KUMAR ABHISHEK

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LinkedIn | GitHub | Portfolio

PROFESSIONAL SUMMARY

Ambitious Electronics and Communication Engineering student at IIIT Una with strong expertise in Machine Learning, Deep Learning, and AI-powered applications. Experienced in building full-stack solutions using LangChain, LangGraph, RAG systems, and modern web frameworks. Skilled in data analysis, signal processing, and developing intelligent automation tools. Proficient in Python, FastAPI, React, and various ML/DL frameworks. Seeking opportunities to contribute to innovative AI projects and expand expertise in emerging technologies.

EDUCATION

Bachelor of Technology in Electronics and Communication Engineering
Indian Institute of Information Technology (IIIT) Una, Himachal Pradesh
CGPA: 7.78/10.0

Senior Secondary Education - Class 12 (CBSE)
Delhi Model Public School
Percentage: 85%

Secondary Education - Class 10 (CBSE)
D.A.V. Public School
Percentage: 92.4%

TECHNICAL SKILLS

Programming:	Python, JavaScript, HTML, CSS, SQL, MATLAB
ML/DL:	Machine Learning, Deep Learning, NLP, Computer Vision, Transformers, BERT, RAG Systems
AI Frameworks:	LangChain, LangGraph, LangSmith, Google Gemini, MCP Framework, DeepFace, DeepGram
Libraries:	PyTorch, TensorFlow, NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn, SciPy, OpenCV
Web Development:	FastAPI, React.js, Redux Toolkit, Streamlit, Tailwind CSS
Databases:	MongoDB, ChromaDB, SQLite, PostgreSQL, Firebase
Development Tools:	Git, GitHub, Jupyter Notebook, VS Code, Docker, Google Colab
Data Analysis:	Excel (Advanced), Power BI, Pivot Tables, Statistical Analysis, Data Visualization
Other:	Signal Processing, API Integration, Web Scraping, Cloud Deployment (GCP, Heroku, Vercel)

PROJECTS

InterviewBot - AI-Powered Interview Preparation Platform

GitHub | Live Demo

- Developed intelligent interview preparation platform with AI chatbot using Google Gemini and LangGraph for contextual conversations
- Implemented RAG system with ChromaDB for vector similarity search and resume parsing to generate personalized questions
- Built progress tracking dashboard with PDF report generation using ReportLab
- Created FastAPI backend with JWT authentication and MongoDB for user data storage
- Achieved 95%+ question relevance accuracy with sub-2-second response generation
- Tech Stack: FastAPI, LangChain, LangGraph, LangSmith, Gemini, ChromaDB, MongoDB, React, Redux Toolkit

MoodTunes AI - Emotion-Based Music Recommendation System

GitHub | Live Demo

- Built AI music recommender using facial emotion detection with DeepFace for real-time mood analysis
- Integrated Gemini AI for intelligent playlist generation based on detected emotions
- Added voice control using DeepGram API for hands-free music search and playback
- Connected YouTube API and Last.fm for streaming and comprehensive music metadata
- Achieved 85%+ emotion detection accuracy with 30 FPS real-time processing
- Tech Stack: FastAPI, React, Tailwind CSS, DeepFace, Gemini, DeepGram, YouTube API, Last.fm API

AI Newsletter Automation - FastMCP Framework

GitHub

- Built comprehensive MCP (Model Context Protocol) server that enables AI assistants like Claude to autonomously execute the complete newsletter workflow from research to publication
- Developed multi-source integration pipeline connecting arXiv for research papers, GitHub Trending for open-source projects, Product Hunt for AI tools, Twitter for trending discussions, Gmail for feedback analysis, and Google Drive for automated storage
- Implemented intelligent content curation algorithms with ranking systems, deduplication logic, and NLP-based summarization to process 100+ sources weekly
- Created end-to-end automation including research gathering, content organization, AI-powered drafting, quality validation, responsive HTML generation, and distribution tracking
- Reduced newsletter creation time from 4-6 hours to under 30 minutes while maintaining 95%+ content accuracy
- Tech Stack: Python, FastAPI, MCP Framework, Google APIs, Gmail API, Twitter API, BeautifulSoup

ECG R-Peak Detection - Signal Processing & Deep Learning

GitHub

- Implemented and compared six R-peak detection methods on MIT-BIH Arrhythmia Database
- Achieved 99.5% sensitivity with Pan-Tompkins algorithm using bandpass filtering and adaptive thresholding
- Developed Inception-Residual UNet (RPNet) achieving state-of-the-art 99.7% accuracy
- Built CNN and LSTM models for automatic feature extraction from raw ECG signals
- Optimized for real-time processing with latency under 50ms per second of signal
- Tech Stack: PyTorch, NumPy, SciPy, Scikit-learn, Matplotlib, PyWavelets

MediCure - AI Healthcare Assistant

GitHub | Live Demo

- Developed AI healthcare platform for medicine information, side effects analysis, and substitute recommendations
- Implemented BERT (BioBERT) for medical NLP with 91%+ intent recognition accuracy
- Built symptom-based consultation system with intelligent diagnostic questions
- Created comprehensive medicine database with dosage, composition, and interaction checking
- Tech Stack: PyTorch, FastAPI, React, BERT, Pandas, MongoDB

IPL Dashboard - Cricket Analytics (2008-2024)

GitHub

- Built interactive dashboard analyzing 16 years of IPL data with year-wise filtering
- Created analytics for team performance, toss impact, venue trends, and player statistics
- Implemented auto-updating KPIs using Pivot Tables and advanced Excel formulas
- Tech Stack: Python, Streamlit, Pandas, Plotly, Excel

AI Assistant Chatbot

GitHub | Live Demo

- Full-stack AI chatbot with Google Gemini 2.5 and web search capabilities
- Implemented contextual conversation flow with LangGraph for multi-turn interactions
- Tech Stack: React, FastAPI, LangGraph, Gemini

FNP Sales Analysis - E-commerce Dashboard

GitHub

- Developed interactive dashboard tracking 1,000+ orders worth 35+ lakhs
- Analyzed sales by occasion, product category, geography, and time with dynamic slicers
- Tech Stack: Python, Pandas, Matplotlib, Seaborn, Excel

MCP Expense Manager

GitHub

- Developed Model Context Protocol server for comprehensive expense tracking and financial analytics enabling AI assistants to manage personal finances
- Implemented expense categorization, date-range filtering, and automated summary generation with statistical insights
- Built CRUD operations for expense entries with support for categories, subcategories, and detailed notes
- Created analytics tools for expense summarization by category and time period with visualization capabilities
- Tech Stack: Python, MCP, FastAPI, SQLite

Duplicate Question Pair Detection

GitHub

- Developed advanced NLP model to identify semantically duplicate questions using BERT-based transformer architecture and text similarity algorithms
- Implemented feature engineering techniques including TF-IDF vectorization, word embeddings, and cosine similarity for question pair comparison
- Trained classification model on large-scale question pair dataset with data preprocessing, tokenization, and sequence padding
- Achieved high accuracy in detecting paraphrased and semantically equivalent questions useful for Q&A platforms and search optimization
- Tech Stack: Python, NLP, BERT, Scikit-learn, TensorFlow, Pandas

Heart Disease Prediction

GitHub | Live Demo

- Built machine learning model for early heart disease prediction using patient clinical data including age, blood pressure, cholesterol levels, and ECG results
- Implemented multiple classification algorithms (Logistic Regression, Random Forest, SVM, XGBoost) with hyperparameter tuning and cross-validation
- Performed comprehensive data preprocessing, feature scaling, handling missing values, and exploratory data analysis to identify key risk factors
- Deployed interactive Streamlit web application allowing users to input health metrics and receive instant risk predictions with probability scores
- Tech Stack: Python, Scikit-learn, Streamlit, Pandas, NumPy, Matplotlib

ACTIVITIES & HONORS

- Member, Technical Club (AAVESH) - IIIT Una
- Member, Literature Club (EUNOIA) - IIIT Una