MUHAMMAD ASAD ARSHAD

Islamabad, Pakistan / asadarshad.4721@gmail.com / 03041192980/ www.linkedin.com/in/muhammad-asad-arshad / github.com/chasadch

SUMMARY

Computer Science graduate with expertise in Python, AI/ML model development, and automation pipelines. Skilled in building AI agents and interactive AI applications, delivering scalable, context-aware solutions that enhance user engagement and streamline processes.

WORK EXPERIENCE

Comcept, Sector i-9, Islamabad   May 2025 – Jul 2025
- Built 5+ real-time dashboards with Power BI and Dash for 1M+ Apache logs, improving observability by 35%.
- Optimized data ingestion and filtering, cutting query latency by 20% and server usage by 25%.
- Automated reports for 10+ metrics, reducing manual effort by 40% and speeding decision-making by 30%.
- Streamlined insights for cross-team collaboration, improving workflow efficiency by 15% and stakeholder satisfaction by 20%.

Inlights , NSTP , Nust Islamabad– Remote   May 2024 – July 2024
- Increased checkout conversions by 70% and social media engagement by 50% by adding digital outreach buttons, real-time cart updates, and client-side price filters using React.
- Refactored front-end with modular components, reducing UI bugs by 40% and achieving 99.2% uptime.
- Optimized asset delivery and page rendering, speeding up average page load time from 2.5s to 1.8s, 28% faster.
- Streamlined product listing navigation and display, improving discovery speed and user retention by 32%.

PROJECTS

Latency-Aware Task Partitioning and Data Modeling in MEC Networks   Ongoing
- Designed a metaheuristic-based framework (ACO, GA, PSO) for optimal task partitioning and user association.

AI Voice Agent

- **Core Functionality:** Engineered a voice-activated system using Python, Speech Recognition, and gTTS (Google Text-to-Speech) for seamless bidirectional communication.
- **Telephony Integration:** Integrated the Twilio API to enable the agent to initiate and manage outgoing phone calls based on vocal instructions.
- **Email Automation:** Implemented SMTP protocols and the smtplib library to allow the agent to send emails with subject and body content dictated by the user.
- **Web Interaction:** Incorporated web scraping techniques (e.g., BeautifulSoup, Selenium) and the Google Search API to perform internet searches, retrieve information, and summarize results verbally.
- **Natural Language Processing:** Utilized OpenAI's GPT API to process user queries, enabling advanced conversational context and intelligent responses.

AI-Native Interactive Portfolio

- Developed a fully interactive portfolio to replace static designs, featuring a human-like avatar with real-time question answering, expressive gestures, and immersive engagement for recruiters and visitors.
- Integrated OpenAI API and Lang Chain with a dynamic React/Tailwind UI, enabling adaptive conversation flow, context-aware responses, personalized recommendations, and seamless cross-device accessibility.

Plant Disease Detection Using Image Processing and Machine Learning

- Built structured dataset pipelines with TensorFlow, EfficientNetB4, and Flask to detect plant diseases from leaf images using transfer learning, delivering detailed predictions including symptoms, causes, and treatments.

Achieved 96% classification accuracy across 38 disease classes on the PlantVillage dataset, demonstrating effective transfer learning and supporting early intervention in precision agriculture.

Ai Autonomous drone from point-to-point navigation systems

- The autonomous drone system combines hardware (Pixhawk flight controller, Jetson computer, telemetry radio, and LiDAR) with advanced software for reliable navigation.
- Computer vision processes camera data to recognize surroundings and obstacles, while path planning algorithms calculate efficient routes between waypoints. LiDAR provides precise distance measurements for obstacle avoidance, and the Pixhawk handles flight stability and low-level controls.

TECHNICAL SKILLS

- **Languages & Web Development:** Python, C++, SQL, JavaScript/TypeScript, React, Next.js, HTML/CSS, Flask
- **Data Science & AI:** Pandas, NumPy, Scikit-learn, PyTorch, OpenAI API, Hugging Face Transformers, LangChain, Vercel AI SDK, Streamlit, Plotly, Matplotlib, Seaborn, TensorFlow, Machine Learning, AI Agents, Dash
- **Tools & Platforms:** Git, GitHub, VS Code, Jupyter Notebook, Docker, Discord, Power BI, Tableau
- **Soft Skills:** Data-driven Decision Making, Problem-solving, Analytical Thinking, Communication, Teamwork

EDUCATION

National University of Science and Technology, Islamabad

BSc. Computer Science   **2024**