MATHEMATICAL ASPECTS ON MACHINE LEARNING PROCESS FOR A 3D MORPHOLOGICAL ANALYSIS FROM SECTIONAL IMAGES SEQUENCES

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The ability to measure the surface area of three-dimensional objects directly from images has many practical applications, including quality control. Unfortunately, unless some information relating the distances measured in image space to the distances measured in 3D is available, the problem of making measurements directly on images is not well defined. This results from the inherent ambiguity of perspective projection caused by the loss of depth information.
With this work we present a machine learning strategy for study morphologically a structure using a two-dimensional sequence of images from its sections.
We develop a mathematical strategy beginning in [1], applying machine learning tools a sequence of depth confocal microscopy images of a cobalt foam, where the sections of the branched pores are visible [2].

References

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