Jalpan Vyas

📞 +91 8849368626 | ✉ jalpan2104@gmail.com | 🔗 jalpan04 | ⌥ Jalpan04 | 🌐 jalpan.dev | 📍 Ahmedabad

EDUCATION

Karnavati University   Aug. 2023 – Expected 2027
Bachelor of Technology in Computer Science   Ahmedabad, Gujarat

PROJECTS

Mainbranch | *TypeScript, React, Next.js, Node.js*
- Developed a comprehensive **Social Platform** for developers using **TypeScript** and **React**, featuring portfolio generation and community engagement tools.
- Implemented complex state management and responsive UI components, ensuring a seamless experience across devices.
- Integrated **RESTful APIs** for user authentication and data persistence, optimizing for scalability and performance.

Smash | *Rust, Python, NLP, Shell Development*
- Architected **Smash**, a cross-platform shell implemented in **Rust** with an embedded AI assistant.
- Integrated **Natural Language Processing** to seamlessly translate user requests into executable shell commands.
- Enhanced developer productivity by combining the performance of Rust with an intuitive AI-driven CLI interface.

NURAG | *Python, FastAPI, Vanilla JS, ChromaDB*
- Architected a local-first **RAG** system using **FastAPI** (Python) and **Vanilla JavaScript**, featuring a highly responsive "Cyberpunk Industrial" UI.
- Implemented **WebSocket**-like real-time interactions for querying locally hosted LLMs via **Ollama**, ensuring low-latency responses.
- Designed a persistent storage layer with **ChromaDB** and **SQLite** to manage document embeddings and conversation history efficiently.

Gujarati Author Attribution | *Python, NLP, Machine Learning*
- Built an end-to-end **NLP pipeline** for **Authorship Attribution** on Gujarati literature using **Python**.
- Leveraged **stylometry** and **machine learning classification** models to identify stylistic signatures of regional authors.
- Processed and vectorized text data, achieving high accuracy in distinguishing between classical Gujarati writers.

PixelPredict | *JavaScript, HTML5 Canvas, Neural Network*
- Developed a web-based **Handwritten Digit Recognizer** running entirely in the browser using a custom **Neural Network** built from scratch in **JavaScript**.
- Implemented an interactive **HTML5 Canvas** interface for drawing digits, with real-time tensor processing and prediction.
- Demonstrated deep understanding of ML fundamentals by implementing forward propagation and gradient descent without external ML libraries.

Neui | *Python, Desktop, Framework, Gpu*
- Architected **NEUI**, a modern, GPU-accelerated Python UI framework utilizing **Skia** for immediate-mode rendering.
- Engineered a Flexbox-style layout engine and a reactive event system for building complex, performant desktop interfaces.

Spoticmd | *Python, Cli Music Player, Productivity Tool, Remote Control*
- Developed **SpotiCMD**, a real-time **Spotify visualizer** and remote control interface built entirely in **Python** for the terminal.

- Integrated the **Spotify REST API** to fetch live playback state and track metadata with minimal latency.

Jaximg | *Python, Gpu Acceleration, High Performance Computing, Image Processing*

- Implemented **JAXImg**, an educational text-to-image generative model inspired by OpenAI's DALL-E, using **JAX** and **Flax**.
- Leveraged **GPU acceleration** and XLA compilation to significantly speed up model training and inference pipelines.

Rekhta Gazal Scraper | *Python, Dataset, Ghazal, Selenium*

- Engineered a robust **Web Scraper** in **Python** using **Selenium** to collect extensive Ghazal poetry datasets from Rekhta.org.
- Implemented advanced anti-bot detection and ban-evasion mechanisms, including dynamic proxy rotation and viewport randomization.

Zatzy Ai | *Python, Evolutionary Algorithms, Game Ai, Reinforcement Learning*

- Developed **Zatzy AI**, a comprehensive research laboratory for Yahtzee, featuring multiple **Reinforcement Learning** agents.
- Implemented state-of-the-art **Evolutionary Algorithms** and **Deep Q-Learning** to autonomously discover optimal game strategies.

Mnist Cvae Digit Generator | *Cvae, Deep Learning, Generative Model, Latent Space*

- Built a **Conditional Variational Autoencoder (CVAE)** in **PyTorch** for generating highly realistic handwritten MNIST digits.
- Architected the **latent space** representation to embed digit class conditions, allowing targeted generation of specific numbers.

Termtube | *Shell, Bash Script, Terminal App, Tui*

- Created **TermTube**, a lightweight **Terminal User Interface (TUI)** wrapper for yt-dlp using **Bash Scripting**.
- Engineered an interactive CLI dashboard for searching YouTube, parsing video formats, and selecting resolutions entirely in the shell.

Aspisengine | *Python, Game Engine, Gamedev, Pygame*

- Architected **AspisEngine**, a minimalist **2D Python Game Engine** built on top of **Pygame** and **Pymunk**.
- Implemented an Entity-Component-System (**ECS**) architecture for highly decoupled, performant game logic management.

Pixelmess | *Python, Digital Art, Glitch Art, Image Manipulation*

- Developed **Pixelmess**, a high-performance live image manipulation tool utilizing **OpenCV** for glitch art generation.
- Programmed real-time pixel sorting and procedural distortion algorithms optimized for live webcam feeds and batch video processing.

Jaxos | *Python, Assembly, Bootloader, Kernel Dev*

- Simulated **jaxOS**, an experimental operating system exploring the intersection of low-level **Assembly** architecture and AI.
- Implemented foundational kernel concepts, bootloader sequences, and custom memory management routines in a simulated environment.

SKILLS

Languages : Python, JavaScript, TypeScript, Shell, HTML5, CSS3, R
Frameworks & Libraries : NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch, Keras, LangChain, LangGraph, OpenCV, Pygame, Streamlit, Hugging Face, React, Next.js, Node.js, Flask, FastAPI, Django, TailwindCSS
Tools & Platforms : Git, GitHub, Docker, Linux, MongoDB, Ollama, n8n, FFmpeg, Jupyter, AWS

CERTIFICATIONS

OpenCV Bootcamp   Issued Mar 2026
OpenCV University   Credential ID: fc1e4dd2769941838bfa85041d0d2559

AWS Academy Graduate - Cloud Security Foundations   Issued Mar 2026
Amazon Web Services (AWS)   Credential ID: 237fc9af-324f-4fc5-9ba1-3219f18c17b4

MongoDB Python Developer Path   Issued Mar 2026
MongoDB   Credential ID: MDBlxf2th9ezq

Intro to Deep Learning   Issued Nov 2025
Kaggle   Skills: Deep Learning

AWS Academy Graduate - Cloud Web Application Builder   Issued Oct 2025
Amazon Web Services (AWS)   Credential ID: a0acbe05-3f97-4244-bbff-8e4c32e1a35b

Intro to Machine Learning   Issued Oct 2025
Kaggle   Skills: Machine Learning

AWS Academy Graduate - Cloud Foundations   Issued Oct 2025
Amazon Web Services (AWS)

Image Processing Onramp   Issued Sep 2025
MathWorks   Skills: Computer Vision, Image Processing, MATLAB

Code Unnati - Foundation Course in AI & Data Science   Issued Jan 2024
Edunet Foundation   Credential ID: CU25_27604