

# Shubham Joshi

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## EDUCATION

**University of Nevada Las Vegas**, Las Vegas, United States  
*PhD. of Science*, Computer Science, Current

**Kathmandu University**, Dhulikhel, Nepal  
*Bachelor of Engineering*, Computer Engineering, December 2018

## PROJECTS

### Deployment of Broadband Network Gateway (BNG):

- Worked in the planning of IPv4 IPs and number of PPPoE users. Configured the dynamic NAT functionality to make the use of Public IP efficiently.
- Configuration and Implementation of Radius servers.
- Implemented the Enhanced Dynamic Service Gateway (EDSG) to provide services like IPTV along with Internet but different bandwidth requirement for both.

**Student Engagement Detection Using Emotion Analysis, Eye Tracking and Head Movement with Machine Learning:** Worked with Machine Learning to detect the Facial Emotion, tracks the movement of Eye balls and Head and correlate it to how an individual is engaged while learning.

### Development and Deployment of Elibrary OS:

- Customized Xubuntu to remove unnecessary features of Desktop Environment and built menus with respective contents with their class relevancy.
- To make it cost effective and efficient, I've implemented Linux Terminal Server Project (LTSP) and used Network Boot feature, where one standalone server would serve an image of OS to around 10 Thin Clients (who don't have Hard-drives) and load very light OS to its RAM to surf the elibrary environment.
- Aware the teachers and students on the use of Open Source Environment and trained them for the minimal troubleshooting and a way to learn through computers, as most of the people where we had deployed this are deprived of using computers.

### Implementation of Tacas+ Server and Oxidized Server:

- Configuration of Tacas+ server on Centos 7 to manage Authentication, Authorization (AAA) and Accounting of multiple users (with different requirements).
- Implemented on Huawei NE8000 series Routers, S6700 series switches, NE40E (X8-A, M2KB, M1A, F1A), Cisco 3850, 2960 series switches and Huawei EA5800 OLTs for central AAA in more than 200 devices.
- With the concern of daily backup of 100s of network devices, setup and implemented Oxidized Server, which would pull configurations of all devices in Large scale network to a central backup server.

### Migration of Live Network Firewall from Fortigate to PaloAlto:

- Planning of existing and new network gateway deployment in new Firewall.
- Setting up several IPSec tunnels coordinating with multiple peer end for the integration of multiple party payment method of the service.
- Implementation of 3 WAN networks to maintained high availability for the Internet.

**GRID: A Web based Communication App:** Build with Nodejs and WebRTC for offline communication in an organizational network.

## EXPERIENCE

**Research/Teaching Assistant**  
2024-Present

University of Nevada Las Vegas  
Las Vegas, Nevada, United States

- Research on developing secure algorithms and systems.

**Lecturer**  
2023-2023

Tribhuvan University  
Kathmandu, Nepal

- Teaching Network Programming (CACS355) Subject to 6th Semester Bachelor Students.

**Network Engineer**  
Oct 2019 - July 2023

Dish Media Network Ltd.  
Lalitpur, Nepal

- Worked with multiple Firewalls like Fortigate and PaloAlto for the security of Server Networks, managing IPSec Tunnels between multiple other hetero devices for secure data transimission, managing policies between Server Network, Database network, and Broadcasting (TV) Network and office networks. Also including critical projects like migration of firewall during upgradation.
- Configuring and maintaining core level devices like BNG (Broadband Network Gateway), IGW (International Gateway Router, where upstream links from Indian Provider like Airtel, Sify terminates), CDN Routers (Worked with integration of Google cache servers and Facebook Network Appliance (FNA) servers with our Networks.
- Worked and maintained Metro network all over Nepal with Multi Protocol Label Switching (MPLS) backbone.
- Maintained the redundancy between core routers with VRRP (Virtual Router Redundancy Protocol) in Huawei.
- Worked with syslog servers like Graylog servers to manage the logs of various devices to a centralized log server.
- Implementation of AAA (Authentication, Authorization and Accounting) for the management of switches, routers and Optical Line terminals through Hwtacacs.

**Researcher**

2018-2019

Kathmandu University High Performance  
Computing LAB  
Dhulikhel, Nepal

- Worked with Open HPC for the management of clusters along with Lustre file system, and SLURM for resource management.
- Worked with managing the Network topology for compute, storage and GPU nodes.

**Technical Volunteer, System and  
Network Administrator**  
Nov. 2014 -2018

Help Nepal Network  
Kathmandu, Nepal

- Developed an elibrary system, customizing Xubuntu with relevant learning materials for 1-8 class students of Nepal.
- Deployed elibrary systems in more than 10 rural areas of Nepal, for least privileged students.
- Trained Teachers and students to learn digitally with the aid of Elibrary.

**Network Administrator**  
Sept. 2016 - Sept.2018

Kathmandu University  
Dhulikhel, Nepal

- Managed the Network of University Hostel and deployed Campus Wifi Solutions (with Cambium External APs).
- Managed Gateway routers through Linux server, maintaining IPtables, NAT, DHCP, Bandwidth Management through same Linux server.

**PUBLICATIONS** [Google Scholar \(Shubham Joshi\)](#)

**Conference**

**Shubham Joshi**, Dillon Davidson, Yeonjoon Lee, Homook Cho & Junggab Son. [Ensuring Integrity in Online Content Usage and Download Counting with Smart Contracts](#). International Conference on Security and Privacy in Communication Systems

Prabin Sharma, **Shubham Joshi**, Subash Gautam, Vitor Filipe, Manuel J. C. S. Reis. [“Student Engagement Detection Using Emotion Analysis, Eye Tracking and Head Movement with Machine Learning](#). International Conference on Technology and Innovation in Learning, Teaching and Education

**Technical Report**

Saugat Bhattarai, Sudeep Timilsina, **Shubham Joshi**. [“HeNN LTSP E-library Deployment Report in rural government school of Nepal, Syangja, Malunga-1.](#)

**COMPUTER SKILLS**

**Languages:** Python, Bash  $\text{\LaTeX}$ .

**Applications:** Vi/Vim, Git, VMWare, VirtualBox, Cacti, Observium

**Operating Systems:** Linux, Windows, Android.

**Certification:** HCIA Routing and Switching Certificate Number: 01010010180806301775626, HCIP Datacom Advanced Routing and Switching Certificate Number: 010200101561808839171409, Fortinet NSE 1 and NSE 2 (CyberSecurity Awareness Certification)

**INTERESTS**

Computer Network, Routing and Switching, Open Source Platforms, Blockchain, Network Security, System Administration, Machine Learning