Dania Arshad

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Education

2022–2026 **COMSATS University Islamabad, WahCantt Campus**
Software Engineering - CGPA: 3.70
Expected Graduation January 2026

Experience

Jan – Dec, 25 **Remote Job**, HEALORA LTD, Full Stack Developer with AI/ML integration

MS Teams Meeting Intelligence Bot
Python | OpenAI Whisper | Google Gemini | Jira REST API | Audio Processing
- Designed and developed a fully automated AI bot that joins Microsoft Teams meetings autonomously without human intervention.
- Implemented an end-to-end audio processing pipeline to record live meetings and convert audio formats from .aac to .wav for accurate processing.
- Integrated OpenAI Whisper to perform high-accuracy speech-to-text transcription, handling multi-speaker conversations and long meeting durations.
- Engineered an LLM-based processing layer using Google Gemini to analyze transcripts and automatically generate Agile user stories following standard Scrum formats (As a user, I want..., acceptance criteria, etc.).
- Automated Jira issue creation using Jira REST APIs, enabling direct insertion of generated user stories into active Scrum boards.
- Eliminated manual documentation effort, significantly improving team productivity, requirement traceability, and sprint planning efficiency.
- Ensured scalability and modular design to support future enhancements such as sentiment analysis, meeting summaries, and action-item extraction.

Cruise Company Data Automation System
Python | Django | MySQL | REST APIs | React | Bootstrap
- Developed a complete **end-to-end web application** for a cruise company to manage bookings, voyage schedules, and customer information.
- Implemented **secure authentication and role-based access control** for administrators, staff, and customers.
- Designed interactive and responsive **dashboards** for monitoring reservations, onboard services, and operational metrics.
- Built and integrated **RESTful APIs** to handle booking workflows, customer data, and system communication.
- Optimized backend performance and database queries to ensure scalability and reliability during peak usage.
- Ensured cross-device compatibility using modern frontend frameworks and responsive design techniques.

Quantum vs Classical Model Simulation
Python | Qiskit | NumPy | Matplotlib
- Conducted a comparative study between **classical computational models and quantum simulations**.
- Analyzed how quantum-based approaches improve accuracy and efficiency in solving complex problems.
- Evaluated performance metrics to understand practical advantages of quantum-inspired techniques.

July – Sept, 25 **Internship**, FEDERAL SHARIAT COURT, ISLAMABAD, IT Internee

Judicial Web & Case Law Management System
React | Node.js | MySQL
- Developed official judicial web pages for managing and displaying **court judgments and legal records**.
- Designed and implemented a **Case Law Management System** with advanced filtering by year, judge, subject, and citations; cleaned and structured historical data from 1980–2025.
- Built professional frontend interfaces aligned with **government web standards** for usability and accessibility.
- Integrated backend database systems to manage case metadata, downloads, and search functionality.
- Ensured data accuracy, security, and long-term maintainability of judicial records.
- Gained hands-on experience working in a **government IT environment** with high reliability and security requirements.

Final Year Project

May – Nov, 25 **Seeing The Unseen**, Dr. Faisal Azam
An AI Assistant for the Visually Impaired
Python | Flutter | FastAPI | Gemini 2.0 | LangChain | SQLite3 | TensorFlow | YOLOv4 | YOLOv11 | Google ML Kit | Tesseract OCR
- Designed a vision-based assistant to empower visually impaired users through object detection, OCR, currency recognition, person identification, and intelligent scene description with real-time audio feedback.
- Implemented backend using **FastAPI** for speed, asynchronous request handling, and task management.
- Integrated **Gemini Flash 2.0 LLM** for fast image input processing and AI-driven response generation.
- Utilized **LangChain** framework for scalability, message history storage, and continuous improvement of AI workflows.
- Stored images in **SQLite3** using Base64 string format, supporting millions of records with device-based storage.
- Enabled secure communication via **CORS (Cross-Origin Resource Sharing)** for resource requests.
- Developed OCR pipeline:
    - **Tesseract OCR** for offline text extraction (accuracy 85–90% depending on conditions).
    - **Google ML Kit** for handwritten text recognition (accuracy 75–90%).
- Built object detection system:
    - Trained on **COCO dataset** (1.43M annotations, 80 classes, 118k/20k/5k split).
    - Deployed **YOLOv4** achieving 93% accuracy and 60 FPS real-time performance.
- Developed currency recognition model:
    - Dataset of 3,611 images across 14 classes resized to 224px.
    - Applied **YOLOv11** for high feature extraction, small object detection, and reduced training time (accuracy 95%).
- Implemented person detection:
    - Used **Google ML Kit** for face landmark detection (nose, mouth, bounding box).
    - Applied **FaceNet** model with 160x160 cropped images to generate embeddings for unique identity storage.
- Deployed models with **TensorFlow / TensorFlow Lite** for efficient mobile and edge deployment.

Other Projects

December, 25 **End-to-End DevOps CI/CD Pipeline on AWS**, *DevOps*
AWS | Git | GitHub | Docker | DockerHub | Jenkins | Kubernetes | Terraform | Prometheus | Grafana
- Designed and implemented a complete **CI/CD pipeline** to automate build, test, and deployment workflows.
- Configured **GitHub repositories** with branch protection, pull request reviews, and automated triggers for Jenkins pipelines.
- Built and published Docker images to **DockerHub**, ensuring version control and reproducibility of application builds.
- Provisioned AWS infrastructure using **Terraform**, creating three EC2 instances with automated networking and security group configurations.
- Deployed applications on **Kubernetes clusters**, enabling container orchestration, scaling, and load balancing.
- Implemented monitoring and alerting with **Prometheus and Grafana**, providing real-time dashboards for system health and performance.
- Integrated **Jira** for task management and sprint planning, ensuring traceability of DevOps workflows.
- Established **team collaboration (TELAM)** practices:
    - Provided shared IAM access so multiple developers could securely interact with AWS resources.
    - Configured role-based permissions so changes made by one team member reflected across the pipeline for all users.
    - Enabled centralized logging and audit trails to track modifications and maintain accountability.
- Ensured scalability, fault tolerance, and high availability of the pipeline to support enterprise-level deployments.

April – May, 25 **Breast Cancer Detection using Neural Networks**, *Data Science*
Python | Google Colab | Streamlit | Matplotlib | NumPy | Pandas
- Utilized the **Breast Cancer Wisconsin dataset** to build a classification model for tumor detection.
- Performed extensive **data preprocessing**, including cleaning, normalization, and feature scaling to improve model accuracy.
- Designed and trained a **custom neural network** architecture for binary classification (benign vs malignant).
- Evaluated model performance using **accuracy scores, confidence intervals, and confusion matrices**.
- Visualized training progress and classification results with **Matplotlib**, enabling better model interpretation and debugging.
- Developed an interactive **Streamlit web application** where users can input feature values and receive real-time predictions with user-friendly output.
- Ensured reproducibility by running experiments on **Google Colab**, leveraging GPU acceleration for faster training.
- Highlighted practical application of AI in healthcare by demonstrating how neural networks can assist in early cancer detection.

Nov – Dec, 24 **Skin Lesion Detection**, *Artificial Intelligence using Deep Learning*

Python | Google Colab | TensorFlow | Keras | ResNet-152 | NumPy | OpenCV
- Built a deep learning model to classify **skin lesions** using medical image datasets for early detection of dermatological conditions.
- Performed comprehensive **image preprocessing**, including resizing, normalization, and grayscale conversion to ensure consistency and reduce noise.
- Trained a **ResNet-152 convolutional neural network** using TensorFlow and Keras, leveraging transfer learning for improved accuracy.
- Evaluated model performance using metrics such as **accuracy, precision, recall, and F1-score**.
- Applied **data augmentation techniques** (rotation, flipping, scaling) to improve generalization and reduce overfitting.
- Visualized training progress and classification outcomes with **Matplotlib and Seaborn**, aiding interpretability.
- Deployed experiments on **Google Colab**, utilizing GPU acceleration for faster training and testing cycles.
- Highlighted potential real-world application in **medical diagnostics**, supporting dermatologists in identifying malignant vs benign lesions.

Oct, 25 **Full Stack Blog Writing and Publishing Website**, *Full Stack Development*

React | TypeScript | Supabase | Tailwind CSS
- Built a comprehensive **tech blog platform** with user authentication, article management, and an admin review workflow.
- Implemented **Row Level Security (RLS)** policies in Supabase to ensure secure data access and multi-user collaboration.
- Designed a **real-time publishing pipeline** enabling instant article updates and notifications.
- Developed **role-based access control** for administrators, editors, and readers, ensuring proper content moderation.
- Created responsive and modern UI using **Tailwind CSS**, optimized for cross-device compatibility.
- Enabled seamless **CRUD operations** for articles, comments, and user profiles.
- Highlighted scalability by integrating Supabase's database features with React's component-based architecture.

Aug – Sep, 24 **Full Stack E-Commerce Website**, *Full Stack Web Development*

Laravel | PHP | MySQL | HTML | CSS | Bootstrap | Google Maps API | Email Services
- Developed a complete **e-commerce platform** with user authentication, product catalog, cart, and checkout system.
- Built separate **user and admin panels** for managing orders, inventory, and customer interactions.
- Integrated **Google Maps API** for location-based services such as delivery tracking and store mapping.
- Implemented **email services** for order confirmations, password resets, and customer notifications.
- Designed a fully **responsive frontend** using Bootstrap, ensuring compatibility across devices and browsers.
- Created a **database-driven inventory and order management system** with MySQL for scalability and reliability.
- Ensured secure transactions and optimized backend performance for high-traffic usage.

Technical Skills

Data Preparation: Data Cleaning, Data Preprocessing, Feature Engineering

AI & ML Models: TensorFlow, Keras, PyTorch, Custom Neural Networks, YOLO, ResNet, Image Classification, Model Training, Automated AI Pipelines

Databases: MySQL, Supabase, SQL

Frameworks: Laravel, Bootstrap, scikit-learn, Tailwind CSS, React, TypeScript

Cloud & DevOps Tools: AWS Cloud, Docker, Kubernetes, Jenkins, Ansible, Terraform, Prometheus, Grafana

Version Control & Collaboration: Git, GitHub, Jira, Slack

Development Tools: Linux, Google Colab, VS Code, Android Studio, Selenium, Playwright

Programming Languages: Python, C++, Java, JavaScript

Web Development: HTML, CSS, PHP

Other Skills & Documentation

- Technical Documentation, UML Modeling, Lucidchart, Visual Paradigm, Canva, Slack, Agile Practices, Version Control, Team Collaboration

Interpersonal Skills

- Ethical awareness in handling data and systems
- Effective time management and accountability
- Team collaboration with initiative-taking attitude
- Curiosity and commitment to continuous learning
- Strong attention to accuracy and quality
- Demonstrated **leadership skills** by serving as Class Representative throughout university journey
- Experienced in **leading and managing projects**, ensuring successful delivery and team coordination

Achievements

- **Winner**, VISIO Spark 2025 (All Pakistan Level)
- **Winner**, Open House & Job Fair 2025
- Secured **1st Position** with a **4.0/4.0 GPA** in 5th, 6th, and 7th semesters
- Served as **Class Representative** throughout the university journey, acting as liaison between faculty and students
- Led and managed multiple academic and technical projects, fostering teamwork and successful project delivery