

# Gaurav Nyaupane

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## Research Interests

- Computer Vision for real-world and low-resource settings
- Applied AI for healthcare and social good
- Medical data systems and assistive technologies
- Real-time systems and scalable software architectures
- Resource-efficient ML systems

## Education

**Tribhuvan University, Mechi Multiple Campus, Nepal**

**Bachelor of Computer Applications (BCA), 2017 – 2022**

CGPA: **3.66 / 4.00** (Top-ranked student across multiple semesters)

Major Academic Projects: - **Family Tree:** Computerized Ancestral Lineage Management System (Capstone Project) - **ERealEstate:** Online Real Estate Auction System - **Third Eye:** Digital Medical History Management Platform

## Publications and Technical Reports

### **RelayHub: A Resource-Efficient Real-Time Event Broadcasting Gateway**

*Extended abstract and completed software system, unpublished.*

Proposed a lightweight intermediary architecture enabling real-time event delivery by bridging HTTP-based producers with WebSocket clients. The system reduces server-side complexity and resource overhead, particularly for legacy and microservice-based systems.

### **Third Eye: A Digital Platform for Managing Medical Histories**

*Undergraduate technical thesis, Tribhuvan University, unpublished.*

Designed and implemented an electronic medical record platform addressing fragmented handwritten medical records in Nepal. Focused on secure, centralized access to patient histories to support clinical decision-making and continuity of care.

### **Glide: A Portable Braille Converter Using Mechanical Miniature Pistons**

*Conceptual design and abstract, unpublished.*

Proposed a handheld assistive device combining OCR-based computer vision with mechanically actuated Braille output to support real-time reading for visually impaired users.

### **Family Tree: A Computerized System for Visualizing and Managing Ancestral Lineage**

*Undergraduate technical thesis, Tribhuvan University, unpublished.*

Developed a digital system to model, visualize, and manage genealogical relationships, replacing error-prone handwritten lineage records.

### **ERealEstate: Online Real Estate Auction System**

*Undergraduate technical thesis, Tribhuvan University, unpublished.*

Implemented a web-based real estate auction platform with real-time bidding, focusing on transparency, accessibility, and reduced brokerage dependency.

### **Automating Bubble Sheet Grading with Bubble Sheet Evaluator**

*Extended abstract and prototype software, unpublished.*

Applied image processing and optical mark recognition techniques to automate grading workflows in educational institutions.

## Professional Experience

**PlanCare, Perth via Tekkon Technologies, Kathmandu**

**Senior Software Engineer, Oct 2023 – Present**

- Contributed to the development and maintenance of Caretaskr, a healthcare platform serving 1,500+ users across Australia.
- Led the architectural transition from Angular to React using a micro-frontend strategy, enabling incremental modernization without system downtime.
- Developed and deployed 60+ production features and enhancements based on direct operational feedback.
- Initiated and architected the PlanCare Portal mobile application using React Native.
- Improved platform performance by approximately 35 percent through backend and frontend optimizations.
- Designed and implemented over 250 unit tests, substantially increasing code reliability and maintainability.

#### **Premium Technologies, Kathmandu**

**Full Stack Developer**, Dec 2022 – Sep 2023

- Designed and implemented NotificationHub, a cloud-based real-time notification platform supporting large-scale message delivery.
- Built a custom authentication and authorization service supporting OAuth2, JWT, and role-based access control.
- Contributed to core banking and loan management systems, improving transaction workflows and reducing manual processing overhead.

#### **Crystal Solution, Jhapa**

**Software Developer / Team Lead**, Jan 2022 – Jul 2022

- Led a team of five developers in building a conference management system for large-scale institutional events.
- Migrated legacy data access layers to modern ORM-based architectures, improving performance and maintainability.
- Achieved high test coverage across multiple systems, significantly reducing post-deployment defects.

#### **Mechi Multiple Campus, Tribhuvan University**

**Software Development Intern**, Mar 2021 – Jun 2021

- Developed an automated attendance system using OpenCV-based face recognition.
- Contributed to the development of an Education Management Information System serving over 1,000 students.

### **Technical Skills**

**Programming Languages:** C#, Python, JavaScript, TypeScript

**Frameworks and Libraries:** ASP.NET Core, React, Django, NumPy (working knowledge), OpenCV

**Systems and Tools:** Docker, Git, Azure DevOps, GitHub Actions, Linux

**Databases:** PostgreSQL, MySQL, MS SQL Server, Redis

### **Awards and Honors**

- Best Communicator of the Year, Tekkon Technologies (2025)
- Academic Excellence Awards, BCA (Multiple Semesters)
- 50 percent Tuition Fee Waiver Scholarship, Tribhuvan University (2018)
- Winner, Regional Science Exhibition, District Education Office, Jhapa

### **Teaching & Mentoring Experience**

- Facilitated lab sessions for undergraduate computer science courses multiple times.
- Mentored a group of 2 classmates on course project and associated theses, providing guidance on methodology, coding, and documentation.
- Delivered more than 5 in-class presentations as part of ongoing lectures, teaching course topics to peers under faculty supervision.
- Assisted a faculty member in reviewing and providing feedback on initial project proposals from 4th-semester students, leveraging expertise gained as a senior (8th-semester) student.
- Organized One-week Programming Bootcamp for high school students

## **Community Engagement**

- Co-founder, BCA Tribhuvan University Facebook community
- Founding Member, BCA Student Association, Mechi Multiple Campus
- Host, Sports week organized by BCA Student Association
- Volunteer, Nepal Red Cross Society blood donation campaigns

## **Languages**

- Nepali (Native)
- English (Professional proficiency, IELTS 7.5)
- Hindi (Fluent)

## **References**

Available upon request.