Aboobakkar Twaha

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Education

AJ institute of Engineering and Technology — Mangalore
Bachelor of Engineering in Computer Science — CGPA: 8.51 — *Aug. 2023 – Present*

Experience

Artificial Intelligence Research Assistant — Mar 2025 – Present
Aloysius (Deemed to be University) — *Beeri, Mangalore*

- Collaborating with Dr. Ruben on a research project in machine learning.
- Gaining hands-on experience in ML theory and practical implementation, contributing to ongoing research and exploring emerging techniques.
- Building a Model to predict the diagnosis of patients with oral pathology and microbiology reports.

Quantified Achievement

Data Structures and Algorithms — Aug. 2024 – Present
AJIET — *Mangalore*

- Solved 130+ DSA problems, specifically arrays, binary trees, dynamic programming, linked lists and more.
- Improved problem-solving skills through consistent practice, aiming to build a strong foundation in algorithm design and complexity analysis.
- **Leetcode: leetcode.com/u/abubakkertwaha**

Projects

Diagnosis Prediction using RAG | *Python, LangChain, HuggingFace, ChromaDB, Git* — Mar 2025 – Present

- Implemented a Retrieval-Augmented Generation (RAG) pipeline to assist in predicting and understanding medical diagnoses from biopsy reports.
- Used **Nomic embeddings** for embeddings and **ChromaDB** for vector storage and retrieval of relevant medical information.
- Integrated with **LangChain** to combine structured data and unstructured reports, improving interpretability and contextual accuracy.
- Explored the use of language models for information extraction and reasoning for prediction.

Micrograd | *Python, Matplotlib, Git* — Jan 2025

- Developed a simple neural network library, Micrograd, to understand neural networks and backpropagation from scratch.
- Implemented automatic differentiation (autograd) to compute gradients for training neural networks.
- **Github link: Micrograd**

Titanic Classification Model | *Python, Pandas, Scikit-Learn, Matplotlib, Git* — Feb 2025

- Built a classification model to predict passenger survival using the Titanic dataset.
- Performed data cleaning, feature engineering, and exploratory data analysis (EDA) to uncover patterns in survival rates.
- Implemented machine learning models such as Logistic Regression and Random Forest, achieving competitive accuracy.
- **Github link: Titanic Classification**

Technical Skills

Languages: Python, C++, Java, SQL (PostgreSQL), JavaScript/TypeScript
Frameworks & Tools: Git, Docker, VS Code, Node.js, Next.js, React, Express.js, LangChain
Databases: PostgreSQL, ChromaDB
Machine Learning: Scikit-Learn, PyTorch, HuggingFace, XGBoost
Data Science: pandas, NumPy, Matplotlib, Seaborn
Concepts: Data Structures & Algorithms, Neural Networks, RAG (Retrieval-Augmented Generation)