

MANISH SHARMA

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WORK EXPERIENCE :

Machine Learning Engineer - 2

: Parspec.io, Bangalore

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Jan 2024 – Present

- **Latency Reduction**: Built Datasheet Recommendation System for model number to datasheet mapping across 5M Documents with **latency reduction by 80%** using Cache [Aws Dynamo DB] and Gemini 2.0 Flash LLM from OpenRouter.
- **Model Fine-Tuning**: Fine-tuned Llama 3.3 70B Instruct Model on a custom Alpaca format dataset for attribute extraction on Modal Labs using H100.
- **Accuracy Achievements**: Achieved **90% accuracy** in matching model numbers across 5 million documents, extracting 10 distinct attributes with **91% overall accuracy**.
- **Family Name Extraction**: Helped develop a **family name extraction algorithm** with significant improvements by integrating the Gemini 2.5 Flash model via the Gemini SDK, boosting **recall from 89% to 96%**.
- **Kubernetes Migration**: Migrated the entire **AI-dev Kubernetes workload to AWS EKS** with guidance from the Snapsoft team. Mapped the load balancer to API Gateway and created isolated partitions for staging and production environments.
- **Order Detection Algorithm**: Designed and deployed an order information detection algorithm for lighting datasheets using T5-base, **achieving 95% accuracy** and automating data extraction.
- **Algorithm Enhancement**: Enhanced header and column detection algorithm, increasing capacity from 4 to 8 columns with **97% accuracy** and reducing manual processing by 30%.
- **LLM as Judge Pipeline**: Designed and implemented an “**LLM as a Judge**” pipeline to assist human annotation workflows. Leveraged **GPT-4o and Gemini 2.5 Flash** in parallel execution to evaluate datapoints for manual annotation. **Decreased human annotation to ~ 74%**
- **Multimodal RAG Pipeline**: Built a **RAG pipeline supporting** the LLM-as-Judge framework to evaluate retrieved knowledge base chunks. The KB included both images and text, using BGE for text embeddings, CLIP for image embeddings, and FAISS as the vector store. **Achieved MRR of 0.94 in retrieval and 0.96 accuracy in generation.**

Machine Learning Scientist

: Docsumo-AI, Bangalore

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Dec 2022 – Dec 2023

- Designed **Wireframes** and Implemented Advanced **Document KV + Table Extractor** using **LayoutLM, BROS, YOLO** architectures for both **Fixed and Unstructured Document Categories**. Deployed on product.
- Successfully Integrated these ML & DL architectures into **10+ Custom API's** for our clients having **MRR in range \$80K-100K**.
- Built and Integrated **Chat-AI**, a powerful and seamless **LLM** integration of **LangChain** and **PineCone-DB** for **QA** and other support-tasks in product.
- **Reduced the Annotation Time** from **1 full day to ~2hrs** using **GPT-KV LLM Extractor**, powered by GPT-4. This has saved lots of human efforts.
- Implemented an **Advanced Synthetic Data Generation Pipeline** capable of producing **Duplicate-Data** with exceptionally high correlation similarity for any fixed forms using FP-Tree algos. Through extensive **benchmarking**, our solution has demonstrated **superior performance, outperforming the Production Level APIs** by leveraging only **about 20% of real data**.
- Worked on different Fixed Forms for **KV and Checkbox Extraction** like Insurance [1040, 1120's, W9's], Bank Cheques and so on.

- Responsible for Collating and PreProcessing Massive Hindi Datasets for **OCR** and **Speech Recognition task**.
- Leveraging the power of **PyTesseract** and **EasyOCR** for Text Extractions, and **WordLevel Acc** for Evaluating the OCR Model.
- Worked with **Librosa** and **MelSpectrogram** to build and analyze ASR Tasks
- Melinda Gates Foundation under SpireLab

PROJECTS / SIDE BUILDS :

V-Rag [Video Based RAG System] : Qdrant, RAG, Video-Querying

[Github](#) | [Loom](#)

- **Video RAG System:** Developed a system allowing users to query video content via YouTube URL or uploaded videos.
- **Video Chunking & Indexing:** Implemented video chunking and indexing with **Qdrant** for efficient vector search.
- **QA Pipeline Integration:** Integrated a QA pipeline to retrieve **relevant frames, timestamps, and precise answers**.
- **Vector Database Optimization:** Experimented with 3 vector databases to optimize performance.
- **Deployment:** Deployed the solution with Streamlit for an intuitive user interface.

GeoPuzzle [Geography Quiz App] : PIL, Lovable, WebScraping

[Game Link](#) | [Twitter](#)

- **Web Scraping:** Extracted data of **10,000+ global places** using Selenium and BeautifulSoup (BS4).
- **Data Cleaning & Tagging:** Organized and **tagged** data with country, city, and relevant options.
- **Game Integration:** Added three interactive live game features to enhance user engagement.
- **Frontend Development:** Built a user-friendly **interface using Famous Lovable UI framework**.

AutoCommit Generator : Mistral, Ollama, Github, LLM

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- **AutoCommit Generator:** Built an AutoCommit Generator using **Ollama and Mistral to automatically generate commit messages for projects locally and quickly**.
- **Local & Privacy-Focused:** Fully **local** solution with no privacy concerns, ensuring secure usage.
- **Simple & Fast:** Developed as a **bash script for quick installation** and seamless terminal integration.
- **Efficient & Lightweight:** Designed with under **100 lines of code** for simplicity and powerful functionality.

Company Scraper [AI-Powered Agent] : Relevance AI, LLMs, Markdown

[Agent-UI](#) | [Twitter](#)

- Built a lightweight agent that generates clean, structured summaries from company URLs (e.g., *pixxel.space*). **automatically generate commit messages for projects locally and quickly**.
- **Auto-extracts:** Overview, Products, Features, Audience, Integrations & more
- Powered by **Relevance AI + custom LLM prompts**
- Outputs are markdown-formatted for easy reading
- **Perfect for:** Due diligence, competitor analysis, interviews, startup research

TECH SKILLS / FRAMEWORKS :

- **Languages & Frameworks:** Python, Cursor, FastAPI, Flask, GitHub, Ollama, OpenRouter, Lovable, HuggingFace, Grok
- **Data Structures & Algorithms:** Strong foundation in problem-solving and optimization
- **AI & Machine Learning:** ML, DL, NLP, PyTorch, TensorFlow, HuggingFace, Transformers, LLMs (GPT's), Finetuned Models, RAGs, Multi-Agent RAGs, Agents, VectorDB, GenAI Solutions
- **Natural Language Processing (NLP):** NLTK, Spacy, SciSpacy, MedXN, Librosa, PyTesseract, OCR
- **Databases & Analytics:** MySQL, Neo4j, Tableau, Amplitude Analytics, Hasura-DB, Amazon DynamoDB, S3 Buckets, GCs
- **Cloud & Collaboration:** AWS, GCP, Google Colab, Kubernetes, Docker, EKS, ECS