

Unexpected application-specific digital image acquisition errors

(Invited Speaker)

Constantin Vertan*

*Image Processing and Analysis Laboratory
Politehnica University of Bucharest, Romania
Email: constantin.vertan@upb.ro

Abstract

Visual sensing, under its common form of digital image, become both a commodity and a must in today's applications. Affordable and effective digital image acquisition sensors and their underlying postprocessing methods enabled the presence of an immense variety of image-based applications. Although the core of the image processing methods and algorithms are now well established, through the years, in particular applications unexpected image acquisition requirements emerged, related to images that were unsuited for that particular use, although correct. In this talk we present examples of such unexpected application-specific digital image acquisition errors, in both consumer applications and medical applications, showing some solutions that become more or less state of the art.

Consumer color imaging exploded as smartphones became ubiquitous. Simple (i.e. technically correct) color images of people and places are no longer enough, since the consumers are looking for beauty and emotion. Image acquisition is now conditioned by the possibility of correcting red-eyes, closed eyes, non-smiling faces or facial imperfections, additions that most phone- and camera makers tend to offer.

As digital image acquisition is used in more specialized domains (like diagnostic aid in medicine), the application constraints become more significant, boosted by the problem understanding gap between the medical and the engineering staff. Significant examples can be noted in the acquisition of images in unconstrained environments, in which unexpected problems related to camera visual field obstruction and image focalization may appear .