

# Bijay Bartaula

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## Objective

To drive technological progress by addressing complex challenges in human-computer interaction and AI, with an emphasis on creating solutions that improve user experiences. I am committed to examining the ethical dimensions of AI and exploring the transformative potential of space exploration, aiming to foster innovation that benefits society. My mission is to create impactful, human-centered solutions that not only advance technology but also contribute to a more sustainable and equitable future. Through this work, I strive to remain adaptable and multidisciplinary, ensuring continuous growth and meaningful contributions to the world.

## Technical Expertise

### Programming Languages

Python, JavaScript, Java, C++, Rust

### Web Development

React, Node.js, HTML/CSS, TypeScript, Next.js

### Databases

MongoDB, PostgreSQL, MySQL, Redis

### Blockchain Development

Smart Contracts, DApps, Ethereum, Solidity, Web3

### Quantum Computing

Quantum Algorithms, Qiskit

### AI & Machine Learning

Reinforcement Learning, Computer Vision, NLP, Neural Networks, Deep Learning

### DevOps & Cloud

CI/CD, Docker, Kubernetes, AWS, Google Cloud, Azure

### Tools

Git, Docker, VS Code, Jupyter Notebooks, IntelliJ, PyCharm

### ML Frameworks

TensorFlow, Keras, PyTorch, Scikit-learn

## Innovative Projects

### UrjaMind (Project I)

Developed machine learning models to optimize energy distribution in hybrid solar-wind systems

Reduced energy waste by 18% through predictive pattern analysis

Tech Stack: Python, TensorFlow, Pandas, Scikit-learn

### AquaSense (Project II)

IoT network monitoring 50+ parameters across municipal water infrastructure

Real-time leak detection achieving 92% accuracy with ML algorithms

Tech Stack: Raspberry Pi, MQTT, Python, Time Series Database

### Bid4Good (Project III)

Platform connecting 200+ volunteers with 15 NGOs through skill-based bidding

Real-time bidding system with WebSocket integration

Tech Stack: Node.js, React, WebSockets, PostgreSQL

### Emissio (Project IV)

Dashboard visualizing organizational emissions across 10+ metrics

Integration with IoT sensors for real-time data collection

Tech Stack: React, D3.js, Node.js, MongoDB

### NestMitra (Project V)

Mobile app helping 500+ families find affordable housing options

Integrated with government housing programs and financial aid resources

Tech Stack: React Native, Firebase, Node.js

### VirtuRehab (Project VI)

VR-based rehabilitation system with 12 therapeutic exercises

Achieved 85% patient satisfaction in clinical trials

Tech Stack: Unity, C#, VR Hardware Integration

### MedPulse (Project VII)

AI-driven platform monitoring 15+ health metrics in real-time

Early warning system with 95% accuracy in anomaly detection

Tech Stack: Python, TensorFlow, Flask, IoT Sensors

### HireIQ (Project VIII)

AI-powered system matching 1000+ candidates with suitable jobs

Natural language processing for resume and job description analysis

Tech Stack: Python, React, Node.js, Elasticsearch

## Education

### B.E. in Computer Engineering

2022 - 2026

NCIT, Balkumari, Nepal

### +2 SLC in Computer Science

2020 - 2022

NIST College, Banepa, Nepal

### Academic Foundation

Somewhere - Mar 2020

Shree Janak Secondary School, Bhakundebesi, Nepal

*This CV is a draft in progress.*