TRINATH GUNDLA

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Professional Summary

AI Engineer and Full Stack Developer skilled in Python, LangChain, and LLaMA-based RAG systems. Experienced in building end-to-end AI automation and full-stack applications using Flask, Django, React, and MySQL. Passionate about deploying scalable AI solutions integrating NLP and computer vision.

Work Experience

CYIENT   *December 2023 - Present*
Software Engineer   *Hyderabad*

Skills

- **AI & Machine Learning :** LangChain, Natural Language Processing, Retrieval-Augmented Generation, OpenCV, VectorDB

- **Programming Languages :** Python, JavaScript

- **Web Development Frameworks :** Flask, Django, ReactJS

- **Web Technologies :** HTML, CSS, RESTful APIs, Flask APIs

- **Databases :** MySQL

- **Version Control & Collaboration :** Git, GitHub

Projects

Pratt & Whitney America | Python, Ollama Vision, LangChain, Retrieval-Augmented Generation (RAG), Flask, MongoDB, REST APIs

Developed a multimodal chatbot to retrieve visually and textually similar historical defects using RAG pipelines and vision-based large language models.

- Built an AI chatbot integrating Ollama Vision and LangChain to analyze defect images, related documents, and textual descriptions from knowledge sources.
- Designed a hybrid text–image RAG workflow to compute contextual similarity between new defect inputs and historical defect cases.
- Connected the chatbot to Excel-based datasets containing previous defect logs, allowing real-time semantic and visual comparison for similarity detection.
- Implemented Flask REST APIs to process defect inputs, orchestrate visual and textual retrieval, and generate summarized insights for validation engineers.
- Enhanced retrieval precision using vector embedding indexing and cosine similarity ranking, improving matched case accuracy by approximately 30%.
- Enabled automated document and image referencing for each identified defect, reducing investigation time by 35% and improving cross-case analysis efficiency.

Verification and Validation Platform | Python, LLaMA 3.1, LangChain, RAG, Ollama, Flask, MySQL, REST APIs

Built an AI-powered system to automatically generate and validate structured test cases from source knowledge using LLMs and Retrieval-Augmented Generation (RAG).

- Led development of an AI Verification & Validation framework leveraging LLaMA 3.1 and LangChain to automate test case writing from technical documents.
- Integrated vector databases and semantic similarity retrieval to enhance test case matching accuracy.

- Optimized LLM responses by feeding contextual documents via Ollama and RAG pipelines, boosting test case relevance and precision by 25%.
- Implemented MySQL-based validation and REST APIs, reducing data inconsistencies by 25% and improving response speed by 20%.
- Collaborated with cross-functional teams to refine prompt design and improve interaction flow for end users.

Automatic Parts Catalog | Python, REST APIs, OpenPyXL, PyPDF2, Pandas, ElementTree, Tesseract OCR

Developed an AI-driven system to extract, standardize, and structure parts data from PDFs, Excel sheets, and XML files into a unified, formatted database.

- Built automated data extraction pipelines processing multi-format files (PDF, XML, Excel) with Python and Pandas.
- Designed Flask-based REST APIs to validate and transform extracted data, reducing manual data formatting work by 40%.
- Applied OCR preprocessing with Tesseract and OpenCV (noise removal, thresholding, contour detection) improving text extraction accuracy.
- Standardized and mapped structured data outputs using ElementTree and OpenPyXL for formatted integration.
- Designed a Tkinter-based desktop interface enabling simplified AI-driven file processing for non-technical end users.

Internships

Full Stack Intern   *Jun 2022 - Nov 2022*
Anddhen Group
- Proficient in developing static and dynamic web applications with **React, Tailwind CSS** and **Bootstrap.**
- Expertise in responsive design implementation for optimal user experience.
- Skilled in creating **RESTful APIs** using Node.js and frameworks like Express.js.
- Utilize Firebase for secure user authentication and efficient data storage.

Python & NLP Intern   *Jun 2021 - Sep 2021*
Zee Media Corporation Limited
- Developed Multimedia Automation Software using Python libraries, such as **Tkinter**, **SpeechRecognition**, and **DeepSpeech** (STT/TTS).
- Implemented **NLP** technique **Named Entity Extraction** for multimedia information extraction using SpaCy based on Transformers.

Awards and Certifications

- Most Valuable Performer **- Bronze**
- Crash Course on Python **- Coursera Certificate**

Education

Vidya Jyothi Institute of Technology, B.Tech - Information Technology   *Hyderabad, June 2019 - May 2023*