

Binayak Bartaula

Tech Enthusiast · Software Engineer · AI & Web Developer · Future Forward Developer

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DIGITAL IDENTITY

I approach technology as a bridge between human intention and digital possibility. A human-centered technologist with a polymath's curiosity, engineering elegant solutions at the intersection of art and algorithm. Dedicated to crafting digital experiences that evolve beyond conventional boundaries while solving real-world challenges through computational innovation.

OBJECTIVE

Aspiring software engineer passionate about coding, problem-solving, and creating user-centric applications. Eager to apply skills in web development, machine learning, and app development to build scalable, impactful solutions that enhance human potential through thoughtful technology.

DEVELOPMENT PHILOSOPHY

"Technology should amplify human potential, not replace it. Every project is an opportunity to create meaningful connections between people and digital experiences. I believe in building solutions that address real problems with thoughtful innovation, embracing continuous learning as the foundation for growth."

Key Principles:

- **Human-Centered Design:** Technology serving people, not the other way around
- **Continuous Learning:** Embracing new challenges and evolving with the field
- **Thoughtful Innovation:** Building solutions that address real problems
- **Open Source Values:** Contributing to community-driven development

EDUCATION

B.Sc. in Computer Science and Engineering
Pokhara University, NCIT College, Lalitpur

Expected: August 2026

DEVELOPMENT TOOLS & TECHNICAL SKILLS

Development Tools:

Cursor · VS Code · Warp Terminal · Git · Docker

Languages:

Python · JavaScript · TypeScript · C++ · Java · Dart · HTML · CSS

Frontend & Design:

React · Next.js · Three.js · Framer Motion · Flutter · Tailwind CSS

Backend & Databases:

Node.js · Express.js · Supabase · Firebase · MongoDB · MySQL · PostgreSQL

AI & Machine Learning:

TensorFlow · Keras · scikit-learn · OpenCV · MediaPipe · NumPy · pandas

Cloud & DevOps:

[AWS](#) [Firebase](#) [Netlify](#) [Vercel](#)

FEATURED PROJECTS

Recent Projects (2024-2025):

- **GhostTouch**: Gesture control system using MediaPipe and OpenCV with 95% recognition accuracy. Revolutionizes accessibility and touchless interaction.
- **F1 Performance Predictor**: Predicts Formula 1 championship outcomes using historical race data with 90% accuracy. Practical AI application in sports analytics.
- **Cogneto**: AI-driven intelligent note-taking app that connects, organizes, and evolves ideas into a dynamic knowledge network. Built with React, Next.js, Supabase, and Google Generative AI.
- **ImageGlitch**: AI-powered image manipulation platform with background removal, artistic filters, and glitch effects. Democratizes digital art creation through AI.
- **Maze Simulation**: Algorithmic visualization tool showing pathfinding strategies with interactive controls and performance metrics. Educational tool for algorithm learning.

Selected Projects:

- **EclipsoTrack**: Web-based celestial event tracker with NASA integration, 3D star map, and real-time ISS tracking.
- **Weatherfy**: Real-time weather app built with Next.js and TypeScript.
- **Budget-Sentinel**: Expense tracker with real-time financial analytics.
- **Water Irrigation System**: Embedded system automating crop irrigation using sensor data.
- **Aurora Atelier**: A powerful paint app inspired by classic digital drawing tools.
- **QCM-KMeans-Athens**: K-means clustering project exploring quantum computing applications.

RESEARCH & PUBLICATIONS

Interactive Maze Generation and Pathfinding Algorithms: An Educational Visualization Platform for Algorithmic Analysis

Author: Binayak Bartaula

Year: July 2025

Published on: ResearchGate

[View Publication](#)

Abstract: Developed an educational simulation platform for algorithmic analysis using Python and Pygame, implementing multiple maze generation algorithms (Recursive Backtracking, Prim's, Kruskal's) and pathfinding algorithms (DFS, BFS, A*). The platform features real-time visualization capabilities with 60 FPS performance, optimized memory usage, and modular architecture designed for experimental algorithmic research and educational purposes.

Impact: *Educational tool for computer science students and researchers to understand algorithm visualization and performance analysis*

Technologies: Python, Pygame, Algorithm Visualization, Performance Optimization

VISION & GOALS

My work is guided by fundamental questions about technology's role in human experience:

- How can digital experiences enhance humanity rather than diminish it?
- What does meaningful innovation look like in an AI-driven world?
- How can technology bridge divides and create genuine connections?

Long-term Vision: Currently exploring the convergence of neural interfaces, distributed systems, and human-centered design principles to build technology that amplifies human potential. I believe the future belongs to those who can blend technical mastery with human empathy, creating solutions that are not just functional, but truly transformative.

INTERESTS

Neuroscience · Behavioral Economics · Quantum Computing · Sustainable Technology · Cognitive Psychology · Nature · Cognitive Science · Anthropology · Philosophy · Cooking · Literature · Cinema · Interactive Media · Competitive Gaming · Sports · History · Mythology · Vintage & Nostalgia

CONTINUOUS LEARNING & INNOVATION

"In every line of code lies the potential for connection, understanding, and making the impossible accessible. My mission is building bridges between human intention and digital possibility, driven by an insatiable thirst for mastery and relentlessly pursuing excellence in coding and beyond."

Last Updated: August 2025