**CS6301 MACHINE LEARNING – MINI PROJECT PROPOSAL**

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**IMAGE INSCRIPTION AND INTONATOR - A NEURAL NETWORK APPROACH**

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**ABSTRACT:**

Digital communication technologies have greatly influenced and expanded the way humans interact. The progress of information technology has opened wider opportunities for communication. Social networks have become the modern-day social communities connecting people from different parts of the globe, sharing images and videos on these platforms. By creating virtual communities, digital communication has expanded the scope of communication eliminating barriers. Still certain section of differently abled people is unfortunately isolated from this world. We aim to make further progress in this arena by describing an image in the form of audio to visually impaired people.

We have come up with a system that describes an image shown in the form of plain text using an encoder-decoder architecture and is integrated with an end-to-end lexical articulator which produces a vocal description of the given image.

**INTRODUCTION:**

Technology has become an integrated part of our daily lives over the past decades. The efficient processing and association of different multimodal information is a very important research field with a great variety of applications, such as human computer interaction, knowledge discovery, document understanding, etc. Computerized elucidation of an image has been one of the primary goals of computer vision. Not only must description generator models be powerful enough to solve the computer vision challenges of determining which objects are in an image, but they must also be capable of capturing and expressing their relationships in a natural language. It is a very important challenge for machine learning algorithms, as it amounts to mimicking the remarkable human ability to compress huge amounts of salient visual information into descriptive language.

Hence, to tackle this conundrum we present the development of a novel methodology to extract meaningful information from images, in the form of short descriptions. The results can be further run through a lexical articulator engine to offer full sustainability. This way, a full independent experience could be delivered to visually impaired people.

For an accurate algorithm, it must be fed with good amount of data. The dataset which we are planning to use for training and testing the model is MS-COCO (Microsoft-Common Objects in Context) which contains more than 80000 labelled images.

For converting still images into natural language text sentences we must first start from the understanding of the context of an image and secondly how this context is expressed into natural language. Thus, for understanding the image a feature extracting convolutional neural network can be used. With the aid of recurrent neural networks, the extracted features can be transformed into a suitable textual description. These results are finally fed to a lexical articulator module which produces the output of the system in the form of speech.

**References:**

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