SADIKSHA LAMSAL

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PROFESSIONAL SUMMARY

Computer Science undergraduate and first author on an HGT security model achieving 0.977 AUROC on consumer hardware (manuscript under review, IEEE Big Data 2026). Experience in software development, machine learning, cybersecurity, and RISC-V systems research, with a focus on building and optimizing real-world technical systems.

WORK EXPERIENCE

Undergraduate Research Assistant February 2026 – Present
Louisiana Tech University, Ruston, LA

- Developed a Heterogeneous Graph Transformer (HGT) model for SIEM alert anomaly detection, achieving 0.977 AUROC and 0.897 AUPRC, outperforming sequential (LogBERT), graph-based (E-GraphSAGE, MAGIC), and LLM (Gemini, Llama) baselines
- Engineered a Python pipeline to parse, clean, and convert 2.6M+ raw multi-source alerts into structured graph data, and designed the model architecture around IP behavioral features and max-pooling layers, validating performance drivers through systematic ablation studies
- Optimized model inference to 4.26 ms latency (235 windows/sec) on consumer hardware, demonstrating viability for real-world deployment

Student Researcher: RISC-V & Point Cloud Processing June 2026 – Present
Louisiana Tech University, Ruston, LA

- Identified vector-friendly operations in state-of-the-art 3D algorithms (PointNet++, PointNeXt) and mapped compute patterns to RISC-V Vector (RVV) instruction formats
- Profiled PointNet++'s 8 core pipeline functions via gem5 simulation as the starting point for RVV optimization, identifying MLP/GN as the primary computational bottleneck (simulation runtime exceeding 24 hours vs. sub-second runtimes for other functions) and max pooling as the leading secondary bottleneck (highest CPI at 1.21 among fully profiled functions)
- Iterate on RVV architecture based on bottleneck analysis, refining instruction sequences and memory access patterns to maximize speedup

Security Operations Center (SOC) Analyst October 2025 – Present
Louisiana Tech University, Ruston, LA

- Monitor and investigate 50+ daily security alerts across distributed telemetry sources (Splunk Cloud, Palo Alto Networks, CrowdStrike, Microsoft O365); correlate events across endpoints, network, and cloud infrastructure to isolate threats
- Build and maintain custom SPL queries and monitoring workflows to surface anomalous authentication attempts
- Triage and document security incidents spanning endpoint threats, phishing, and malicious URLs

Teaching Assistant, College Algebra March 2025 – October 2025
Louisiana Tech University, Ruston, LA

- Delivered course lectures and academic support for 70+ students (as a freshman), contributing to a 10% average performance increase across sections
- Provided one-on-one tutoring and led exam review sessions and workshops to break down complex concepts into accessible steps

EDUCATION

Louisiana Tech University December 2027
Ruston, LA
B.S. in Computer Science (Honors), Minor in Mathematics
GPA: 4.00 / 4.00

PROJECTS

Frankly. | Multi-Agent Application Feedback Platform github.com/sadiksha-23/Frankly

- Engineered a multi-agent LLM orchestration pipeline (Claude + async execution) with parallel-then-sequential architecture to power real-time feedback on resumes, essays, and interview responses
- Optimized concurrent execution via Python asyncio, reducing platform latency to single-model speed
- Built a telemetry framework tracking real-time API latency and agent-specific token consumption

Single-Cycle RISC-V CPU Design github.com/sadiksha-23/ProcessorDesign

- Designed a 32-bit single-cycle microprocessor in Logisim supporting an RV32I subset across R, I, S, B, and J instruction formats
- Constructed a modular Control Unit and Immediate Generator handling 10+ concurrent signals, field decoding, and custom sign-extension logic
- Integrated the ALU, register file, memory, and control logic into a complete datapath supporting arithmetic, memory, branch, and jump instructions

SKILLS

- **Programming Languages:** Python, C/C++, Java, TypeScript, SQL, RISC-V Assembly
- **Machine Learning:** PyTorch, PyTorch Geometric, TensorFlow, Graph Neural Networks, NumPy, Pandas, Scikit-learn
- **Systems, Security & Hardware Tools:** Linux (Ubuntu, Kali), Splunk Cloud, gem5, Logisim, Git, FastAPI, Docker

HONORS AND LEADERSHIP

- **Phi Kappa Phi Honor Society:** Inducted member (top 7.5% across all disciplines)
- **AI Leaders Fellowship (WordPress, UIC, 11:11 Philosophers Group):** One of 36 selected through a competitive process from 500+ national applicants; built a web portfolio integrating AI-powered features and served as a QA tester for the program's AI coaching platform
- **Omicron Delta Kappa (ODK):** National Leadership Honor Society, Academic Mentorship Committee
- **Lambda Sigma Honor Society:** Inducted member (academic excellence and service recognition)