SOHAIB ZAFAR

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Experience

- **Enlatics, AI Software Engineer** March 2024 – May 2025
  - Developed Vertical AI solutions for finance and healthcare using LangChain and Hugging Face Transformers.
  - Built AI pipelines for data extraction with spaCy and BERT for NLP tasks like NER and text classification.
  - Created Python automation scripts with Pandas and NumPy, improving workflow efficiency by 40%.
  - Implemented vector search with Pinecone and Milvus for RAG-based AI applications.
  - Deployed multimodal AI systems using CLIP and Whisper for text, image, and audio processing.
  - Researched and optimized large-scale transformers with PyTorch Lightning for enterprise use.
  - Fine-tuned models with Hugging Face Trainer and deployed using FastAPI and Docker.
  - Set up MLOps pipelines with MLflow and Airflow for model monitoring and retraining.
  - Developed generative AI tools using LLaMA and Stable Diffusion for chatbots and content creation.
  - Applied SHAP and LIME for explainable AI to meet enterprise compliance standards.

Projects

- **AI Autonomous Drone Forest Mapping and Trees Age & Species Detection** LINK
  Funded by Forestry Environment & Wildlife Department, Khyber Pakhtunkhwa
  Developed an AI-powered autonomous drone system for forest mapping, integrating DJI Mini 4 Pro, YOLOv11 for palm tree detection, and K-Means for age classification.
  Built a Python backend and web interface with HTML, CSS, JavaScript, and Google Maps API for flight path planning and carbon credit calculation.

- **AI Powered Mediacl Chatbot** LINK
  Developed a FastAPI-based medical chatbot with ChromaDB and MedQuAD dataset, integrating JWT authentication, SQLite query logging with responsive UI. Utilized Python, SentenceTransformers, and data preprocessing to enable semantic search and accurate medical query responses.

- **Building Knowledge Graphs from Unstructured Text** LINK
  Developed a knowledge graph system to extract and structure relationships from unstructured text, leveraging NLP with SpaCy for entity recognition and relationship mapping.

- **Voice2Image Multimodal AI System** LINK
  Developed Audio2Vision, a multimodal AI system converting audio to images using Whisper for speech-to-text and Stable Diffusion for text-to-image generation. Implemented Python and integrated user audio input processing for accurate text extraction and relevant image creation.

- **Person Traits Vision** LINK
  Developed a Flask-based web app for gender, glasses, and shirt color detection using YOLOv11 and MediaPipe with HSV analysis. Integrated Python, Tailwind CSS, and a responsive interface for image uploads and annotated output display.

- **WikiTalk - A Conversational Wikipedia** LINK
  Built a voice-activated AI assistant using Python, spaCy, and Wikipedia API for query processing. Integrated speech recognition and text-to-speech for dynamic user interaction.

Skills

- **Programming Languages:** Python, C++, C, Rust, Bash, R, SQL, JavaScript
- **Machine Learning & Computer Vision:** YOLOv11, K-Means, SentenceTransformers, Whisper, Stable Diffusion, CLIP, DALL·E, OpenCV, TensorFlow, PyTorch, Scikit-learn, PyTorch Lightning, Horovod
- **Natural Language Processing:** spaCy, NLTK, Transformers, Wikipedia API, Hugging Face, LangChain, LlamaIndex, Rasa, Dialogflow
- **AI Frameworks & Tools:** FastAPI, Flask, Django, ChromaDB, MediaPipe, Hugging Face Trainer
- **Vector Databases:** Pinecone, Weaviate, Milvus, FAISS, ChromaDB
- **Multimodal AI:** CLIP, DALL·E, Whisper, Stable Diffusion, Semantic Search, Knowledge Graph Construction
- **MLOps:** MLflow, Kubeflow, Airflow, Weights & Biases
- **Data Processing & Analysis:** Pandas, NumPy, SciPy, JSON, HSV Analysis
- **Data Visualization:** Matplotlib, Seaborn, Plotly
- **Database Management:** SQLite, MySQL
- **DevOps & Tools:** Git, Docker, Kubernetes, Virtual Environments, Uvicorn, Linux System Administration, CI/CD pipelines
- **Cloud Platforms:** AWS (SageMaker, Lambda), Google Cloud (Vertex AI), Azure ML
- **Web Development:** HTML, CSS, JavaScript, Tailwind CSS, Google Maps API
- **Explainability:** SHAP, LIME
- **Soft Skills:** Problem-Solving, Technical Writing, Analytical Thinking, Team Collaboration, Communication

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Education

- **B.S. in Computer Science, FAST-NUCES** 2020 – 2024
  - Relevant Courses: Artificial Intelligence, Machine Learning, Natural Language Processing, Computer Vision

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Certifications

- **Machine Learning with Python** (Completed) LINK
- **Google Cyber Security Course** (Completed) LINK
- **RUST Programming Language** (Completed) LINK
- **Technical Assistant** - (for Information Security course with Dr. Ali Sayyed - Assistant Professor FAST NUCES)