

Ayush Jha

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EDUCATION

• Birla Institute of Technology Mesra

December 2021 - May 2025

Bachelor of Technology in Information Technology

Ranchi, Jharkhand

◦ CGPA: 8.06

EXPERIENCE

• Synapse Health Tech

June 2025 - Present

Associate Data Scientist

Remote

- Leading development of Bankability eye-tracking solution for banking applications using Kotlin and MediaPipe libraries, implementing multiple linear regression algorithms for precise gaze tracking and user behavior analysis, achieving 85-90% accuracy in gaze prediction
- Architected and developed FastAPI backend with WebSocket integration for real-time image segmentation and processing, utilizing OpenCV for computer vision operations and achieving sub-second response times, for the Bankability Project.
- Engineered Dental Radiograph Analysis system integrating two PyTorch models for tooth numbering and disease prediction, with Groq API for LLM inferencing to generate comprehensive dental analysis reports, achieving 90% accuracy in disease diagnosis.
- Deployed dental radiograph analysis system using Docker containers for both frontend and backend on AWS Elastic Container Registry (ECR) and Elastic Container Service (ECS), ensuring scalable and reliable production environments.

• Aspirare Communications

January 2025 - April 2025

Software Engineering Intern

Bengaluru, Karnataka

- Developed and maintained Field Service Management System using React-native, React, Google Maps API, GCP and FastAPI.
- Collaborated with cross-functional teams to optimize business processes and improve system efficiency.

• Tata Consultancy Services

May 2024 - June 2024

Project Intern

Noida, Uttar Pradesh

- Engineered an internal TCS project using FastAPI, React, and SQLite, optimizing API response time by 30%.
- Optimized cloud deployment strategy on Azure, improving scalability and reducing downtime.
- Diagnosed API inefficiencies, reducing server response time and enhanced UX.
- Presented technical insights to the leadership team, receiving recognition for architectural improvements.

PROJECTS

• N8N AI News Automation

September 2025

Tools: N8N, GNews API, NewsAPI, Google Gemini 2.5 Pro, Telegram API



- Developed an automated news aggregation system using the n8n workflow platform, integrating multiple APIs (GNews, NewsAPI) to collect and process AI-related content with 100
- Implemented AI-powered content summarization using Google Gemini 2.5 Pro model, reducing manual content curation time by 90% and delivering personalized news digests via Telegram integration.
- Architected scalable workflow automation solution with scheduled triggers, data processing pipelines, and multi-channel delivery systems, supporting daily execution and real-time content distribution.

• Gastrointestinal-Polyp Segmentation

June 2025

Tools: Python, PyTorch, Attention U-Net, Albumentations, CUDA AMP, Grad-CAM, TensorBoard, OpenCV



- Built an Attention U-Net-based deep learning pipeline to generate pixel-level segmentation masks for polyps, achieving 0.92 Dice and 0.89 IoU scores in the Kvasir-SEG benchmark dataset.
- Automated dataset pre-processing and extensive augmentations using Albumentations (flips, elastic/grid/optical distortions, brightness, noise), effectively tripling training data and reducing class imbalance.

- Optimized training using a hybrid loss function (Dice + Focal + Tversky) combined with mixed precision of CUDA AMP, reducing GPU memory usage by 40% and training time per epoch by 25%.
- Deployed a robust inference module with batch processing CLI, Grad-CAM-based visual explanations, and TensorBoard integration for model transparency and 5× faster clinical review workflows.

• Rice Disease Detection System

November 2024

Tools: Python, React, Tailwind CSS, FastAPI, TensorFlow, Scikit-Learn, NumPy, Pandas, Firebase



- Built a rice disease detection system using TensorFlow (CNN) and Scikit-learn (Random Forest) with high accuracy.
- Integrated both models into a FastAPI backend for seamless front-end interaction.
- Developed a React-Tailwind form for real-time input of images and environmental data.
- Implemented authentication (email/password, Google) and secured data in Firestore.

SKILLS

- **Programming Languages:** C++, Python, SQL, JavaScript
- **Frameworks and Libraries:** FastAPI, NumPy, Pandas, Scikit-Learn, PyTorch, Streamlit, OpenCV, React, Tailwind CSS
- **Database Systems:** PostgreSQL, Supabase
- **Cloud Technologies:** AWS (IAM, EC2, Lambda, S3, ECR, ECS)
- **AI/ML Technologies:** PyTorch, OpenCV, MediaPipe, Groq API, LLM Integration, Computer Vision, Image Segmentation
- **Developer Tools:** Git, GitHub, Docker, Ngrok, N8N, TensorBoard, Grad-CAM, WebSockets