integrated a multi-model NLP pipeline (RoBERTa) for real-time sentiment, emotion, and toxicity analysis.
- Added Llama-powered chat and content summarization; automated content ingestion via cron bots with fault-tolerant concurrent processing.

**FireTracker** | *React Native, FastAPI, CNN, NASA FIRMS API, AWS*

Oct. 2024 – Nov. 2024

- Built a mobile app displaying real-time satellite fire data (NASA FIRMS API) with a CNN backend predicting fire spread and geolocation-based proximity alerts via React Native Maps.

## TECHNICAL SKILLS

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**Systems & Embedded:** Linux (Yocto/systemd), Rust, C/C++, MQTT, NATS JetStream, D-Bus, OpenTelemetry, Prometheus

**Cloud & DevOps:** AWS (IoT Core, EC2, S3), Docker, GCP, Mender (OTA), Git

**Languages:** Python, TypeScript/JavaScript, Dart, SQL, HTML/CSS

**Frameworks & Tools:** FastAPI, Flutter, React, Next.js, Node.js, Flask, pandas, NumPy