

Automatic Method for Classification of Informative and Noninformative Images in Colonoscopy Video

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Abstract : Colorectal cancer is one of the leading causes of cancer death in the US and the world, which is why millions of colonoscopy examinations are performed annually. Unfortunately, noise, specular highlights, and motion artifacts corrupt many images in a typical colonoscopy exam. The goal of our research is to produce automated techniques to detect and correct or remove these noninformative images from colonoscopy videos, so physicians can focus their attention on informative images. In this research, we first automatically extract features from images. Then we use machine learning and deep neural network to classify colonoscopy images as either informative or noninformative. Our results show that we achieve image classification accuracy between 92-98%. We also show how the removal of noninformative images together with image alignment can aid in the creation of image panoramas and other visualizations of colonoscopy images.

Keywords : colonoscopy classification, feature extraction, image alignment, machine learning

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