UNIVERSITÀ DI PARMA

Seminario di Dipartimento SMFI

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terrà un seminario dal titolo

Fractal Contours: Order, Chaos & Art

Abstract:

Over the recent decades, a variety of indexes, such as the fractal dimension, Hurst exponent, or the Betti numbers, have been used to characterize structural or topological properties of art via discrete parameters. A single fractal dimension, in particular, has been commonly interpreted as characteristic of the entire artwork, whether binary, gray-scale, or in color, and whether self-similar or not. There is now ample evidence, however, that such exponents are strongly dependent on the details of the procedure used. Here we propose a more discriminating scaling analysis with the aim of obtaining robust scaling plots and avoiding any fitting routines. To this goal, we carefully average over all possible grid locations at each scale, rendering scaling functions independent of grid position and image orientation. And instead of fitting these plots with straight lines, we calculate their derivatives – continuous fractal contours. We test this approach on synthetic examples, ordered and random, on images of algorithmically defined fractals, and then examine selected abstract paintings and prints by acknowledged masters of modern art.

17/7/2025, ore 16:00, Aula Maxwell (plesso fisica)