

KUSHAL PATHAK

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SUMMARY*

Final-year B.Sc. in Computer Science and Information Technology (BSc. CSIT) student at Birendra Multiple Campus with a strong foundation in web development, object-oriented programming, RESTful APIs, simulation engineering, and graphics programming. I've built and deployed full-stack web applications, simulations and am expanding my skills by consistently practicing, building projects, and seeking feedback from seniors. I'm passionate about my chosen technology stacks, have the drive to meet goals, and enjoy working in a team. I've led and mentored student communities and love giving back through open-source and community projects.

EDUCATION

Birendra Multiple Campus (TU), BSc. in Computer Science and Information Technology 2021 – Present
Percentage: 76% in aggregate till date

Relevant Coursework: Object Oriented Programming (OOP), Data Structures and Algorithms (DSA), Operating Systems, Networking, Database Systems, Software Engineering, Calculus, Linear Algebra, Statistics, Numerical Methods, Neural Networks, Core Artificial Intelligence/Machine Learning Concepts, Physics, Computer Graphics

PROJECTS

Digital Logic Simulator

- Used HTML, CSS, JavaScript, PHP, MySQL, Bootstrap
- Interactive tool for creating, connecting, and simulating logic gates in real time
- Supports cloud and local storage for saving circuits
- Allows users to clone and edit shared circuits for experimentation
- Optimized performance with a **custom hash table algorithm**, reducing baseline worst-case simulation time by **50%**
- Includes user authentication, profile management, and circuit sharing

Password Manager

- Used HTML, CSS, JavaScript, PHP, MySQL
- Developed a secure web app for storing and managing passwords
- Users log in with a master password to access saved credentials
- Features a simple dashboard for adding, editing, and organizing passwords
- Uses **AES-256 encryption** to keep passwords safe

Global Chat App

- Used HTML, CSS, JavaScript, Node.js, Express, WebSocket
- Developed a real-time chat application with **WebSocket** for instant two-way messaging
- Allows multiple users to send and receive messages smoothly
- Features a lightweight and efficient server for handling connections
- Provides a simple and responsive UI for a smooth chat experience

FREELANCING EXPERIENCE

Simulation Developer

2024 – Present

Developed a **magnetic field simulation** to analyze ore depth using object-oriented design and technologies like HTML, CSS, JavaScript, and p5.js enabling foundational research for ore-detecting devices.

Built a **seismic wave propagation simulator** with HTML, CSS, JavaScript, and p5.js to help geologists study wave behavior, improving accuracy through detailed wave equation analysis.

LEADERSHIP EXPERIENCE

Birendra Open Source Club

Chitwan/Nepal

President (2 Tenures)

Mar 2023 – Sep 2024

- Led a team of **11 executives**, overseeing planning, organizing, directing, and controlling club activities to ensure smooth operations, task allocation, and conflict resolution.
- **Organized 15+ events**, including a regional hackathon and a country-level mapathon, while managing resource allocation, finance, and logistics.
- **Increased student participation by 45%** through strategic outreach, inclusive event planning, and effective execution.
- Mentored new members in open-source tools, fostering hands-on learning and collaboration.
- Established partnerships with IT professionals, clubs, and colleges to expand reach, enhance industry connections, and promote knowledge-sharing.

CERTIFICATIONS & ACHIEVEMENTS

Certifications:

- CS50x – Harvard University
- Complete Web Development Bootcamp – Dr. Angela Yu
- Machine Learning Specialization – Andrew Ng
- Microsoft Office Specialist for Office PowerPoint 2013 – Microsoft

Awards:

- Best Science Project Award – District Education Department
- Second Place, Provathon 2021 (Regional) – CSITAN Chitwan
- Best Presentation Award (+2 Level, 2018) – Gurukul College

TECHNICAL SKILLS

- **Programming Languages:** C/C++, C#, JavaScript, Python, PHP
- **Web Technologies:** HTML5, CSS3, JavaScript (ES6+), Node.js, Express
- **Databases:** MySQL, MongoDB
- **Graphics & Simulation:** p5.js, HTML Canvas, SFML
- **Tools & Platforms:** Git, GitHub, CMake, Postman, Figma
- **Capabilities:** Building Full-Stack Websites, Graphics Visualizations, and Interactive Simulations

OTHER

- **Interests:** Creating YouTube content, developing simulations and games, analyzing the stock market, cycling, gaming and exploring different cuisines.
- **Languages:** Nepali (Native), English (Fluent)