

Biplav Poudel

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EDUCATION

B.Sc. in Computer Science and Information Technology

Nov 2019 – Nov 2024

Kathmandu BernHardt College (Affiliated with Tribhuvan University)

Kathmandu, Nepal

Overall Average: 79.86% | **Upper-division Average:** 80.2%

Relevant Coursework: Operating Systems, Computer Architecture, Data Structures & Algorithms, Software Engineering, Computer Networks

EXPERIENCE

Quickfox Consulting

Apr – Aug 2024

Software Developer Intern – Automation and Computer Vision

Kathmandu, Nepal

- Automated the electronic cheque clearing pipeline for *Global IME Bank Limited*, integrating RPA with the **Finacle CBS** for cheque ingestion and clearing workflow with CBS zones.
- Reduced end-to-end processing time per cheque by **50%** (from over 4 minutes to under 2 minutes) by refactoring the existing automation workflow with **Pytest**-based unit/regression tests.
- Integrated a **Document Understanding Transformer** to extract structured cheque attributes (date, payee, amount-in-words, numeric amount), validate against the bank's database and route high-confidence cases for **Straight Through Processing** and low-confidence cases to exception queues for manual validation.
- Co-developed a **human-in-the-loop** verification interface using FastAPI, allowing bank employees to only validate the low-confidence cases.
- Developed **DocSim for Nepali**, a high-fidelity synthetic bank cheque/form generator using **Pillow** and **OpenCV**, to fine-tune the Donut model without real customer data.

Lakecity Hospital and Critical Care Private Limited

October 2024 – Present

IT Infrastructure Lead (Part Time)

Pokhara, Nepal

- Modernized hospital infrastructure by migrating legacy workstations to a mix of Windows 10/11 endpoints for administrative workflows and Debian 13 bare-metal **KVM** nodes for Linux servers.
- Designed secure hybrid connectivity between on-premise **Libreswan** server and an **Oracle Cloud Infrastructure (OCI) VCN** using an **IPsec site-to-site tunnel**.
- Implemented daily backups for administrative and patient data with local NAS storage running on virtualized **TrueNAS Core** and monthly cloud backups to the OCI Archive Storage using **rclone** and **systemd timer**.
- Improved network performance and security with **VLAN** segmentation, **ACL**-based access controls and **QoS** traffic shaping for admin, staff, patients, and CCTV networks.
- Architected (hybrid-cloud) identity service with multi-master **FreeIPA** replication using Ampere A1 compute and local **KVM** nodes for failover and off-site redundancy.
- Registered **lakecityhospital.com.np** domain and deployed a responsive SPA website via **Cloudflare Pages** to establish hospital's digital identity.

PROJECTS

Embedded Linux System with Daemonized TCP Service

Jan 2026

- Built a custom AArch64 Linux image with **Buildroot** (2024.02.x), using reproducible build scripts and validated it on **QEMU**.
- Implemented a TCP socket server in **C** (POSIX sockets) listening on port 9000; integrated **syslog** logging for client connections and errors, and implemented clean shutdown on **SIGINT/SIGTERM**.
- Daemonized the service (-d) into system startup using **start-stop-daemon** with an init script.
- Cross-compiled and packaged the service via a custom Buildroot external package, enabled SSH access with **Dropbear**, and verified end-to-end behavior using **netcat**, **ssh/scp**, and automated test scripts. [GitHub](#)

Linux Infra Stack and MongoDB HA/Observability Lab

Nov – Dec 2025

- Architected a multi-VM environment on **KVM/QEMU**, using **ISC-Kea DHCP**, **BIND9** and **DDNS** together as an IPAM solution for automated IP address allocation and dynamic DNS resolution.
- Deployed centralized identity using **Red Hat IdM** (Kerberos and LDAP) for authentication and directory services for both servers and clients.
- Deployed a 3-node MongoDB replica set with split-horizon DNS for **replset.com** and **symmetric keyfile authentication** for secured intra-cluster communication.
- Configured replica set members **priorities** to control failover and restricted database access using **firewalld** rich rules and **role-based access controls**.
- Integrated **Prometheus** and **Grafana** with the **Percona MongoDB Exporter** to visualize and track real-time metrics such as replication lag, operation throughput, and node health; enforced automated log rotation with **logrotate** service. [GitHub](#)

Agentic GitHub PR Assistant

Jun 2025

- Implemented a state-machine LLM agent using **LangGraph** to analyze code changes, suggest commit/PR messages, and automate basic Git workflow.
- Designed a custom **Model Context Protocol** server to provide the agent controlled access to local file system, shell execution, and **GitHub REST API** operations.
- Created a **FastAPI**-based webhook service and exposed it to **Cloudflared Tunnels** to receive GitHub events and trigger agent workflow.
- Integrated automated Slack notifications that are triggered for pull request events (**opened**, **closed**, **assigned**, **synchronize**) and **GitHub Actions** runs to streamline troubleshooting CI/CD failures and team updates.
- Added a **Gradio** web application for interactive runs with real-time streaming and manual override. [GitHub](#)

SKILLS

Programming: C/C++, Python, Java, Bash, SQL

Systems & OS: Linux (RHEL/Debian), POSIX, systemd, Podman

Networking: TCP/IP, Sockets, DHCP, DNS, firewalld, Bastion hosts

Cloud & Virtualization: OCI, AWS, MongoDB Atlas, Cloudflare, KVM/QEMU

DevOps: Git, GitHub Actions, OpenShift, Terraform

Debugging & Observability: Prometheus, syslog, journalctl, tcpdump, Valgrind, gdb

RELEVANT ADDITIONAL COURSEWORK

Advanced Embedded Linux Development – University of Colorado Boulder, *Coursera* Dec 2025–Present

Building Linux Servers: DHCP, DNS, and Directory Services – Pearson, *Coursera* Dec 2025

Cloud Computing: Infrastructure & Platforms – Illinois Institute of Technology, *Coursera* Sept–Oct 2025

Algorithms, Part I – Princeton University, *Coursera* Mar–Aug 2025

MLOps | Machine Learning Operations Specialization – Duke University, *Coursera* Feb–Aug 2025

Cloud-Native Development with OpenShift & Kubernetes – Red Hat, *Coursera* Dec 2024–Jan 2025

CERTIFICATIONS

OCI 2025 Certified Networking Professional, *Oracle* Nov 2025

OCI 2025 Certified Architect Associate, *Oracle* Nov 2025

OCI 2025 Certified Observability Professional, *Oracle* Nov 2025

MongoDB Certified Associate Atlas Administrator, *MongoDB* Dec 2025