BIBEK SHRESTHA

Electronics, Communication & Information Engineer

[Bibekshrestha881@gmail.com](mailto:Bibekshrestha881@gmail.com) | +977 9761853958 | Nepal

[Website](https://bibekshrestha08.com.np/)| [linkedin](https://www.linkedin.com/in/bibek-shrestha-b73095259/) | [github.com](https://github.com/BIBEKSHRESTHA08)

[researchgate](https://www.researchgate.net/profile/Bibek-Shrestha-27?ev=hdr_xprf&_sg=OGXJNZ3zOivM2HAYy_d62eNXMS0HT2Fc2TokmopVqFTqwCpHf7L9mhGN1eAompoc8BU3Z_FL31WrZiWgg_IIUOfS&_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uIiwicGFnZSI6ImhvbWUiLCJwcmV2aW91c1BhZ2UiOiJob21lIiwicG9zaXRpb24iOiJnbG9iYWxIZWFkZXIifX0)

Aspiring researcher with a solid interest in AI, Machine Learning, Cloud and Embedded Systems. Experienced in robotics, wireless communication and IoT projects, with growing expertise in Reinforcement Learning, Multi-Agent Systems, and Quantum Computing. Seeking opportunities to contribute to cutting-edge innovations in AI, ML, Quantum computing and intelligent systems.

Experience

2025 May Visiting Lecturer

-Present National College of Management and technology, Kathmandu, Nepal

- Python programming

* Object-Oriented Programming (OOP)
* Data Structures and Algorithms
* Database and Network Programming

2025 April Teaching Assistant / Lab Supervisor

-Present National College of Engineering, Lalitpur, Nepal

- Digital Logic

* Binary addition and Subtraction
* Construction of Controlled Inverter Circuit
* Multiplexers and De-Multiplexers
* Encoders and Decoders, Seven Segment Decoders
* Flip-flops, Shift Registers, Ripple Counters

- Electronic Devices and Circuits

* Voltage Divider Biasing, BJT as an Amplifier, Switch
* Metal Oxide Semiconductor Field Effect Transistor, Series Regulator
* Hartley Oscillator/ RF tuned, Colpitt’s, Crystal (Pierce) Oscillator
* Transistor Amplifiers (Class B & Class AB)

2024 Sept **Assistant Lecturer**

-Present Cosmos College of Technology and Management, Lalitpur, Nepal

- Mobile and Wireless Communication

* Cellular Network Design
* Modeling Cellular System Operation & Intelligent Cell Concepts
* Wireless Networking and Integration
* Equalization, Diversity, and Fading Mitigation

- Telecommunication

* SDM, TDMA, CDMA, WDM, and ALOHA
* PCM and Digital Transmission Standards (PDH and SDH)
* Switching Systems and Network Design
* Telecommunication Signaling Protocols (DTMF, SS7)
* Network Synchronization and Management
* Traffic Engineering (Poisson processes, Erlang models)
* Telecom Protocols and NGNs

2023 Apr STEM Instructor

- 2023 Nov Dursikshya Education Network, Kathmandu, Nepal

- IOT based projects as Home Automation, Traffic Management System, Early Flood Detection, and Smart City

- Game Development and Model Training with pictoblox and scratch

2022 Apr STEM Trainer

-2023 Feb Khudkila Nepal

- Basics of Electronics Components, sensors and Coding

- School Level Robotics Projects

2021 Feb 3D Geometry Near-Map

- 2021 June Cloud Factory (Freelance)

- Annotate 3D geometry of roofs of houses in US and Europe

- Bounding, Image masking and polygon segmentation

- Make dataset for ML algorithms

Education

2019 National College of Engineering, Talchikhel, Nepal

-2024 Bachelor in Electronics, Communication and Information Engineering

- First Division (68.24%)

Supervisors:

* Senior Lecturer. Er. Suroj Burlakoti (HOD)
* Lecturer. Er. Sahil Subedi

2017 Pinnacle Academy, Lagankhel, Nepal

- 2019 - +2 Science (Maths/ Computer)

- CGPA: 3.44

2017 Niharika Public School

- CGPA: 3.55

RESEARCH PAPER

1. **AI Based Traffic Management System (** [**DOI**](http://dx.doi.org/10.70504/ijepe.v2i1.11717) **)** : using YOLO (You Only Look Once) algorithm for real-time vehicle detection via phone cameras, Live video feeds are processed with Python (NumPy, PyFirmata, Matplotlib, OpenCV, YOLO), and vehicle density in each lane is analyzed, An Arduino microcontroller is used to dynamically control traffic signals by giving more green time to lanes with higher vehicle density, Webster’s formula for signal timing.

**CERTIFICATION**

* GSM wireless service internship at Nepal Telecom
* Radio Frequency Communication, Networking and Server System at Radio Nepal:
* Radio Communication system
* Networking and server system
* IOT, Robotics & Coding at Khudkila
* Data Science with Python at Dursikshya
* Data Analytics Essentials by Cisco Networking Academy
* Nabil Social School of Entrepreneurship

**ACADEMIC PROJECTS**

* **Vehicle Accident Detection System using MPU 6050 and deep learning:** Mpu6050 sensor takes data of angular motion and acceleration, python analyze data, compares threshold, if true, GPS sends live location in mobile through GSM, firebase records log, user interface for user interaction and read data. The system was very responsive, accurate and practical.
* **AI Based Traffic Management System:** Vehicles as car, bus, bike, truck jeep were taken images separately and trained to differentiate to system. Bounding were used with yolo v7 and distinguish the vehicle so that it could help to count the number of vehicle. Now the system was also connected with microcontroller, Arduino, which would control the led of lane. The higher number of vehicle would have the more priority so green light would lit by the system. Later, apart from number of vehicle the type of vehicle was also segmented noticing the size of vehicle could affect the vehicle number.
* **Solar Tracking System Using Light Automation:** In this project, a solar panel was mounted on a movable structure, and Light Dependent Resistors (LDRs) were used as sensors to detect the direction of maximum sunlight. The system was automated with a microcontroller (Arduino), which received signals from the LDRs and accordingly controlled servo motors to rotate the solar panel toward the brighter side. This continuous adjustment ensured that the solar panel always faced the direction of maximum sunlight, improving energy absorption efficiency. The automation not only reduced manual intervention but also significantly increased the power output of the solar system compared to a fixed panel.
* **IoT Based Home Application System:** In this project, various home appliances such as lights, fans, and security devices were connected to an IoT platform to enable smart control and monitoring. A microcontroller (such as NodeMCU/ESP8266) was used as the central controller, which communicated with the appliances through relays and sensors. The system was linked with a mobile application or web interface, allowing users to operate appliances remotely over the internet. Features such as real-time status updates, scheduling, and energy monitoring were also integrated. This system enhanced convenience, energy efficiency, and security, making a traditional home function as a smart automated home.
* **Network Design for 5 story Hotel:** A structured network system was designed to provide secure and seamless internet access across all five floors. Routers, switches, and access points were placed strategically to ensure full Wi-Fi coverage. VLANs were used to separate guest, staff, and security networks, while IP addressing and a central server room ensured efficient management, data protection, and scalability for hotel services like surveillance, intercoms, and smart locks.