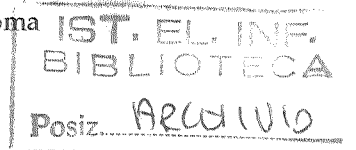


Texture analysis and synthesis: models and methods for parameters association

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Abstract

The interpretation or simulation of complex events often requires the integration of both 'a priori' and 'computed' knowledge. To reach understanding of events, rules and constraints must be considered so that significant and descriptive parameters can be associated to define a unique general model. Different behaviours can be described using 'visual' models which can assist simulation and operate both for synthesis and analysis of multidimensional image functions. In this way, it could be necessary to extract features or properties from source images and then insert these parameters into models for analysing data and, more in general, events depending on some input and 'perturbation' functions. Among the different parameters which can be evaluated, texture is considered particularly interesting, as it seems a very powerful feature to characterise surfaces. In particular an attempt could be done to unify the concept of texture considering both image synthesis and analysis environments. In this paper, models and methods are studied able to describe associations among several parameters derived from 'real' scenes (using an image analysis/understanding approach) and to synthesise or visualise multidimensional images (using an image generation/representation approach). These approaches are in particular referred to texture coding and manipulation. The method developed is also validated in the study of degradation of historical stones and marbles due to pollution, weather or other natural and/or artificial agents can be performed using computer assisted simulation based on image acquisition and treatment.

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Note Intense (if. The Visual Comp.)