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FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

Research Project

for

Sicheng Liu

Labelling and Evaluating DIV2K Dataset for Human Keypoint Detection on Compressed Images

Erweiterung und Evaluierung des DIV2K Datensatzes für menschliche Keypoint-Erkennung auf komprimierten Bildern

In the recent past, the task of coding images or videos for machines instead of humans as final user has significantly been growing. In order to properly evaluate the codecs' performance, suitable datasets are required which have two cover two main aspects. First, the images or videos have to be stored uncompressed, which means that they have not been compressed by any other compression method before. Second, the dataset must include labels such that the accuracy of neural-network-based algorithms solving tasks from the field of computer vision can be measured.

However, in practice, only little existing datasets fulfill both above mentioned requirements. But more suitable datasets are required covering additional tasks, to draw more universal conclusions regarding the coding schemes to be analyzed. One additional use case to investigate, is the keypoint detection, where important parts of the human body, e.g., joints, eyes, or ears, are detected.

Therefore, it is Sicheng Liu's task to first add labels of persons and their keypoints to the uncompressed DIV2K image dataset. To achieve this, Mr. Liu can apply already existing frameworks. Subsequently, a suitable neural network is supposed to be applied to the dataset to measure its accuracy detecting the keypoints with a suitable metric.

A well-structured implementation and a detailed documentation of the algorithms and experiments is expected.

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(Prof. Dr.-Ing. A. Kaup)