

FROM AMODAL COMPLETION TO IMAGE COMPRESSION

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It is well-known that the classical wavelet methods for image compression, like those incorporated in the JPEG2000 standard, perform generally very well but have several theoretical and numerical limitations, in particular for the coding of geometric information at very high compression rates.

Several approaches, not always based on wavelets, have been proposed in recent years to overcome these limitations.

The work I shall present, done in collaboration with Albert Cohen (Paris 6, France), Justin Romberg (Caltech, USA) and Thomas Capricelli (Paris 6, France), falls in this category.

We propose to combine a multiscale prediction/correction approach with a non-linear interpolation operator that was first introduced in the context of image missing parts reconstruction.

This operator interpolates the image level lines by curves minimizing an energy that involves both their length and their curvature.

It is directly inspired by a natural ability of our visual system to reconstruct partially occluded objects, the well-known “amodal completion” process.