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*

   Upper-division Average (last 2 years): 80.2%

   Relevant Coursework: Operating Systems, Data Structures & Algorithms, Digital Logic, Microprocessor, Computer Architecture, Computer Networks

   Final Year Project: American Sign Language Recognition using CNN

EXPERIENCE

QuickFox Consulting   Apr – Aug 2024
Software Developer Internship – Automation and Computer Vision   *Kathmandu, Nepal*

− Automated the electronic cheque clearing pipeline for *Global IME Bank Limited*, integrating RPA with the **Finacle CBS** for cheques ingestion and clearing workflow with CBS zones.
− Reduced per-cheque ingestion duration by **70%** (from ∼40s to 10–12s) 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 finetune the Donut model without real customer data.

LakeCity Hospital and Critical Care Private Limited   October 2024 – Present
IT Infrastructure Lead (Part Time)   *Pokhara, Nepal*

− Migrated **seven** hospital workstations running legacy Windows 7 to Windows 10/11, improving endpoint security and maintainability.
− Deployed an **IPSec site-to-site tunnel** between on-prem and an **Oracle Cloud VCN** using virtualized **Libreswan** CPE (gateway).
− Architected (hybrid-cloud) identity service with multi-master **FreeIPA** replication using Ampere A1 compute and local KVM nodes for failover and off-site redundancy.
− 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, **ACLs** and **QoS** traffic shaping for admin, staff, patients, and CCTV networks.
− 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; packets are newline-delimited, appended to `/var/tmp/aesdsocketdata`, and the full file is returned to the client after each WRITE request.
− Integrated **syslog** logging for client connections and implemented clean shutdown on **SIGINT**/**SIGTERM**, closing sockets and removing temporary state.
− Added daemon mode (**-d**) and wired the service into system startup using **start-stop-daemon** with an init script (`/etc/init.d/S99aesdsocket`).
− 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 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

PROFESSIONAL DEVELOPMENT

- **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*
- **Google Cloud AI Infrastructure** – Google Cloud Training, *Coursera, Aug 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*

SKILLS

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

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

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

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

DevOps: Git, GitHub Actions, OpenShift, Terraform

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

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)