JALPAN VYAS

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SUMMARY

Computer Science undergraduate with a strong foundation in **algorithmic Python and AI**. Experienced in developing **NLP pipelines and Computer Vision** systems using **LangChain and OpenCV**. Dedicated to writing high-performance code and optimizing neural networks, supported by a versatile skill set in **SQL, Docker, and modern web frameworks** for end-to-end deployment.

SKILLS

- **Languages:** Python, JavaScript, TypeScript, C#, SQL, HTML5/CSS3
- **AI & ML:** PyTorch, TensorFlow, Scikit-learn, OpenCV, LangChain, NumPy, Pandas
- **Full Stack:** React, Next.js, Node.js, FastAPI, .NET, TailwindCSS
- **Tools & DevOps:** Docker, Git/GitHub, AWS, Linux, PostgreSQL, MongoDB

PROJECTS

PixelPredict (Neural Network from Scratch)
Tech Stack: Python, NumPy, Flask

- Built a 2-layer Neural Network entirely from scratch using **NumPy**, manually implementing forward/backward propagation and **Gradient Descent**.
- Attained **97% test accuracy** on the MNIST dataset and deployed a real-time confidence scoring interface using **Flask**.

NEUI (GPU-Accelerated UI Framework)
Tech Stack: Python, Skia, OpenGL

- Architected a high-performance UI framework with a custom Flexbox engine and **GPU-accelerated** rendering via **Skia/OpenGL**.
- Optimized the rendering pipeline to sustain **60FPS** on standard hardware, introducing a context-manager API that streamlined developer workflows.

Vinylogue (Music Discovery Platform)
Tech Stack: MERN Stack (MongoDB, React, Node.js)

- Developed a full-stack social platform with **JWT authentication** and optimized **Spotify API** integration for real-time metadata retrieval.
- Implemented complex backend filtering logic and designed a responsive, brutalist UI using **React** and CSS Grid.

Gujarati Author Attribution (NLP Research)
Tech Stack: TensorFlow, BERT, LSTM

- Engineered an end-to-end **NLP pipeline** for low-resource Gujarati text, conducting comparative analysis between **LSTMs** and **BERT-based Transformers**.
- Achieved **97.7% SOTA accuracy** using Transfer Learning, significantly outperforming the **59% baseline** by resolving specific tokenizer limitations.

EDUCATION

B.Tech in Computer Science Karnavati University | *Expected 2027*