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PATTERN SYNTHESIS

Lecture Notes in Pattern Theory

Springer-Verlag, Berlin, Heidelberg, New York, 1976.

In volume 1 of the work "Pattern Synthesis" it is presented a mathematical study of regular structures. The object of the study is the patterns themselves in terms of a precise formalism which will serve as the conceptual basis for synthesizing and analyzing patterns.

The theory starts from the following four principles:

— the patterns are atomistic, namely they are formed from simple building blocks (atoms);

— the patterns have a combinatory structure according to some laws in regular structures;

— regular structures resulted from the combination of building blocks are abstract constructions. They depend on the observational set-up to what extent the regular configurations can be identified by the observer.

The theory is realistic so that it can deal with real patterns. In other words, we must consider how the pure patterns are transformed into actual ones by some deformation mechanism. In the work, the mathematical analysis of patterns is combined with computational experiments, and the elements of mathematical formalism used by the author are illustrated by figures which to allow a better understanding of the study.

The book is of great interest for the specialists in the fields of patterns analysis and synthesis, pattern recognition, for specialists in applied mathematics and computing technique.

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