Muhammad Bahjat

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TECHNICAL SKILLS

Programming Languages: Python, Django REST API, FASTAPI, Agentic, Flask, Docker, Celery, Redis, PostgreSQL, Streamlit, React, JavaScript, Express, Node.js, SQL, MongoDB, C/C++, Java, Html, CSS, Bootstrap, Tailwind,

Libraries and Tools: Git, PyTorch, Pandas, Numpy, OpenAI, Langchain, Streamlit. Bland-AI, Retell-AI, HuggingFace, PHIDATA, CrewAI

Development Skills: Heroku, Google Cloud Platform (GCP), Kubernetes, AWS, Docker

Hardware Skills: Arduino, Raspberry Pi, Esp8266

WORK EXPERIENCE

Software Engineer

HomeEasy, Chicago, USA   *May 2024 – Present*

- **AI Integration & Automation**: Spearheaded the integration of AI into the communication system, enabling **automatic client interaction**, information gathering, and seamless response to client queries based on specific requirements.
- *Agentic System Development*: Innovatively designed and implemented an **agentic system** to replace traditional LLM-only models. Leveraged specialized **agents for task planning, re-planning, and execution, improving task-specific reasoning and action-based responses**. Optimized tool-based interactions for more accurate and efficient client handling.
- **Outbound & Inbound Calling System**: Designed, developed, and integrated a fully functional calling system using **Retell and Bland** for both outbound and inbound services, achieving a capacity of handling over **1,000 calls daily**.
- **AI-Driven Client Interaction**: Customized AI models to handle **automated calls**, mimicking **human responses** to collect and analyze client requirements in real-time, enhancing efficiency and customer satisfaction.
- **Project Deployment**: Deployed various company projects on cloud platforms such as **Heroku and Google Cloud Platform (GCP) Kubernetes,** ensuring scalability and optimal performance.
- **Database Management (PostgreSQL)**: Primarily used **PostgreSQL** to store, manage, and maintain client data. Developed and optimized complex database queries to ensure data integrity and efficiency. Implemented robust data handling processes for AI-driven communication and automated reporting.
- **Vendor Collaboration & Leadership: Led meetings** with key vendors including GCP, serving as a **Lead Software Engineer**, to strategize and enhance AI capabilities in projects, generating significant revenue streams.
- **Project Management & Optimization:** Managed and handled multiple **AI-enhancement projects**, continuously improving the system's interaction with clients and contributing to significant growth in company revenue.

Python Developer

Groomify, Lahore, Pakistan   *July 2023 – Sep 2023*

- Worked on Python/Django (DRF) to develop multiple Rest APIs for behavioural incentive project.
- Collaborated with other departments (Frontend, UI/UX).
- Implemented database models and optimized API performance for scalability.
- Integrated third-party services and implemented authentication mechanisms for secure API access.

Intern Software Developer

ChatDroid, Lahore, Pakistan   *June 2023 – Sep 2023*

- Worked on the most trending tech, Generative AI.
- Used langchain to benefit the most from OpenAI libraries.
- Applied multiple python libraries like Faiss, pandas, whisper etc and Streamlit for frontend.

- Implemented JavaScript, jQuery, and HTML for frontend enhancements, ensuring seamless user experiences.
- Contributed to the enhancement of ChatDroid's capabilities through the integration and optimization of Generative AI technologies, ensuring efficient and dynamic conversational experiences.
- Proficiently utilized Command Line Interface (CLI) for tasks including version control, package management, and environment setup, facilitating efficient software development workflows alongside Generative AI technologies

EDUCATION

Comsats University   **Lahore, Punjab, PAK**
Bachelor of Science in Computer Engineering   *AUG 2020 – JUNE 2024*

PROJECTS

AI-Driven Calling System with Web Scraping
Technologies: Bland, Retell AI, Selenium, Docker, VNC
- Developed and implemented a full outbound and inbound calling system using **Bland** and **Retell AI** to automate client communications.
- Designed a **web scraper** using **Selenium** to extract phone numbers from required websites for outbound calling, ensuring the system could efficiently source contact data.
- **Challenge**: Encountered an issue where the scraper could not work without a GUI on certain websites, limiting the system's capability.
- **Solution**: Integrated a **VNC server within a Docker container** to simulate a GUI environment using a **Docker VNC image**, enabling successful scraping and maintaining automation efficiency.
- Optimized the system to handle **over 1,000 calls per day**, significantly improving operational efficiency and reducing manual intervention.

ChatDroid: An AI Conversational Bot that act as a customer support and sales agent. It also has a Personalized dashboard that aim to streamline customer interaction by using customized settings.

Restaurant Website – React & Django Project: Developed a dynamic food restaurant website using React for the frontend and Django for the backend, combining frontend interactivity with backend functionality for a seamless user experience. [Try it!](#)

RETRO Games on Arduino - Implemented an Arduino OS in C with retro games playable on a TFT screen, showcasing the fusion of classic gaming and embedded systems.

Smart Waiter Robot – FYP: Developing a cutting-edge Smart Waiter Robot for my Final Year Project, leveraging advanced technologies such as LiDAR and SLAM. Designed to enhance restaurant service, the robot autonomously delivers food to patrons, showcasing my expertise in robotics and innovative problem-solving.

EXTRACURRICULAR ACTIVITIES

- **Event Coordinator** in Sports Club
- **Executive member** in IEEE RAS - April 2023 – Jan 2024