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A 4th year Computer Engineering student who aspires to be an engineer to help the world turn into the mid technological era.

Areas of Expertise

JavaScript - TypeScript - NestJs - Next.js - React - Express - Python - Flask - Django - C - C++ - Verilog - ESP-IDF - Arduino - Rust - Open Source Softwares - Computer Vision - Reinforcement Learning - Googling and StackOverflow

Professional Experience

Embedded Communication Engineering *Yatri Motorcycles*

Kathmandu, Nepal 09/2024 - current

Working on communication between motorcycle and server of project P2 and P1 gen 2. **Major Stacks:** ESP-IDF, electronics

Freelance FullStack Developer *LikeStore NP*

Kathmandu, Nepal 03/2024 - 04/2024

Developed backend and frontend components for wishlist technology, implemented personalized product recommendation features, and designed admin site functionalities. **Major Stacks:** Express, MongoDB, Next.js, React.

Product Reviewer *Astawolf*

Kathmandu, Nepal 12/2023 - 02/2024

Reviewed various electronic products like earphones, charger, earbuds, neckband, data cables, provided technical recommendations, and ensured quality control based on IC's and circuit quality. **Major Stacks:** Hardware, Technical Review, Electronics.

Co-founder, Tech Lead *Omnecal Pvt. Ltd.*

Kathmandu, Nepal 08/2022 - 03/2024

Architected system infrastructure, secured funding, managed a team of 7, implemented agile methodologies, and shaped the company's technology roadmap. **Major Stacks:** Express, React, MongoDB, C++, ESP IDF, Azure Services, Jenkins, Geo-Special Analysis, Ki-Cad, EasyEda, Fusion360.

Chief Engineer *Aifiverse Tech Services*

Kathmandu, Nepal 10/2022 - 03/2024

Oversaw outsourcing projects and initiated in-house project development. **Major Stacks:** Express, React, MongoDB.

Full Stack Developer *Digi Papyrus*

Cambridge, MA 12/2021 - 06/2022

Participated in the MIT Sandbox incubation program, utilizing technologies like Three.js, React, and Express for digital product development. **Major Stacks:** Express, React, MongoDB, react-three-fiber.

Projects

Ordered chronologically

- **8-bit RISC-V computer:** Developing an 8-bit computer based on RISC-V architecture in FPGA.
- **Decent:** Message end to end encryption and decryption chormium extension using flask, chrome developer apis.
- **Hate Speech Detection:** Implemented hate speech detection on the internet using Flask, OpenAI, Streamlit, and Apify.
- **Speech To Sign Language Translator:** Created a system to convert speech into sign language using Azure Cognitive Services for speech to text, NLTK for parsing, and SignML for animation.
- **Mortality RDT Analysis:** Analyzed spatial patterns and LISA clusters of mortality due to RDT per 100k population using geodata and geopandas.
- **Prophecy:** Built a battery management system using GTK Rust and Flask.
- **Tuberculosis Correlation Analysis:** Calculated the correlation between tuberculosis and per capita income using pandas and matplotlib.
- **Iamsorry:** Developed a React app with React implementation and CSS stylings.
- **Prabigya:** Created a VS Code extension for recommending variable names based on documentation using langchain and bard transformer model.
- **Image Compression using FFT:** Implemented image compression using FFT with numpy and numba using the Cooley-Tukey algorithm.

- **React Multi-Image Input:** Developed a React component library in TypeScript to facilitate multiple image input with captions.
- **Autoffic:** Worked on an automatic traffic control system, creating simulated environments in Unity and performing data processing for metric calculations.
- **Heat Cycle and Health Status of Cow using Machine Learning and IoT:** Built to detect and record the heat cycle and health status of cows using IoT and machine learning. It was built within 36 hours and utilized React, Arduino framework, ESP32 and Express.
- **Aifiverse:** A platform used to preserve cultural sites by representing them in the Metaverse. Built with Unity, Flutter, and Solana. Worked as a Unity developer.
- **AR Treasure Hunt:** Organized the first-ever AR Treasure Hunt in a country using Unity with Wikitude Engine and Firebase.
- **UV:** Developed a Sustainable Planner using OSM data and machine learning to find the best locations for hospitals and schools. Used K-Means and DBSCAN algorithms, Django APIs, and React development with OSM data and Leaflet.js
- **Ayurwiz:** Developed a connection platform for mentally disabled individuals using MERN stack and Flask micro server.
- **El Mars:** Created an exploration game based on the real environment and physics of Mars using Unity Game engine with C++.

Skills

- **Programming Language:** Javascript, Typescript, Python, C, C++, C#
- **Frontend Development:** React, Next.js
- **Backend Development:** Express, Nest, Flask, Django
- **Database:** MongoDB, Postgress, mySQL, sqlite, neo4j
- **DevOps:** Docker, Azure, AWS
- **Firmware:** ESP-IDF, Arduino
- **Soft Skills:** Presentation, Planning, Organized, Creative Problem-Solving, Teamwork, Active Listening, Adaptability, Analytical Thinking

Honors & Awards

- **Winner, Datathon 2.0**
Won Datathon 2.0 organized by Kathmandu University AI Club by analysing given dataset of Kalimati Tarkari Bazar.
- **Open Innovation Winner, DeerHack 2024**
Won Open Innovation track in DeerHack 2024 with project Decent.
- **Top 15 Kathmandu Metropolitan Idea and Innovation, 2023**
Selected as one of the top 15 teams in KMII with Omnecal.
- **Top 50 Kathmandu Metropolitan Idea and Innovation, 2023**
Selected as one of the top 50 teams in KMII with Autoffic.
- **Finalist, Rising Star Innovation category for the ICT Award 2023**
Selected as a Top 13 finalist with Omnecal in the Rising Star Innovation category for the ICT Award 2023!
- **Regional Start-up Network Formative Workshop**
Won as one of the top 5 winners at the Regional Start-up Network Formative Workshop in Nepal with Aifiverse Tech Services Pvt. Ltd., the mother company of Omnecal Pvt. Ltd.
- **Otharo Incubation Cohort 2023**
Attended Otharo Incubation for the 2023 cohort representing Omnecal.
- **Best Presenter, Scholar Talk Sankalpa 2022**
Presented Autoffic at Sankalpa's Scholar Talk 2022 and was awarded the best presenter of the event.
- **1st Runner Up, Provathon 2022**
Our Team Omnecal achieved 1st Runner Up position in Provathon 2022. We contributed to IoT development using SIM Module and GPS Module.
- **Best Presenting Team, OSM Hackfest 2022**
Our Team Pollyana (project UV) won the best presenting team at the first-ever OSM Hackfest of Nepal, out of 20 teams.
- **1st Runner Up, EEPEX Hardware Hackathon 2022**
Our Team Matrix secured 2nd position by creating an IoT device to detect the estrous cycle (Heat cycle) of cows using machine learning and different IoT sensors. We contributed to initializing web sockets in ESP 32, Supervised Learning, and MERN Stack Development.
- **Finalist, Locus 2021**
Selected as one of the top four from the AI Category among 85 teams in Locus 2021 (Ayurwiz).

Education

BE Computer Engineering [Kathmandu University](#)

Dhulikhel, Nepal 2020-2025(expected)

Aggregated GPA over 3.6 (till 6th sem)

+2, NEB [Kathmandu University High School](#)

Dhulikhel, Nepal 2018 – 2020

CGPA: 3.55 / 4.0

• Founded Science Cum Intellect Club at KUHS. • Represented KUHS in Aqua Boat: Aabiskar (2019, 2020) and SEEE Maze Solving (2020). • Won Science Math Quiz at St. Xaviers in 2019.

Secondary Education Examination (SEE) [Dhulikhel High School](#)

Dhulikhel, Nepal 2018

SEE: 3.65 / 4.0

Appreciated by Private & Boarding School Organization Nepal, Kavre for scoring A+ grade in SEE.

Publications

Minimizing Energy Consumption in Fixed Node Networks Using a Novel Neutrosophic Model: Comparative Analysis with Standard and Existing Algorithms

Sangam Ghimire; Nirjal Bhurtel; Sudan Jha; Sultan Ahmad; Hikmat A. M. Abdeljaber; Jabeen Nazeer

[10.1109/ICCCNT56998.2023.10307312](https://doi.org/10.1109/ICCCNT56998.2023.10307312)

International Journal of Information Technology

November, 2024

Hybrid Approach for Enhancing Traffic Signal Control with Computer Vision and Reinforcement Learning

Bishal Neupane; Nigam Niraula; Nirjal Bhurtel; Jenisha Khulal Magar; Pankaj Raj Dawadi

Doi: [10.1109/ICCCNT56998.2023.10307312](https://doi.org/10.1109/ICCCNT56998.2023.10307312)

2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT)

July, 2023

Clubs and Communities

President [Kathmandu University Computer Club](#)

Dhulikhel, Nepal 04/2024 - current

Entrepreneurship and Outreach Coordinator

02/2023 - 04/2024

Executive Board Member

12/2023 - 02/2024

Contributing to the establishment of a platform for skill enhancement and community building, and striving to realize the motto "KUCC for all since 1997".

Vice President [Science Cum Intellect Club, KUHS](#)

Chaukot, Nepal 04/2019 - 02/2020

Established a new club for science and technology enthusiasts at KUHS, serving as Vice President, organizing events such as the first KUHS IT Meet, panel discussions, talk shows, and conducting robotics classes with 14 mini-projects.

Languages

• **Nepali** [Native]

• **Hindi** [Fluent]

• **English** [Fluent]