

**ANALYZING THE SENTIMENT OF SOCIAL MEDIA  
IMAGES IN HOSPITALITY DOMAIN USING OBJECT  
IDENTIFICATION AND CAPTION GENERATION**

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## Abstract

With the advancement of hardware and the stepping up of social media worldwide, the number of images and videos shared on these platforms has increased massively. Therefore, organizations that are interested in their brand image would invest in brand monitoring and reputation management through means of social listening services. Sentiment analysis takes a key role in the social listening domain as a metric to measure user opinion on the brand, product, or service provided by the organization. With the increased pace in publishing multimedia content on the world wide web, it is important to position an automated mechanism to monitor sentiment on such content.

The research was conducted based on the scope of social media and by utilizing social listening services, the image data were extracted. The methodology introduced in the research involves a convolutional neural network to detect objects in an image, a long, short-term memory model for generating a caption for the image, and ultimately use text sentiment analysis tools to determine the image sentiment. The model training process involves a large image dataset with five captions written for each image to build a vocabulary that is used to generate the captions based on identified objects.

The results of this research indicate that the image sentiment can be determined by the proposed method however involving a diverse set of challenges incorporated which are unique to the entire domain and for this research. The results indicate that the model successfully was able to identify objects and behaviors from the images based on the training image dataset. However, when the words from vocabulary are used to create the caption, the accurate sentiment has not been determined as there is a dependency on the rule set of the text sentiment analysis tool. But this research also suggests that when the training image data set gets larger and more words are available in the vocabulary, with an advanced sentiment analysis tool, the methodology can be used to successfully determine the sentiment of an image.