Manish Kumar Shah

+91 8660432496 | manishsah0981@gmail.com | manish-shah098 | Manish-412

Summary

Full-stack engineer and aspiring data scientist building AI-powered applications across healthcare, agriculture, and enterprise domains. Proficient in React, Next.js, Node.js, and Python with hands-on experience in machine learning, deep learning, and computer vision. Active researcher in medical image analysis (brain tumor classification and segmentation using BraTS dataset). Hackathon finalist (Amalthea IIT-GN 2025, IEEE AVM-IIITM 2026) with a consistent track record of delivering production-grade systems under pressure.

Technical Skills

Languages: Python, JavaScript, TypeScript, SQL
Frontend: React, Next.js, Tailwind CSS, Framer Motion, Radix UI
Backend: Node.js, Express, RESTful APIs
Data Science and Machine Learning: Pandas, NumPy, Scikit-learn, TensorFlow, Keras, PyTorch, OpenCV, Matplotlib, Seaborn, Jupyter Notebook
AI and Computer Vision: Google Generative AI, DeepFace, CNNs, Transfer Learning, Image Segmentation, Medical Imaging (MRI/NIfTI)
Databases: MySQL, PostgreSQL
Tools and DevOps: Docker, Git, JWT, Recharts

Research

Brain Tumor Classification Using Deep Learning on BraTS Dataset | *(Manuscript in Preparation)*

- Developing a **multi-class brain tumor classification model** using the BraTS (Brain Tumor Segmentation) benchmark dataset, targeting four diagnostic categories: **Meningioma, Pituitary Tumor, Glioma, and No Tumor**.
- Applying **convolutional neural network (CNN) architectures** with transfer learning techniques (e.g., ResNet, EfficientNet) on MRI scans, focusing on maximizing classification accuracy and reducing misdiagnosis risk across tumor subtypes.
- Preprocessing pipeline includes **NIfTI volume slicing, normalization, skull stripping, and data augmentation** to address class imbalance and improve model generalization on unseen clinical data.

HGG vs. LGG Brain Tumor Segmentation Using BraTS Dataset | *(Manuscript in Preparation)*

- Designing a **semantic segmentation pipeline** to delineate High-Grade Glioma (HGG) and Low-Grade Glioma (LGG) tumor regions from multi-modal MRI scans (T1, T2, FLAIR, T1ce) using the BraTS dataset.
- Implementing **U-Net and attention-based encoder-decoder architectures** to generate pixel-level tumor masks, enabling precise localization critical for surgical planning and radiotherapy targeting.
- Evaluating model performance using **Dice Similarity Coefficient (DSC) and Hausdorff Distance** metrics aligned with BraTS challenge standards to benchmark against state-of-the-art segmentation methods.

Projects

KRUSHI-SCAN | *Next.js 14, TypeScript, Tailwind CSS, Recharts, REST APIs, Python* | GitHub

- Architected a full-stack AI agriculture platform using **Next.js 14 App Router** and TypeScript, ingesting **5+ real-time IoT sensor streams** (soil moisture, temperature, humidity) into interactive Recharts dashboards — giving farmers instant field visibility without manual inspection.
- Built an **AI crop disease detection engine** using a fine-tuned image classification model; farmers upload field images and receive instant predictions with confidence scores and treatment recommendations, **cutting diagnosis time from days to seconds** compared to waiting for an agronomist.
- Developed a **regional intelligence module** cross-referencing live weather APIs for district-level crop recommendations; delivered a fully responsive UI (Tailwind CSS, Radix UI, Framer Motion) with modular REST routes designed for future IoT extensibility.

CLARIO | *JavaScript, Python, Google Generative AI, DeepFace, JWT* | GitHub

- Built a 24/7 mental health support platform with an **AI chatbot** (Google Generative AI) providing emotional support — bridging the accessibility gap for users who cannot afford or access professional therapy.
- Integrated **real-time facial emotion recognition** via DeepFace and OpenCV to passively detect user emotional state through webcam, **enabling proactive AI intervention** rather than relying on self-reporting which users frequently avoid.
- Designed **longitudinal mood and sleep monitoring dashboards** surfacing wellness trends over time; secured all sensitive health data with **JWT-based authentication** as a core security requirement.

ONEFLOW | *React (TypeScript), Node.js, MySQL, JWT* | GitHub

- Built a unified project and task management platform eliminating tool-switching across spreadsheets, task managers, and invoicing apps — consolidating workflows into a **single full-stack application**.

- Architected a **role-based access control (RBAC) system** with admin approval workflows, ensuring team members act only within their permission scope and improving organizational accountability.
- Developed **end-to-end financial modules** (invoices, purchase orders, expenses) tightly coupled with project data — giving managers **real-time cost visibility** without manual spreadsheet reconciliation.

EXPENSIO | *React, Node.js, MySQL, JWT* | GitHub
- Engineered a full-stack expense management platform with a **hierarchical multi-role approval workflow** automating the entire submission-to-sign-off chain, replacing slow manual email-based processes.
- Built **real-time expense tracking with receipt uploads**, giving finance teams instant visibility into pending claims and **significantly reducing approval cycle time**.
- Secured the platform with **JWT authentication and role-scoped API access** — employees see only their own expenses while managers retain full oversight of team spend.

Achievements

Finalist – AVM-IIITM (2026), organized by IEEE Student Branch

Finalist – IIT Gandhinagar ODOO Hackathon (2025), organized by Amalthea (IIT-GN)

Selected – Smart India Hackathon (SIH) 2025, Final Round (College Level)

Education

JAIN Deemed to be University Bengaluru, India

Bachelor of Technology in Computer Science and Engineering — ***CGPA: 8.715/10*** *Aug 2024 – June 2028 (Expected)*
- **Relevant Coursework:** Data Communication and Networks, Web Technologies, Database Management Systems, Essentials of Machine Learning, Operating Systems, Data Structures and Algorithms