SOHAIB ZAFAR

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Projects

Final Year Project

- **AI Autonomous Drone Forest Mapping and Trees Age & Species Detection**
  Funded by Forestry Environment & Wildlife Department, Khyber Pakhtunkhwa

  Designed and implemented an AI-powered autonomous drone system for forest mapping and analysis, funded by the KP Forest Department. A web interface using HTML, CSS, JavaScript, and Google Maps API allows users to select forest regions and flight paths. These paths are injected into the DJI Mini 4 Pro drone to capture aerial imagery.
  Python-based backend processes images using a YOLOv11 model for palm tree species detection and K-Means clustering for age classification. The data helps calculate carbon credits, which are later sold to industries for environmental offset and production expansion.

Freelance Projects

- **Car Insurance Quotes Website** Built a responsive insurance website using HTML, CSS, JavaScript, PHP, and MySQL to manage quotes, user data, and simulated payments. Hosted on a free platform with reliable database support.
- **Amazon Affiliate Store** Created an Amazon affiliate site using WordPress and WooCommerce, showcasing home and kitchen products with seamless Amazon redirection and responsive design to drive conversions.
- **Face Recognition Entrance System** Built a real-time face recognition system using Python and Flask, trained on a client-provided dataset (three students). The app recognized authorized faces via live camera feed and displayed "Pass" or "Not Recognized" through a simple web interface.

Semester Projects

- **Artificial Intelligence — AI Search & Problem Solving** Developed a Python project that uses AI search algorithms to optimize the vertex ordering problem in Bayesian Network Learning. It enhances network structure by minimizing cost.
- **Natural Language Processing — Building Knowlede Graphs for Unstructured Data** Developed a web app using Python and Flask that converts unstructured text into interactive knowledge graphs, showcasing skills in NLP, backend development, and data visualization.
- **Natural Language Processing — Feature Extraction from Text** Developed a Python tool to extract readability features from text, including the Automated Readability Index (ARI), demonstrating expertise in text processing and feature extraction.

Skills

- **Programming Languages:** Python, C++, C, RUST
- **Machine Learning and NLP:** OpenCV, TensorFlow, PyTorch, NLTK, spaCy, Transformers, GPT, networkx, pyvis, pytesseract, pdf2image, beautifulsoup.
- **LLMs:** GPT 3.5 Turbo
- **Data Analysis:** Pandas, NumPy, SciPy
- **Data Visualization:** Matplotlib, Seaborn
- **Web Development:** HTML, CSS, JS, PHP, Flask
- **Database Management:** MySQL

- **DevOps & Cloud Computing:**Git, Dockers
- **Soft Skills:** Problem-Solving, Networking, Interpersonal Skills

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Education

- **B.S. in Computer Science, FAST-NUCES** 2020 – 2025
  - Relevant Courses: Data Structures, AI, Machine Learning

Certifications

- **RUST Programming Language** (Completed)
- **Google Cyber Security Course** (Completed)
- **Technical Assistant** - (for Information Security course with Dr. Ali Sayyed)