

SAPHAL K. POUDYAL

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SKILLS

- **DISTRIBUTED SYSTEMS:** Event-driven architecture, actor models, idempotency, retries/backoff, fault tolerance, consistency tradeoffs, caching strategies
- **INFRASTRUCTURE & CLOUD:** AWS (ECS, Fargate, ALB, S3), GCP, Docker, Terraform, CI/CD (GitHub Actions, Jenkins)
- **LANGUAGES:** Python, Go, C++, C#, JavaScript

EXPERIENCE

Software Engineer, Systems & Infrastructure

Feb 2025 - Present

Institute of Advanced Analytics and Society (Aquaview initiative by NOAA)

Hybrid

- Extracted sandbox provisioning into a standalone Go service with multiple ConnectRPC services, supporting concurrent sandbox execution across isolated user and automated pools.
- Designed the core orchestrator as a supervisor actor-model in Go with bounded inbox channels and semaphore-controlled worker goroutines, eliminating shared-state contention across concurrent RPC handlers.
- Built a stale-data reconciliation pipeline to resolve divergence between the external sandbox provider and local registry, handling orphaned and ghost snapshot edge cases.
- Instrumented the service with a full observability stack— OpenTelemetry, Grafana, Loki, and Tempo— enabling distributed tracing and structured debugging across all execution paths.

Founding Engineer

Jun 2025 - Nov 2025

MagnoliaEd LLC

Remote

- Drove end-to-end product development, leading to a \$50,000 seed funding raise from CoBuilders Cohort powered by **Microsoft**.
- Architected and provisioned a resilient cloud infrastructure on AWS, analyzing cost trade-offs between managed and self-managed services to reduce operational expenses by over 60% for early-stage development.
- Engineered a scalable FastAPI-based modular backend, balancing future scalability with early-stage resource constraints.
- Implemented stage-level caching across compute-intensive workflows, eliminating redundant processing and improving latency while maintaining correctness under retries

.NET & Machine Learning Intern

May 2025 - Aug 2025

Prediction3D Technologies

Part-time / Remote

- Implemented hybrid OAuth2 authentication system using FedCM with standard PKCE fallback, integrating Supabase identity provider with .NET API for cross-browser compatibility and optimal UX.
- Refactored backend for hybrid billing system, integrating Stripe APIs to support flexible subscription-based and manual contract-based enterprise plans.
- Architected a graph-based LLM orchestration system using LangGraph/LangChain with multi-agent (supervisor) workflows, RAG capabilities, and stateful conversation management via database checkpointing for context-aware multi-turn interactions.

Full-stack Django Developer Intern

Jul 2024 - Oct 2024

Sipalaya Infotech Pvt. Ltd.

- Developed, end-to-end, the CRM service for a regional internet service provider Beni Communications' administrator web application using Django with PostgreSQL and React.js (Redux, Zustand) along with Postman for API testing.
- Contributed to the translation of PHP-based REST APIs into scalable Django implementations.
- Maintained Continuous Integration (CI) through GitHub Actions and Django Tests, with project management via Jira.

PROJECTS

- [Aether](#) — An ISP infrastructure platform with integrated OSS (Operation Support System) comprised custom python-based vBNG (Virtual Broadband Network Gateways) with end-to-end subscriber lifecycle including RADIUS AAA, per-subscriber traffic shaping, and simulated users emulated on Containerlab platform.
- [Cepheus](#) — Distributed observability system for managed network systems.
- [Deepseek-go](#) — A Go client built around the newly released Deepseek LLM with **300+ stars** on GitHub.

EDUCATION

Bachelor's in Computer and Information Sciences

The University of Southern Mississippi

May 2028

Hattiesburg, MS, USA

- Head of Artificial Intelligence at Google Developer Groups Chapter USM