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DIQA: Dermatology Image Quality Assessment

Alfonso Medela

Legit.Health, Department of Medical Computer Vision and PROMs, 48013, Bilbao, Spain

Medical imaging solutions are proving to be useful tools in clinical practise, especially in diagnosis and severity assessment. The images require a minimum quality to be analyzed by the algorithms, and this poses a major problem when it comes to non-standardized imaging techniques like clinical imaging. Clinical images are widely used in dermatology and capture the disease condition in a non-invasive way, however, these images are subject to a huge variability due to conditions like lightning, perspective, distance to lesion or focus. In addition, the dermatological domain imposes more strict conditions, not only in general quality but in the general context of the image. In the study we improve previous state-of-the-art method NIMA and go one step further by fine-tuning the model on a new dataset created specifically for the dermatological domain. We apply EfficientNets, Earth Mover's Distance as a loss function and opinion score distributions to achieve a new state-of-the-art result in perceptual image quality assessment.

Biography:

Alfonso Medela studied a Bachelor's degree in Physics in the University of the Basque Country and University of Groningen, where he finished the academic year with honors. He also studied a master in Big Data and Business Intelligence in the University of Deusto. Alfonso worked in several research companies applying machine learning, deep learning and computer vision methods to solve complex problems in the fields of agriculture, industry and healthcare. He specialized in training algorithms with few data, also known as few-shot learning, and in medical data. He is the co-founder and Chief Artificial Intelligence Officer of Legit Health, a company that deploys computer vision and artificial intelligence algorithms for skin pathology diagnosis and follow-up.

alfonmedela@gmail.com