

# AMAR SINGH

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## Projects

### Vision Language Transformer(VLM)

- Developed the ViViT base encoder and Transformer decoder from BLIP, fine-tuned on a custom image-caption dataset for enhanced domain-specific performance.
- Incorporated the Transformer's self-attention and cross-attention mechanisms to effectively capture relationships between visual features and textual elements.
- Some tweaks in original architecture to experiment with multi-modal learning to generate informative.

### RetrivalQA- LLM

- Utilized the fine-tuned model LaMini-Flan-T5-783M from Hugging Face for an automated question-answer pair generation system using LangChain.
- The system is capable of generating relevant question-answer pairs from documents without human interference, enhancing the efficiency of information extraction.
- Implemented advanced natural language processing techniques to ensure the relevance and accuracy of the generated question-answer pairs.

### Restricted Area Detection- YOLO Vision Eye

- Utilized YOLO for efficient and accurate object detection, leveraging its speed and accuracy in identifying people within video frames.
- Implemented a tailored IoU calculation to specifically measure the degree of overlap between detected person bounding boxes and predefined restricted area ROIs.
- Incorporated visual aids, such as bounding boxes and object tracking with Yolo VisionEye mapping, to clearly indicate restricted areas and detected person overlaps, enhancing user understanding and situational awareness.

## Courses

Ultimate AWS Certified Cloud Practitioner CLF-C02	05/2023
Udemy	
AWS Deepracer	04/2023
AWS	
Deep Learning with PyTorch : Siamese Network	02/2024
Coursera	

## Experience

Unada Labs Pvt Ltd	Feb 2024 - Present
AI Intern	Ahmedabad
<ul style="list-style-type: none"><li>Engineered a sophisticated multi-input stream system similar to ChatGPT, integrating data from PDFs, YouTube, Notion, SQL, and web pages with advanced RAG components.</li><li>Designed and implemented forms into structured JSON data using options of AWS Textract or fine-tuned LayoutLMv3 model, with added LLM-based metadata classification.</li><li>Developed a framework for text cleaning, segmentation, and formatting using regex and LLMs, producing structured outputs.</li><li>Designed a secure,, two-layer encryption and decryption logic, enhanced with Python encryption libraries for robust data protection.</li><li>Successfully integrated the LLaMA 3 large language model on SageMaker for advanced language model capabilities in SyncFlow.</li></ul>	

## Skills

### Programming and scripting

C++, Python, JavaScript, Flask, MySQL, MongoDB

### Libraries and Tools

TensorFlow, PyTorch, Scikit-learn, OpenCV, Spacy, Linux, Git, LlamaIndex, Selenium, AWS

### Algorithms

Bagging, Boosting, Neural Network (CNN/RNN), Transformer, LLM, OCR

### Methods

Predictive Modeling, Data mining/analysis, Data visualization, Statistical analysis, Web Scraping

## Education

Silver Oak University	2021-2024
B.Tech	Ahmedabad
Computer Engineering- AIML	
CGPA-8.63	

## Volunteer

Invincible NGO	2023-Present
Instructor	
AWS Student Cloud Club	2023-2024
Volunteer	