AFZAL S

Phone number: (+91) 7994662003 (Mobile) | **Email address:** afzals0008@gmail.com | **LinkedIn:** Afzal S | **Github:** Afssal

WORK EXPERIENCE

21/02/2024 – CURRENT THIRUVANANTHAPURAM, India

AI ML ENGINEER INTERNATIONAL CENTRE FOR FREE AND OPEN SOURCE SOFTWARE

Collaborated with a multidisciplinary team to design and implement machine learning models, actively participating in innovative projects and initiatives. Contributions included data collection for the Indian Sign Language system project, also developed the model architecture.

EDUCATION AND TRAINING

14/10/2021 – 21/09/2023

MSC COMPUTER SCIENCE WITH SPECIALIZATION IN ARTIFICIAL INTELLIGENCE Department of Computer Science, University of Kerala

04/07/2018 – 14/05/2021

BACHELOR IN COMPUTER SCIENCE University Institute of Technology, Vellarada

Field of study Information and Communication Technologies

SKILLS

Machine Learning

machine learning | deep learning | computer vision | natural language processing | Generative AI | Large Language Models | RAG

Libraries and Frameworks

Pytorch,Tensorflow | Frameworks & Libraries: OpenCV, Sci-kit learn, NumPy, Pandas, SciPy, Matplotlib. | LangChain | Langflow | Ollama

Programming Languages

Python

Frontend Development

Web Technologies Fundamentals - HTML, CSS

Backend Frameworks

Python FastAPI | Flask Web Framework

Software Proficiency

Git | Docker

Development Enviornment

Python (Spyder/Jupyter Notebook IDE) | Machine Learning & Data Science (Kaggle) | Google (Google Docs, Google Colaboratory, Google Sheets) | Vs code

Operating System

Ubuntu and Windows

PROJECTS

Indian Sign Language Translation using Deep Learning

- Currently leading the development of an innovative system that translates text into sign language videos, enhancing communication accessibility for the deaf and hard-of-hearing communities.
- Developed a Transformer based translation system for Translating Text to HamNoSys.

Q&A System over SQL data using LangChain and Ollama

- Built a QA system powered by LangChain agents to process natural language questions and retrieve answers from SQL databases in real-time.
- Integrated Ollama's local LLM llama3.2 with SQLDatabaseToolkit for on-device translation of user questions into accurate and efficient SQL queries.

PDF-based Q&A System using RAG (Retrieval-Augmented Generation)

- Developed a PDF-based question-answering system using LangChain, powered by Ollama for generation and embedding models for semantic retrieval.
- Enabled users to upload PDFs and receive context-aware answers by chunking document content, generating embeddings, and retrieving relevant passages.

Transfer Grammar - Malayalam to English Translation System

- Developed a rule-based translation system utilizing linguistic resources for reliable translation of two and three word sentences.
- Implemented an architecture involving preprocessing, morphological analysis, part-of-speech tagging, named entity recognition, and name transliteration.
- Utilized JSON-based linguistic resources with Malayalam-English pairs for verbs, nouns, adjectives, adverbs, and postpositions to ensure accurate translation.

Detection of Forgery Attacks in War Footage

- Developed a framework to authenticate war-related visual content amidst rising media manipulation in conflict zones.
- Used LBP for texture analysis, EfficientNet for high-level feature extraction, and Lucas Kanade Optical Flow for motion pattern assessment.
- For classification SVM and ANN is used.

Dialogue summarization using Transformer

- Developed a dialogue summarization model using the FLAN-T5 transformer model with the Hugging Face library.
- Fine-tuned the FLAN-T5 model using the DialogSum dataset.

BiLSTM-based Word Generation Using Malayalam Subset of MegaWika Dataset

- Developed a BiLSTM model for word generation using a small subset of the Malayalam dataset from MegaWika.
- Tokenized the Malayalam text, padded sequences for uniform input size, encoded words into numerical form, built a BiLSTM model with an embedding layer and bidirectional LSTM layers, and performed training.

PUBLICATIONS

2024

Detecting Forgery in War Footage for Information Accuracy

Journal Name: International Conference on Health Informatics, Intelligent Systems and Networking Technologies. | **Publisher**: Springer

LANGUAGE SKILLS

Mother tongue(s): **MALAYALAM**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C2	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

CONFERENCES AND SEMINARS

School of Technology, University of Kerala
Annual Interdisciplinary Academic Meet (AIAM 2k22)

Department of Computer Science, University of Kerala
Barclays Life Skills Programme , GIT Foundation

Thiruvananthapuram
Student Development of Programme on Cyber Forensic in Associated with C-DAC

Department of Computer Science, University of Kerala
Seminar on Data Science and Information Processing

CERTIFICATIONS

Successfully completed the Introduction to Pandas course on Kaggle, enhancing proficiency in data manipulation and analysis using Python.

Successfully completed the Introduction to Machine Learning course on Kaggle, deepening understanding of algorithms and techniques for predictive analytics and pattern recognition.

Successfully completed the Introduction to Deep Learning course on Kaggle, expanding expertise in neural networks and their application in solving complex problems.

Successfully completed the Introduction to Deep Learning and Neural Networks with Keras course on IBM Skills Network through Coursera, advancing knowledge in designing and implementing neural network architectures for various applications.