



Colour in Computer Vision

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Abstract

For computer vision systems to work successfully, it is often important to understand and exploit physical models of colour image formation. Some classical computer vision problems - like colour constancy - are wholly colour centred where as others - such as shadow finding or highlight analysis - use colour and models of image formation to help solve the underlying computer vision problem. In this talk, I will start with the basics of colour image formation. This will, in part, involve dispelling a widely held belief about colour - that it is a solved problem (and that all the functions you need for colour processing are text book transforms). I will discuss, in detail, the steps that need to be followed if colour is to be used meaningfully in computer vision processing.

Other topics to be presented include illuminant estimation, colour invariance, shadow finding, highlight analysis and methods for colour gradient domain processing. Generally, the presentation will place the work in the context of human visual processing. I will also consider general multispectral image processing (e.g. colour + NIR).

Keywords: Colour and Physics based Vision