



Deep Vision Tool

For Image Analysis

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BE 3rd yr, CML/SE





Project Overview

- The VQA module to answer natural objective question.
- Context Recognition module for activity classification.
- Depth map estimation network for depth classification.
- Interactive Chatbot to demonstrate underlying mechanisms.
- Integration and Deployment as open source project.





Need Analysis

Applicable to wide spectrum of areas :

- Image Features Extraction.
- Interactive Educational Software.
- Defence and forensics.
- Visual Aid Tool.
- Social Media Applications.
- Research Purposes.

Problem Statement

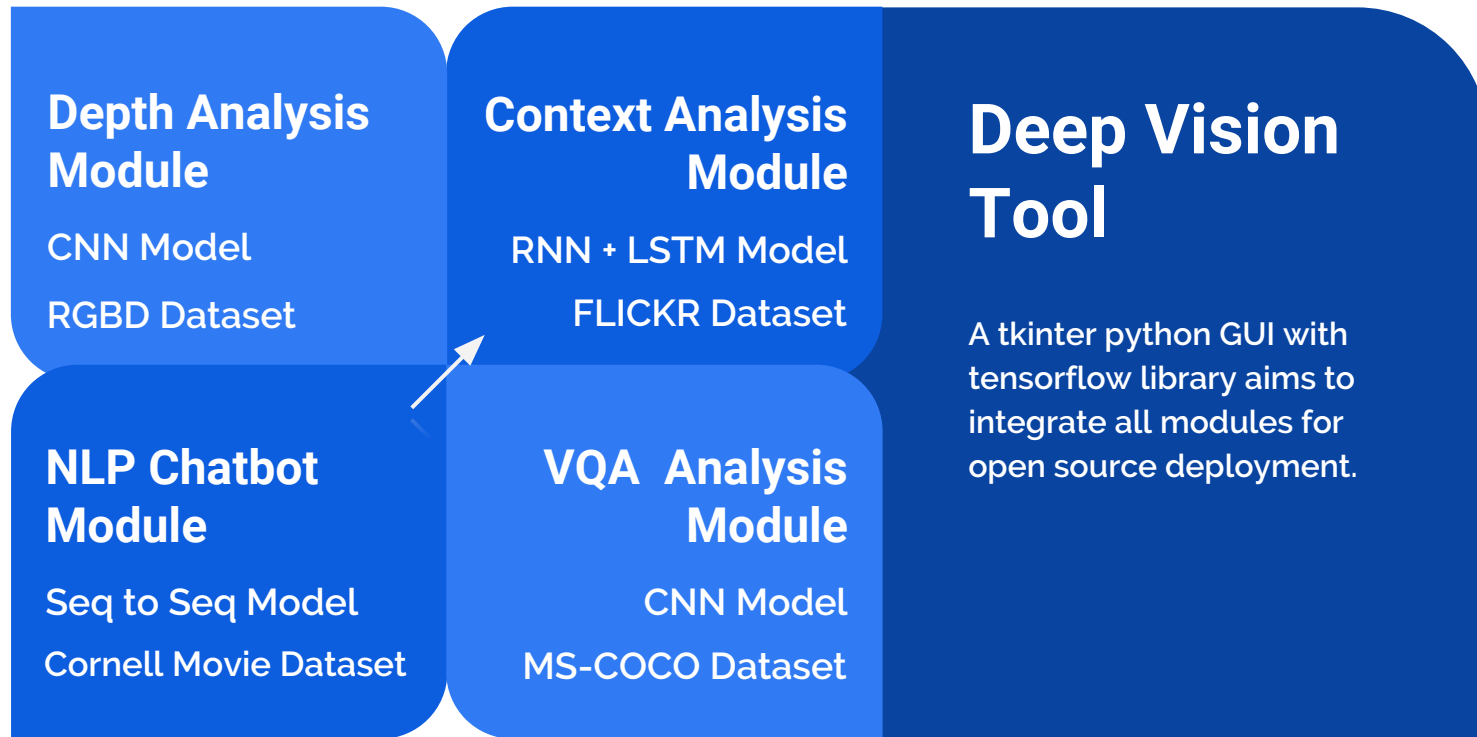


Visual Question Answering with Context Recognition and Depth Analysis of an Image using Deep Learning and Natural Language Processing.

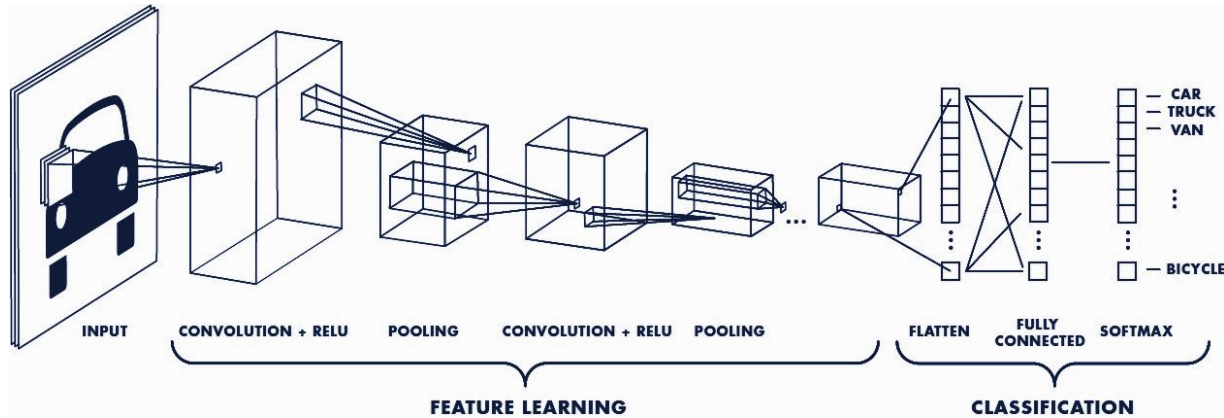
Project objectives

- Higher accuracy and better visualizations for VQA.
- Real Time Image Context Recognition of the image.
- Depth analysis and classification of the image.
- Sequence to Sequence model chatbot for demonstrative purpose.
- Open source deployment of such module and integrated tool.

PROJECT EXECUTION PLAN

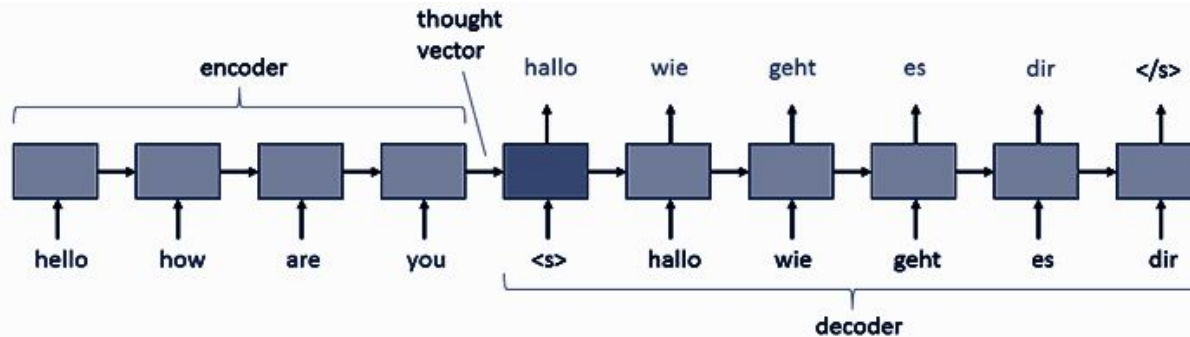


Model Workings



CNN Model

1. Depth Analysis Module
2. VQA Analysis Module



RNN Model

1. Chatbot Module
2. Context Analysis Module

REQUIREMENTS

SOFTWARE



1. TensorFlow Library
2. CUDA Toolkit 8.0.
3. Jupyter Notebook.
4. Tkinter Library.
5. Unit Testing Framework.

HARDWARE



1. Titan X High Performance GPU.
2. Google Cloud Platform.

DATASETS

FLICKR

25K

CONTEXT ANALYSIS
MODULE

MS-COCO

83K

VQA ANALYSIS
MODULE

SELF MADE

65K

DEPTH CLASSIFICATION
MODULE

CORNELL DB

220K+

NLP CHATBOT
MODULE

Project Outcomes



1. Depth analysis on an object in an image with visualizations.
2. Fetch the context from an image and analysis of context network.
3. Provide answers from the image as per objective questions.
4. Helpful for whole community like children, blind people etc.
5. In-depth analysis of image as per need along with visualizations.

WORKPLAN

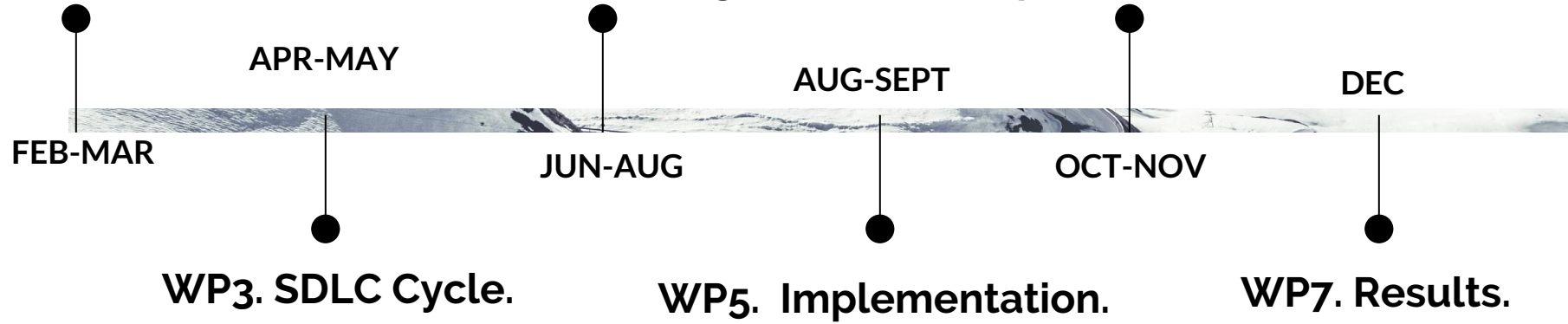


WP1. Proposal and Synopsis.

WP2. Deep Learning and TensorFlow.

WP4. Model Studying and Testing.

WP6. Testing and Optimizations.



INDIVIDUAL ROLES



Contribution Proposed Plan

	Deep Learning	NLP Module	Documentation and Diagrams	Open Source	Testing and Optimizations
Ashish Rana 101690011	✓	✓	✓	✓	
Sagar Shivani 101512043	✓	✓	✓		✓
Shaunak Dixit 101562009	✓		✓	✓	✓
Yuvraj Verma 101512062		✓	✓	✓	✓