

Progress in Combining Image Captioning and Visual Question Answering Tasks

Authors : Prathiksha Kamath, Pratibha Jamkhandi, Prateek Ghanti, Priyanshu Gupta, M. Lakshmi Neelima

Abstract : Combining Image Captioning and Visual Question Answering (VQA) tasks have emerged as a new and exciting research area. The image captioning task involves generating a textual description that summarizes the content of the image. VQA aims to answer a natural language question about the image. Both these tasks include computer vision and natural language processing (NLP) and require a deep understanding of the content of the image and semantic relationship within the image and the ability to generate a response in natural language. There has been remarkable growth in both these tasks with rapid advancement in deep learning. In this paper, we present a comprehensive review of recent progress in combining image captioning and visual question-answering (VQA) tasks. We first discuss both image captioning and VQA tasks individually and then the various ways in which both these tasks can be integrated. We also analyze the challenges associated with these tasks and ways to overcome them. We finally discuss the various datasets and evaluation metrics used in these tasks. This paper concludes with the need for generating captions based on the context and captions that are able to answer the most likely asked questions about the image so as to aid the VQA task. Overall, this review highlights the significant progress made in combining image captioning and VQA, as well as the ongoing challenges and opportunities for further research in this exciting and rapidly evolving field, which has the potential to improve the performance of real-world applications such as autonomous vehicles, robotics, and image search.

Keywords : image captioning, visual question answering, deep learning, natural language processing

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