

DEEP LEARNING APPROACH TO RATE YOUTUBE THUMBNAILS USING IMAGE PROCESSING

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ABSTRACT

Because they lack experience and cannot afford to hire professionals, inexperienced YouTube creators struggle to choose the right video thumbnails. In areas with a dearth of qualified specialists, this issue is exacerbated. Effective thumbnail selection tools are needed to help content creators overcome these obstacles. However, current tools don't have any capabilities for assessing already-created thumbnails and instead are primarily focused on producing new ones. In order to accurately evaluate the suitability of current thumbnails and fill in the aforementioned gaps, an image processing-based solution is required.

To automatically choose thumbnails from a video's frame in anticipation of their increasing popularity, several attempts have been made. Despite this, no software that assigns ratings to useruploaded thumbnails has been found, according to the author's investigation. The lack of a mechanism for evaluating user-uploaded thumbnails using data from digital image processing has been identified as a weakness in the existing techniques, and this study aims to fill that hole.

The goal of this study is to create a deep learning method for thumbnail rating as a workaround for the dearth of annotated data. In this method, training is carried out using a hybrid ensemble deep learning architecture that uses ResNet50 and InceptionV3 as sub models embedded inside a neural network. The experiments were conducted using various augmentation techniques, architecture layer changes, and hyperparameter tuning. Finally, the proposed model's initial precision score of 0.79 and final recall score of 0.82 resulted in a marginally higher overall improvement. This study has shown that, in terms of overall performance and generalizability, the proposed methodology outperforms a number of currently used approaches.

Keywords: Deep Learning, Image processing, Image Classification, ResNet50, InceptionV3, Thumbnail Rating