Istiaque Ahmed

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EXPERIENCE

DATA SCIENTIST Join Venture Ai

- Built multiple AI-powered applications from scratch, including NLP pipelines, chatbots, recommendation engines, and slide generator. Applied transformer models and vector databases (ChromaDB) for document embedding, retrieval, and summarization tasks.
- Used FastAPI, MongoDB, and WebSockets to develop real-time chat interfaces, backend services, and pipeline orchestration for AI agents.
- Collaborated with various APIs (Twilio, Meta, Google Trends, Dropbox) to integrate real-world data into ML workflows.

PROJECTS

AI CONSULTANT API Github

Python | FastAPI | OpenAI API | ChromaDB | REST API | Audio Retrieval

- Built an **agentic AI system** that autonomously switches between roles as a **consultant** (guidance, follow-ups) and a **resource provider** (retrieving relevant consultation audios).
- Implemented **semantic audio search** and retrieval using ChromaDB, with COT-style reasoning to ground responses in audio content while ensuring contextual continuity across sessions.
- Designed REST endpoints for chat, memory reset, and audio management, enabling **real-time audio-informed consultations** with professional, context-aware responses.

COUPLE COUNSELOR BOT Github

Python | FastAPI | Gemini API | ChromaDB | WebSocket | MongoDB

- Built a multi-agent counseling bot that communicates with partners separately while maintaining shared context across sessions.
- Utilized Gemini API for conversational intelligence, ChromaDB for vector-based memory, and LangChain for message routing and contextual reasoning.
- Enabled real-time chat via WebSocket, session tracking, and secure message persistence with MongoDB.

RESEARCH

LIGHTWEIGHT DUAL-STREAM CNN FOR AUTOMATIC MODULATION CLASSIFICATION | Signal Processing | Computer Vision | Deep Learning

- Developed a dual-stream CNN using amplitude and phase wavelet scalograms, achieving **98% accuracy** with only **94k parameters**.
- Generated and processed radio signals with eight modulation types under realistic channel impairments (AWGN, Rician fading, clock offsets) using MATLAB and CWT.
- Demonstrated a model **100–400× smaller** than SqueezeNet, EfficientNet-Lite0, and DenseNet-121, enabling real-time AMC on edge devices.

EDUCATION

BRAC UNIVERSITY

Bachelor of Science in Computer Science
Graduated June 2025
Cum. GPA: 3.6 / 4.0

SKILLS

TECHNICAL

Programming Languages:
Python • SQL • Java
Machine Learning & AI:
PyTorch • Scikit-learn • Neural Networks • Computer Vision (OpenCV) • Natural Language Processing (NLP) • Retrieval-Augmented Generation (RAG) • Agentic AI Systems
Data Science & Analytics:
Pandas • NumPy • Matplotlib • Seaborn • Data Wrangling • Statistical Analysis
Software Development:
FastAPI • Git/GitHub • Docker (Basic) • REST APIs • Jupyter/Colab • Linux/CLI
Specialized Areas:
Agent-Oriented Architectures • AI-driven Applications • End-to-End System Design

COURSEWORK

UNDERGRADUATE

Data Structures and Algorithms
Artificial Intelligence
Machine Learning
Neural Networks
Image Processing
Probability and Statistics
Linear Algebra & Calculus

REFERENCE

MD. ASHRAFUL ALAM, PHD

Associate Professor
Dept. of Computer Science and Engineering | Brac University

LINKS

Github:// **IstiaqueAhmd**
LinkedIn:// **istiaque-ahmd**