

Abstract

With the purpose of avoiding the effect of metamerism in the color measurement of imaging devices, it has been developed some techniques based on the use of broadband filters or narrow filters coupled to a monochrome digital laboratory camera to capture color information at different wavelengths and perform the reconstruction of the spectral reflectance of the scene based on a principal component analysis, independent analysis components or direct pseudoinverse matrix.

What has not been covered by the state of the art is the possibility of using a reconstruction technique based not on the use of filters, but using illuminants with different color temperatures and a home camera.

In the present paper we explore this possibility and further propose two additional methods for the reconstruction of spectral reflectance, based on the calculation of the minimum Euclidean distances in Lab space between the color patch to be reconstructed and a subset patch color chart workout ².

²Hunter et al. [1] presented two illuminating scanner aimed at more accurate color measurement, reduce image noise and correct errors in reading embossed surfaces. This paper follows this line, but the purpose is to reconstruct the spectral reflectance curve given readings taken by a camera under two illuminants with different color temperatures and compare the results using different reconstruction algorithms.