Abstract

Communication is one of the key aspects of progress. Speech recognition systems identify the words and phrases in a spoken language and convert them into machine readable format. Natural Language Processing has had a widespread area of research over the past years. Generating images from natural language descriptions is a fundamental problem in many applications. Although a lot of progress has been made in generating visually realistic images using Generative Adversarial Networks (GANs), guaranteeing semantic alignment of the generated image with the input text remains challenging. Significant research has been done on converting speech to text as well as generating images from texts. Our project focuses on converting spoken words into realistic images by combining Speech-to-Text modules along with Text-to-Image. In essence, being able to generate images that do not necessarily exist, but created solely by spoken word. The above model will find applications in the education sector for real time visual based tutoring.

Problem definition

Vision is one of the most essential ways in which humans communicate, interact, experience, and learn about the world around them. AI systems that can generate images and video for human users have applications ranging from education and entertainment to that of the creative arts. Such systems also have the potential to serve as accessibility tools for the physically impaired. A system that can follow speech- or text-based instructions and then perform a corresponding image generation task could improve this accessibility substantially. These benefits can easily extend to other domains of image generation such as gaming, animation, creating visual teaching material.

Objectives

- Build a Speech recognition system that can generate textual data
- GAN model that can translate textual captions into the corresponding image to a high degree of accuracy
- Integrate the two systems to form a single seamless Voice-to-Image synthesis model

Languages Used

- **Backend :**
  - Python
  - Java
- **Frontend :**
  - Javascript
  - React

References

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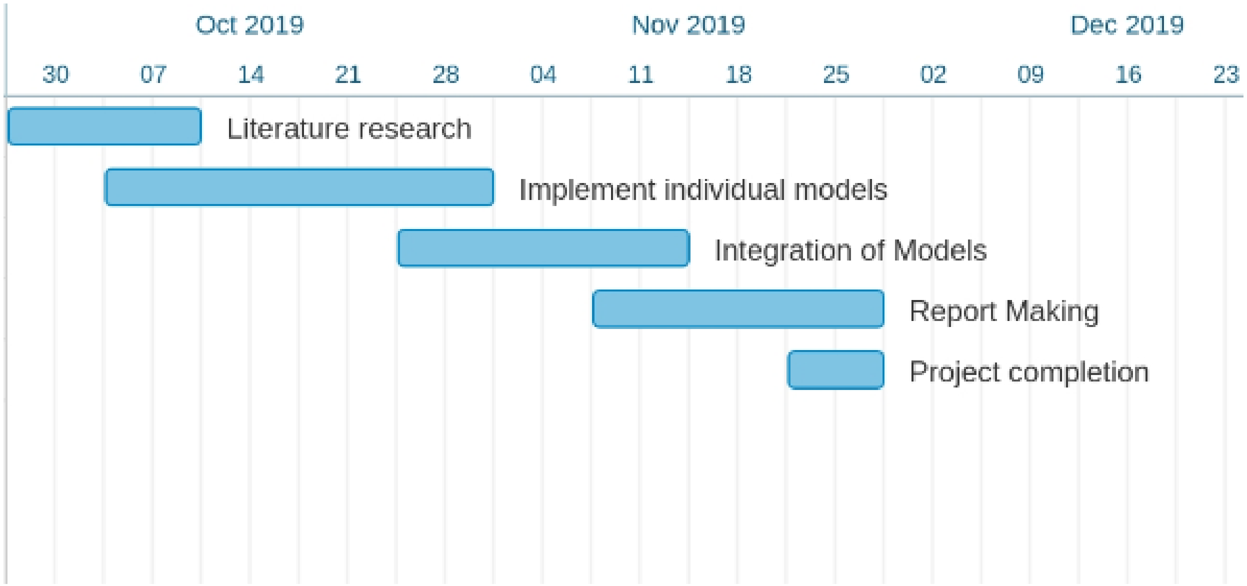
Gantt chart


Oct 2019
Nov 2019
Dec 2019
Literature research
Implement individual models
Integration of Models
Report Making
Project completion