

# JITEN BHALAVAT

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## EDUCATION

University of Maryland, College Park

Master of Science in Applied Machine Learning

Aug 2024 - Expected May 2026

College Park, Maryland

Charotar University of Science and Technology (CHARUSAT)

Bachelor of Technology in Information Technology

Sept 2020 - May 2024

Gujarat, India

## EXPERIENCE

AI Engineer Intern

Sept 2023 - Apr 2024

Plutomen Technologies Pvt. Ltd.

Gujarat, India

- Architected automated parsing pipeline using **LlamaParse** and **Mistral OCR**, boosting data extraction accuracy from 45% to 89% and eliminating 15 hours/week of manual compliance review, using LlamaIndex and LangChain as orchestration
- Improved chatbot answer relevance by **30%** through **optimized chunking** and semantic search using **Qdrant**, **Pinecone**
- Designed and deployed **Flask REST APIs** backend with 8 endpoints, integrating **PostgreSQL** for chat history and enabling real-time RAG responses with less than 200ms latency for client applications
- Identified and resolved 15+ model failure modes through systematic testing, improving chatbot robustness by 12%

Research Assistant

Apr 2023 - Jun 2023

Charotar University of Science and Technology

Gujarat, India

- Reviewed and evaluated advanced CNN architectures to optimize MRI-based brain tumor segmentation accuracy.
- Designed a 2D U-Net achieving 0.8+ Dice coefficient, enabling precise and automated tumor localization.

Machine Learning Engineer Intern

May 2022 - Jun 2022

NXON Pvt. Ltd.

Gujarat, India

- Designed a CNN achieving over **99%** test accuracy on MNIST by **fine-tuning** convolutional and pooling layers
- Applied dropout regularization techniques, improving model generalization by **7%** and reducing overfitting risks
- Refined architecture to boost classification reliability, streamlining deployment in production-ready AI Systems

## PROJECTS

ClassTopper: Full Stack Multi-modal ( Text + Video ) RAG Platform

- Led 3-person team building multi-modal RAG chatbot for videos and documents, improving study efficiency by 40%
- Enhanced content retention by **60%** via mind-mapping feature, visualizing topic relationships for better knowledge recall
- Engineered adaptive quiz system generating personalized assessments from knowledge gap analysis, boosting test performance by 27% and identifying weak areas with 85% accuracy

AI Voice Assistant

- Built a real-time AI Voice Assistant pipeline (**STT**, **LLM**, **TTS**) that reduced **response latency by 65%** (2.3s to 800ms) using Whisper.cpp, AssemblyAI, Groq LLMs, and streaming APIs
- Cut **Time-to-First-Token** (TTFT) and inference latency by **75%** (1.2s to 300ms) through speculative decoding and low-latency AI solutions
- Implemented a **WebRTC voice framework** with Voice Activity Detection (VAD), End-of-Utterance detection, and multi-speaker turn handling, enabling seamless real-time conversations

Brain tumor segmentation in MRI images using U-Net

- Constructed a **U-Net** for MRI segmentation, achieving 91% accuracy by **training models** on preprocessed DICOM images
- Benchmarked model using IoU metrics, achieving a **15%** improvement over baseline CNN architectures
- Applied advanced AI techniques in medical imaging, demonstrating the impact of AI professionals in healthcare

## SKILLS

**TECHNICAL SKILLS:** Python, C, JavaScript, C++, Java, TensorFlow, PyTorch, Keras, HuggingFace, MatLab, Scikit-learn, SQL, MySQL, MongoDB, Pinecone, Qdrant, FAISS, NumPy, Pandas, Typescript, React, Node.js, Django, FastAPI, PostgreSQL, Git, Docker, Kubernetes, AWS, Azure, GCP, DevOps, Flask

**APPLICATIONS:** Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Transformers, Data Science, Large Language Models (LLMs), AI Agents, RAG, Prompt Engineering, Fine-tuning, MLOps, Cloud Computing, Agile Development, Linux, Data Structures, Mathematics, Statistics, Version Control

## CERTIFICATIONS AND ACHIEVEMENTS

**Google Cloud Computing** - Google Cloud Educational Badges (9 Badges)

**AWS Academy Graduate** - AWS Academy Machine Learning Foundations and AWS Academy Cloud Developing

**Academic Achievement** - Secured 2nd rank (Silver Medal) among 180 students in Bachelor of Technology

**Data Science Club** - Led & Mentored juniors on data science, organized events, and AWS ML workshop for 100+ students.

**Hackathon Achievement** - Earned 2nd rank (Silver Medal) in the 2023SolutionChallenge Hackathon at CHARUSAT