

MODEL DEVELOPMENT FOR IMAGE TAGGING

Kozulia M., Rushi Joshi

National Technical University «Kharkiv polytechnic institute», Kharkiv

This paper discusses the issue of developing image processing software and models using deep learning that can identify input image tags.

Effective image tagging typically consists of two stages – image tagging, and tag refinement. Firstly, Image tagging can be performed manually by humans or automatically by an algorithm. This is a process of labeling an image with one or more human-friendly textual concepts. Secondly, Image refinement is very significant in order to remove irrelevant tags and add more relevant information to a prepared tag list. Thus, the final tag list will incorporate all the required information.

In conclusion, the image tagging and refinement has become a popular trend amongst digital platforms. The deep learning and machine learning algorithms are used to develop automatic tag lists and also add missing information by refinement techniques. Hence, artificial intelligence is a boon for mankind to solve the modern life issues.

Most image tagging/tag refinement approaches depend on hand-crafted features, e.g., Scale-Invariant Feature Transform (SIFT), GIST, Histogram of Oriented Gradients (HOG), and so on. Based on these low-level feature descriptors, visual representation algorithms (e.g., bag-of-word features or spatial pyramid features) have been proposed to describe image content and associate the content with natural language-based keywords. However, these hand-crafted feature descriptors are designed to capture low-level visual patterns by predefined feature types (e.g., color, shape, or texture) (fig. 1) [1].

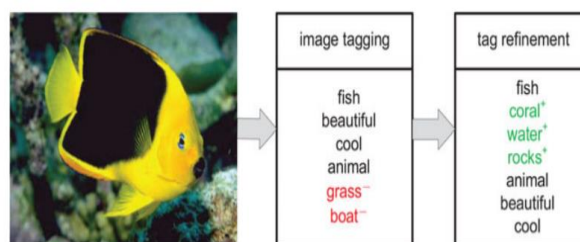


Fig. 1 – Tag list

Thus, the task is to form such a model for extracting and forming tags, on the basis of which it is possible to construct a brief description of the image under study. This system will help in the formation of automation of "viewing" images for visually impaired people.

References:

1. Fu J. Advances in deep learning approaches for image tagging / J. Fu, Y. Rui // APSIPA Transactions on Signal and Information Processing – Volume 6, 2017 – P. 1–13.