

Umer Saleem

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Projects

Final Year Project

- **AI Autonomous Drone Forest Mapping & 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 generate 10-acre grid-based 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

- **Amazon Affiliate Store — Client Project** Created an Amazon affiliate site using WordPress and WooCommerce, showcasing home and kitchen products with seamless Amazon redirection and responsive design to drive conversions.

Visit Website: [click here](#)

Semester Projects

- **Natural Language Processing — Building Knowledge 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.

Visit GitHub Repository: [click here](#).

- **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.

Visit GitHub Repository: [click here](#).

- **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.

Visit GitHub Repository: [click here](#).

- **Typing Tutor Game — Object-Oriented Programming in C++** Created a typing tutor game using C++ and OOP principles. The game generates random alphabets and validates user input in real-time to improve typing accuracy and speed.

Visit GitHub Repository: [click here](#).

Skills

- **Programming Languages:** Python, C++, C
- **Machine Learning and NLP:** OpenCV, TensorFlow, PyTorch, NLTK, spaCy, Transformers, GPT, networkx, pyvis, pytesseract, pdf2image, beautifulsoup.
- **LLMs:** GPT 3.5 Turbo, GPT-4, GPT-4-mini, Llama
- **Data Analysis:** Pandas, NumPy, SciPy
- **Data Visualization:** Matplotlib, Seaborn, Neo4j
- **Web Development:** ReactJS, Tailwind CSS, Flask, Django, MERN Stack.

- **Database Management:** MySQL, MongoDB
 - **DevOps & Cloud Computing:**Git, AWS, Dockers, Kubernetes
 - **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
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Certifications

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