



SEMINARIO DE IMÁGENES Y
VISIÓN
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Image Compression by Microtexture Synthesis

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ABSTRACT

The pixel fidelity paradigm in image coding has reached a point where large compression gains with respect to the state of the art are difficult to achieve. For years, researchers working in the field have been providing evidence that loosening the requirements of pixel fidelity (particularly, with respect to visual texture), can account for great bitrate savings for some images.

The actual goal of image compression, to find an image representation that eliminates irrelevant and redundant information, can then be readdressed with definitions of "irrelevance" and "redundancy" that are closer to human perception. A major conceptual problem of these approaches is the lack of underlying image models that are backed by sufficient empirical evidence. This makes the evaluation of coding systems extremely difficult.

In this presentation, we address the Gauss–Markov random field model. It turns out that it takes a singular role – not only with respect to information theory, but also with respect to feature detection in the human visual cortex. We provide a dedicated investigation into the benefits and limitations of hybrid coding systems designed for this particular model.

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