

# BHAVINKUMAR UMATIYA

📞 +91-9737377334 ✉ umatiyabhavin@gmail.com 🌐 linkedin 🐙 github.com 🌐 Portfolio

## Objective

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Aspiring Electronics and Communication Engineer with hands-on experience in microcontroller-based systems, FPGA design, and Data Science. Seeking internship or entry-level roles in Embedded Systems, VLSI, or Data Engineering to contribute technical expertise and grow professionally.

## Education

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**Bachelor of Technology in Electronics and Communication Engineering** 2024 – Present

*Institute of Technology, Nirma University, Ahmedabad*

**Diploma in Information Technology** 2021 – 2024

*Dalia Institute of Technology (GTU)*

*Grade: First Class with Distinction*

## Technical Skills

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**Languages:** Python, Verilog, Assembly Language, System Verilog

**Tools & Technologies:** Vivado, Keil, Proteus, MATLAB, ModelSim, GitHub, Excel, PyCharm

**Platforms:** 8051 Microcontroller, FPGA (DE2), Xilinx board, STM32, ARM7 Board, GLCD

**Other Skills:** Data Analysis, Visualization, Team Collaboration, Time Management

## Experience

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**Intern** March 2024 – June 2024

*Vision HVAC Pvt. Ltd., Ahmedabad*

- Documented performance test cases and resolved data-processing errors.

## Academic Projects

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**Automated Leaf Health Detection using Contrast Stretching and Image Processing** Oct 2025

- Developed a Python-based system to automatically assess crop leaf health using computer vision techniques
- Implemented image preprocessing with denoising, contrast stretching, Gaussian blurring, and HSV color segmentation
- Calculated leaf health score using green-to-diseased pixel ratio for status classification.
- Generated overlay visuals highlighting diseased regions with health ratio and lesion metrics.
- Tools: Python, OpenCV, NumPy, PIL; Environment: VS Code

**Smart Agriculture System with Sensor Data and Cloud Integration** Aug 2025

- Designed an IoT-based system to monitor temperature, humidity, and soil moisture data using sensors
- Technologies: 8051 Microcontroller, DHT11, Soil Moisture Sensor, Firebase, Python Dashboard
- Uploaded real-time readings to Firebase Cloud and visualized them via a Python-based dashboard
- Enabled automatic irrigation control using threshold logic to reduce manual monitoring

**Agentic Hardware Co-Design Platform | [Live Demo](#)** May 2025 Continue

- Built an AI-powered multi-agent platform that generates complete FPGA designs from natural language descriptions.
- Technologies: Python, Flask, Groq LLM API, Firebase (Auth + Firestore), HTML/CSS/JavaScript
- Implemented a 3-agent pipeline — System Architect, RTL Engineer, and Vivado Integrator — to produce Verilog RTL code, testbenches, and Vivado TCL scripts automatically.
- Integrated an AI chat assistant for iterative design refinement and a downloadable project zip export feature.

**Carry Save Adder on FPGA (DE2 Kit)** March 2025

- Designed a 64-bit Carry Save Adder (CSA) using Verilog HDL
- Simulated in ModelSim and synthesized using Quartus; output displayed via 7-segment display

**Parents and Child Performance Analysis (Data Analysis)** May 2024

- Analyzed the impact of parents' education on children's academic performance
- Tools used: Python, Pandas, NumPy, Seaborn, Matplotlib; Environment: PyCharm

**Brain-Controlled Wheelchair using EEG Signals** In Progress

- Designing a brain-controlled wheelchair using EEG signals and analog signal processing

## Certifications

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**Introduction to Generative AI (2024) – Google Cloud | Azure AI Fundamentals (2024) – Microsoft | Data Analysis (2024) – LinkedIn**

## Achievements

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**Runner-up, National Karate Championship (2016) – New Delhi | Silver Medalist, State & District Tournaments (2015)**

## Languages & Interests

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**Languages:** English, Hindi, Gujarati | **Interests:** Hardware Design, VLSI, Microcontroller Projects, AI, Data Science