AYUSH TIWARI

AI/ML & Python Developer - 2.5 YoE
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TECHNICAL SKILLS

- **Programming Languages:** Python
- **Backend Frameworks:** Fastapi, Flask, Azure Function App
- **AI Frameworks:** Pytorch, Tensorflow, Scikit-learn
- **Generative AI Libraries & Frameworks:** Langchain, Langflow, LlamaIndex, transformers, Ollama
- **Data Processing & Visualization:** Pandas, NumPy, Matplotlib
- **Databases & Connectors:** MySQL, Postgresql
- **Cloud Services:** AWS S3 Bucket, AWS Lambda, AWS EC2, AWS RDS, Azure App Service, Azure AI studio, Azure Promptflow service
- **Specialized Skills:** RAG Chatbots, Prompt Writing, MCP
- **Computer Vision:** CNN, yolo, Opencv
- **Build Tools & Containers:** Docker
- **Control Systems and Documentation:** Git, BitBucket
- **Other Tools:** Gradio

WORK EXPERIENCE

Steves AI Lab Pvt Ltd

AI/ML & Python Developer - **Feb 2023 – Present**

➢ **Gmail and Google Calendar Automation using Model Context Protocol (MCP) server**
Tech Stack – Openai API, Gradio, Fastmcp, GCP, Ngrok

- Designed and implemented an **MCP** client-server architecture for automating Gmail and Google Calendar operations.
- streaming Integrated Openai's Response api for interpreting users command and execute required tools
- Developed a user-friendly interface with Gradio and managed server exposure with ngrok.

➢ **RAG-Based Product Assistant Chatbot**
Tech Stack – FastAPI, Pinecone, Google Gemini API,

- Stored products data from a csv file with scrapped data about company policy from website in the Pinecone index
- Developed a Retrieval-Augmented Generation (RAG) chatbot for product recommendations, integrating Pinecone for vector-based document retrieval and Google Gemini for natural language processing and embedding.
- Implemented a FastAPI backend with session management and product suggestions with images, prices, and URLs returning with a streaming response
- Designed a modular agent architecture (Master, Product, Company, Tour Guide, Recommendation) to handle diverse user queries, enhancing response relevance and user engagement.
- Optimized session cleanup and configuration management to ensure scalability and efficient resource usage, supporting multiple concurrent sessions with automated expiration.
- Developed prompts to make a series of questions to narrow down users' search for right products.

➢ **Medium Article Writer with AI-Driven Content Generation and Automated Posting**
Tech Stack – FastAPI, Celery, Redis, PostgreSQL, Azure OpenAI, Azure DALL-E-3, Medium API, Bing API

- Developed a FastAPI-based application to generate, edit, and publish articles on Medium, integrating Azure OpenAI for article and title generation and Azure DALL-E-3 for image creation.
- Implemented user authentication with JWT tokens and writing style analysis using LLMs to personalize content generation based on user-provided samples.
- Built a scheduling system using Celery and Redis to automate article publication and regular RSS feed storing in the database, with seamless Medium API integration for publishing drafts or final articles.
- Enhanced content generation research with Bing API and RSS feed integration, enabling research-driven article creation with customizable audience, style, and depth parameters.

➢ **Car Image Extraction with U2-net model and realistic background generation**
Tech Stack – TensorFlow, OpenCV, NumPy

- Trained a U2-Net model on a dataset of 600 car images with corresponding masks using A100 GPU on Google Colab, adapting the architecture by modifying the final layers from sigmoid-based binary classification to output continuous values (0–1) for alpha channel preservation, enabling realistic shadow opacity extraction.
- Developed a preprocessing pipeline to create masks from extracted car images using the alpha channel, converting continuous values to a 0–255 range to retain shadow details for seamless integration.
- Designed a custom background generation system with OpenCV, replacing original dirty room floors with sharp, white-lit floors and precisely tilted black edge lines, ensuring realistic shadow placement and lighting consistency.
- Implemented contour detection and curve-fitting algorithms to align background elements with car shadows, supplemented by a secondary model trained on 100-column edge strips for enhanced boundary accuracy.
- Built a bulk image processing script on colab with directory selection, automating car extraction, mask application, and background merging across multiple images as deliverable for client.

➢ **Resume Parser and Formatter API**
Tech Stack – Django, Tesseract, PyPDF, PDFPlumber, OpenAI, Docx2HTML, Python-Docx, MySQL

- Developed two Django APIs for a job consultancy to standardize resume processing: one to extract text and images from resumes and another to generate reformatted resumes in a unified format
- Utilized Tesseract for OCR, PyPDF, and PDFPlumber to extract text and images from diverse resume formats, integrating OpenAI to structure extracted data into JSON for storage in MySQL tables (e.g., name, phone, email, experience, education).
- Built an API to fetch stored resume data and generate standardized resumes on-demand using Docx2HTML and Python-Docx, delivering downloadable documents to streamline the consultancy's hiring process.
- Enhanced efficiency by automating resume parsing and reformatting, enabling consistent presentation of candidate information across varied input formats.

EDUCATION

Master of Computer Applications
College of Engineering, APJ Abdul Kalam University Indore, M.P.
Jul 2022 – May 2024, CGPA 7.8/10

Bachelor of Science in Computer Science
Maharaja Chhatrasal Govt. college Chhatarpur, M.P.
Jul 2017 – May 2020, CGPA 7.8/10

CORE COMPENTENCIES

- ➢ I excel in conducting thorough Research and Development (R&D).
- ➢ Excellent communication skills and a confident, hardworking attitude.
- ➢ Being a fast learner, I am confident that taking on a completely new task would not be a significant challenge for me.