

Muhammad Abdullah

MACHINE LEARNING ENGINEER | CERTIFIED NLP SPECIALIST

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SUMMARY:

Experienced Artificial Intelligence Engineer and Certified NLP Specialist with a deep passion for the fusion of AI and software engineering. Eager to drive innovation in intelligent software systems by combining cutting-edge approaches in AI and NLP. Demonstrated experience includes AI Engineering, software development, leadership in the Final Year Project, and a proven record of academic excellence with summa cum laude graduation.

EXPERIENCE:

1. Software Engineering Intern

10Pearls | July 2022 - August 2022, Karachi, Pakistan

- Utilizing Django and SQLite, designed and developed a web-based automated interview portal with a team of developers utilizing agile development methods..
- Manually conducted unit and integration testing to guarantee software quality and functionality.
- Contributed to the identification and resolution of SQA-reported bugs and issues

2. Affiliated Group Lead & ML Engineer (FYP Accelerator Program)

10Pearls | September 2022 - June 2022, Karachi, Pakistan

- Lead my group to create our Final Year Project (FYP) called **VIABUS**.

EDUCATION:

● FAST National University of Computer and Emerging Science | Karachi, Pakistan

Bachelor Of Computer Science | 2023

- Graduated summa cum laude—**3.7+ GPA**

● DJ Sindh Government Science College | Karachi, Pakistan

Pre-Engineering | 2019

- Earned a special cash prize from the government of Sindh for getting **A+ grade** in final board examinations.

PROJECTS:

1. VIABUS - AN INTELLIGENT VOICE ENABLED IDE:

- Developed a voice enabled IDE using Electron JS and Python that will allow users to control the overall environment utilizing vocal and written commands:
 - Integrated Whisper model to allow transcription of vocal commands into textual commands.
 - Fine-tuned BERT model using custom dataset for intent model/ intent classification of textual commands.
 - Fine-tuned DistilBERT model using custom dataset for Named Entity Recognition (NER)/ feature extraction from textual commands.
 - Developed an algorithm using SpaCy's word dependency model for the purpose of negation checking.

2. KHAADI-STYLE - EMULATING THE UNIQUE COMMUNICATION TONE OF KHAADI CLOTHING BRAND:

- Successfully fine-tuned the Llama-2 language model to replicate the distinctive communication style of Khaadi Clothing Brand, employing custom data collection, preprocessing, and Hugging Face Transformers. Managed comprehensive project logs and achieved remarkable language generation capabilities.

3. TELECOM CUSTOMER CHURN PREDICTION WITH ENHANCED EDA AND RANDOM FOREST CLASSIFICATION:

- Predicted telecom customer churn using RandomForestClassifier with GridSearchCV for hyperparameter tuning. Conducted extensive Exploratory Data Analysis and developed an ML pipeline with feature engineering for accurate predictions.

4. CODIO - PERSONAL CODE INTERPRETER:

- Developed an efficient LangChain agent powered by a quantized Llama using a prompt engineering model, enabling it to respond to user inquiries regarding their code with the assistance of the FIASS vector database.

5. CUSTOM Q&A WITH RoBERTa - ANSWERING QUESTIONS FROM SQuAD:

- Developed a custom RoBERTa-based model for accurate and context-aware question answering, trained on the SQuAD dataset, unlocking precise responses to a wide range of questions.

6. TOXINATOR - SOCIAL MEDIA HATE SPEECH MINER AND ANALYZER:

- Developed a comprehensive hate speech mining system that generated embeddings for social media posts using an advanced embedding model. Integrated the FIASS semantic search with customizable filters to extract insights on toxicity and hate speech. Leveraged quantized LLM Llama 2 with PEFT (Parameter Efficient Fine Tuning) based adapters to provide contextually accurate responses to questions by combining retriever and generator functionalities for enhanced understanding and analysis of problematic content.

TECHNICAL SKILLS:

- Programming languages:** Python, JavaScript, C, C++, C#
- Deep learning:** TensorFlow, Pytorch, Transformers, SpaCy, NLTK, Sentence-Transformers, LangChain, Gensim, sk-learn, FIASS, PineCone
- Development:** React JS, Electron JS, Django, MongoDB, MySQL, SQLite, Node JS, Express JS

CERTIFICATIONS & SPECIALIZATIONS:

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|---|--|---------------------------|
| ● Deep Learning in Python Track (4 certified courses) | | Datcamp |
| ● Natural Language Processing Track (6 certified courses) | | Datcamp |
| ● Machine Learning Fundamentals with Python Track (4 certified courses) | | Datcamp |
| ● Specialization in Natural Language Processing (3+ months long) | | Deeplearning.ai |
| ● Generative AI with Large Language Models | | Deeplearning.ai, Coursera |
| ● Natural Language Processing with Sequence Models | | Deeplearning.ai, Coursera |
| ● Natural Language Processing with Attention Models | | Deeplearning.ai, Coursera |
| ● Supervised Learning with scikit-learn | | Datcamp |

ACHIEVEMENTS:

- Enlisted in the Dean's list of honors for 4 semesters.
- Enlisted in the Rectors list of honors for 3 semester
- Praised by the professor for inventing a new data structure that would provide the combined functionalities of a linked list and an array.