SUBHADEEP JANA

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EDUCATION

Master of Science in Computer Science Aug 2022 - May 2024
Indiana University Bloomington *GPA: 3.87/4.0*

· Coursework: Software Engineering, Applied Algorithms, Applied Machine Learning, Time Series Analysis

Bachelor of Technology in Computer Science Aug 2017 - Jul 2021
Government College of Engineering and Ceramic Technology *CGPA: 9.07/10.0*

· Coursework: Data Structures, Software Development, Artificial Intelligence, Database Management Systems

EXPERIENCE

Research Assistant Jan 2024 - Present
Indiana University *Bloomington*

· Architected a web-based cognitive experiment using JavaScript and jsPysch to study *imminence* and *recency* perception in humans, analyzing the correlation between the two cognitive processes.

· Deployed the experiment on a Linux server using psiTurk and leveraged Amazon MTurk platform for data collection. Utilized a custom PHP script and jQuery to store 1000+ trial results on the server.

· Improved trial accuracies by 35% by integrating a balanced probe distribution in the experiment, modifying key timeline parameters and generating real-time accuracy feedbacks at regular intervals.

Software Engineer Jan 2021 - June 2022
IXXO Lambda Vision *France (Remote)*

· Developed a ReactJS-based dashboard for a used car marketplace capable of detecting key physical features of a car through *computer vision*, *image processing*, and *region-of-interest localization*, boosting year-over-year site visitors 2x times.

· Engineered a Flask-based backend to serve a YOLOv3 *object detection* model as a REST API and deployed on AWS EC2. Conducted thorough unit and integration testing using Pytest achieving 75% code coverage.

· Enhanced car color detection accuracy by 30% leveraging histogram equalization, color clustering, and color mapping techniques from OpenCV and scikit-image. Collaborated in a cross-functional Agile team of 5 for feature integrations.

SKILLS

Languages	Python, Java, C++, JavaScript, TypeScript, HTML, CSS, SQL, NoSQL, Bash
Frameworks	Flask, ReactJS, Node.js, OpenCV, Keras, TensorFlow, scikit-learn, pytest, PyMongo
Databases	MySQL, PostgreSQL, MongoDB, Pinecone
Tools	Git, Jira, VS Code, Jupyter, Eclipse, Postman, PowerBI, Tableau, Docker, Adobe Creative Cloud
Platforms	AWS (EC2, S3, Lambda, DynamoDB), Windows, Linux

PROJECTS

Music Genre Classification using Machine Learning Paper

· Evaluated 10+ machine learning models for genre classification, including tree-based, probabilistic models in scikit-learn, and neural network models in TensorFlow. Achieved 90% test accuracy with hybrid CNN-RNN architectures using LSTM.

· Extracted 48 spectral features and mel-spectrograms from audio data using NumPy, Librosa, and OpenCV for model training.

Task Management App with RAG Chatbot GitHub

· Constructed a ReactJS, Express.js, and Node.js full-stack web application for task management with a PostgreSQL backend for querying data. Integrated a *retrieval-augmented generation* (RAG) chatbot to assist users with task-related queries.

· Utilized Mistral-7B LLM with HuggingFace Embeddings, Pinecone, and FAISS indexing to enhance document search.

Resume Analysis using GPT-3.5 LLM GitHub

· Developed a Streamlit-based application for a conversational retrieval chatbot for interactive resume-based interview preparation. Utilized OpenAI's GPT-3.5 LLM, OpenAI Embeddings and Chroma vector database for text embeddings.

· Integrated a markdown parsing pipeline using LangChain and used *maximum marginal relevance* (MMR) retrieval strategy.

CERTIFICATIONS & ACHIEVEMENTS

· AWS Solution Architect Associate *(SAA-C03)* — Badge

· Awarded *$1500* for creating a Streamlit dashboard in IU's CRNY data visualization competition — Article

· *Comparative Study of OpenCV Inpainting Algorithms*, GJCST: Interdisciplinary, Volume 21, Issue 2 — Paper