

# Recursive structure of digital lines and planes.

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## **Abstract**

A digital image is often the digitization of an euclidean shape. The identification of digital straight segments on the boundary of an image is a common technique in order to establish geometrical properties of the digitized objects.

In a first time, we will show how the recursive structure of digital straight lines, i.e. Sturmian words, may be used in order to write efficient algorithms for the detection of meaningful digital straight segments on the boundary of a digital shape.

On a second time, we will focus on the case of digital planes in dimension three. Recent works have described a recursive structure for digital planes but its practical use is still challenging.

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