Uzair Abid

Software Engineer

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Research Interests

I am passionate about **Natural Language Processing**, **Agentic AI**, and **Computer Vision**. My interests revolve around developing intelligent systems that can understand language, learn from data, and interact with the world in meaningful ways. I enjoy combining theory with practical applications and continue to explore research that bridges academic ideas with real world use cases.

Professional Experience

Software Engineer (Backend, AWS & Cloud), Wealthica – Canada (Remote)   Jul 2024 – Present

- Engineered robust backend systems using **Node.js**, **TypeScript**, and **MongoDB** powering scalable financial data pipelines at Wealthica.
- Improved application response times by **25%** by replacing legacy caching with Valkey.
- Mitigated **30%** request failures during peak hours by analyzing and implementing pre auto-scheduling with **AWS CDK**.
- Helped fintech clients like **Questrade**, **Flinks**, and **white-label partners** in API integration of Wealthica with secure auth flows and optimized data access.

Software Engineer (ML/AI & Backend), AutomateBoring – United States (Remote)   Jul 2023 – Jul 2024

- Automated the entire tax filing process of IRS using **Django**, **AWS Lambda** & **EventBridge**, improving efficiency by **40%** and reducing errors by **25%**.
- Implemented a customer-facing conversational bot powered using **CrewAI** and **LangChain**.
- Streamlined a secure **upload** and **verification** pipeline for driver's licenses, processing **500+** documents monthly with OCR.
- Deployed microservices application using **AWS EC2**, **ASG** and **ELB** with a **CI/CD** pipeline.

AWS DevOps Engineer, MyAskAI – United Kingdom (Contract - Remote)   Apr 2023 – Jul 2023

- Analyzed application performance using **Datadog** and **Cloudwatch**, detecting **15 issues** that were promptly addressed, leading to a **25%** reduction in user-reported incidents.
- Successfully migrated a three-tier app from Render to AWS with CI/CD using **AWS CodePipeline**, improving performance by **30%** and reducing hosting costs by **20%**.
- Deployed a machine learning model on AWS, building an end-to-end pipeline with model hosting, input preprocessing, and result handling using services like **Lambda**, **S3**, and **API Gateway**.

AWS DevOps Engineer, Rehani Soko – United States (Contract - Remote)   Jan 2023 – May 2023

- Developed and optimized microservices for a real estate application, integrating AWS services such as serverless **Lambda**, **S3**, and **DynamoDB** to improve scalability and reduce latency by **18%**.
- Implemented CI/CD pipelines using AWS **CodePipeline** and **CodeBuild**, enabling automated testing, deployment, and rollback across multiple environments, cutting release times by **40%**.

Education

Sir Syed University of Engineering and Technology, BS in Computer Engineering   Oct 2020 – Jul 2024

- CGPA: 3.58/4.0
- Relevant Coursework: Artificial Intelligence, Operating Systems, Database Management Systems (DBMS), Software Engineering, Object Oriented Programming (OOP)

Publications & Preprints

Using Large Language Models to Study Consumer Behavior: Review Algorithm Effects on Restaurant Selection
Co-Author · In-Progress

Smart Shelf Advertising using Real-Time Product Segmentation and Interaction on Low-Cost Edge Devices
Co-Author · **Preprint**

Research Experience

Using Large Language Models to Study Consumer Behavior: Review Algorithm Effects on Restaurant Selection
Co-Author · In-Progress
Working with **Professor Boram Lim** (former University of Kansas) on a research project that uses AI agents powered by GPT models to simulate realistic customer decision-making in restaurant choice scenarios. The study explores how different review presentation algorithms (highest rated vs. most recent) and restaurant positioning (high-end vs. casual) affect consumer behavior. The system includes intelligent bias detection, dynamic review supplementation, and detailed behavioral logging.

Smart Shelf Advertising using Real-Time Product Segmentation and Interaction on Low-Cost Edge Devices
Co-Author
Developed a real-time retail marketing system that intelligently detects product interaction and displays contextual advertisements on low-cost hardware. The system integrates Apriltag tracking, YOLOv8-based object segmentation, and Arduino-controlled lighting to detect when a product is picked and trigger the corresponding video ad. A custom YOLOv8 segmentation model trained on 3500+ images achieved **97.4% mAP@0.5**, demonstrating robust real-time performance in retail deployments.

Simulation Study on Edge Cloud Traffic
Research Assistant
Assisted **Engr. Muhammad Rehan Rasheed** in developing a simulation project in **Java**, focusing on traffic management and performance analysis for edge cloud environments.

Teaching Experience

Stanford's Code in Place
Section Leader
Taught basic Python to 10+ students from all over the world and guided them through Stanford's CS106A course.
Completion Certificate: View Certificate

ICodeGuru
Trainer & Moderator
At ICodeGuru, we teach, train, mentor, and guide students from underprivileged areas of Pakistan to improve their professional skills. I taught coding to these students and helped them solve LeetCode problems.

Projects

Resume AI Assistant
[Code] · [View Demo]
Developed an intelligent resume optimization system powered by OpenAI GPT-4 and Pydantic for structured data validation. Features AI-powered resume tailoring against job descriptions, comprehensive gap analysis, automatic cover letter generation with customizable tones, visual diff highlighting of changes, and PDF upload support for seamless document processing.

PDF Q&A Bot with Multi-LLMs
[Code] · [View Demo]
Developed an intelligent document analysis system using multiple open-source language models (Phi-3.5, Qwen 2.5, Llama 3.2, Gemma 2) from Hugging Face. Features 4-bit quantization for memory efficiency, automatic CPU offload, and a user-friendly interface for uploading PDFs and asking context-aware questions.

AI Tutor - Adaptive Learning Assistant   [Code] · [View Demo]
Built an intelligent tutoring system using OpenAI GPT-4o-mini that adapts explanations to different complexity levels (1-6). Features real-time streaming responses and dynamic level adjustment for the explanations.

AI Calorie Tracker   [Code] · [View Demo]
Developed an intelligent food analysis application using OpenAI Vision API and Gradio. The system automatically identifies food items from the uploaded images and provides detailed nutritional information, including calories, fat, and protein content.

BlogPilot AI - WordPress Automation using CrewAI Agents   [Code] · [View Demo]
Developed an intelligent multi-agent content creation system using CrewAI that automates the entire blog writing workflow. Features four specialized AI agents for research, outlining, writing, and publishing, with seamless WordPress integration via REST API for automated content publishing.

Analysis of Media Posts   [Code]
Designed an NLP pipeline using scikit-learn to classify and analyze mental health related social media posts. The model identifies posts related to stress, anxiety, or depression, providing insight into online mental health discourse.

Flight Delay Prediction   [Code]
Developed a machine learning model using XGBoost to forecast flight delays based on historical flight and weather data. Achieved improved prediction accuracy by performing extensive feature engineering and hyperparameter tuning.

Basketball Shot Predictor   [Code]
Created a statistical model using linear regression to predict shot success based on player movement, court position, and historical performance data. Demonstrated data preprocessing, visualization, and sports analytics techniques.

International Hackathons

Azure AI Developer Hackathon [Hackathon Link]
Project: **Legal Hearing Summarizer** – [Project Link]

Global AI Agents League [Hackathon Link]
Project: **BlogPilot AI** – [Project Link]

Awards & Honors

Ignite Final Year Project Funding   2024
Final Year Project on **DevOps and Scalable Kubernetes Deployment** was selected and funded by Ignite.

Top Rated Freelancer on Upwork   2022
Recognized as a Top Rated freelancer for consistent client satisfaction, high-quality project delivery, and maintaining a strong job success score.

University Merit Scholarship   2020–2023
Received partial merit scholarship for five consecutive semesters by securing **first position** in the entire class.

Government of Sindh Award   2017
Awarded a monetary prize for achieving an **A+ Grade** in Matriculation.

Certifications

AWS Certified Cloud Practitioner   Apr 2023
View Certificate

Hands-on Introduction to Linux Commands and Shell Scripting   Mar 2023
View Certificate

NodeJS - The Complete Guide (MVC, REST APIs, GraphQL, Deno)   Nov 2022
View Certificate

py4e101x: Programming for Everybody (Getting Started with Python)   Jul 2020
View Certificate

Technologies

- **Machine Learning & AI:** scikit-learn, TensorFlow, Hugging Face, LangChain, Pinecone, CrewAI, OpenCV
- **Cloud & DevOps:** AWS Lambda, S3, EC2, DynamoDB, API Gateway, CDK, CodePipeline, Docker, GitHub Actions
- **Backend Development:** Node.js, TypeScript, Express.js, Nest.js, Django, Flask, FastAPI