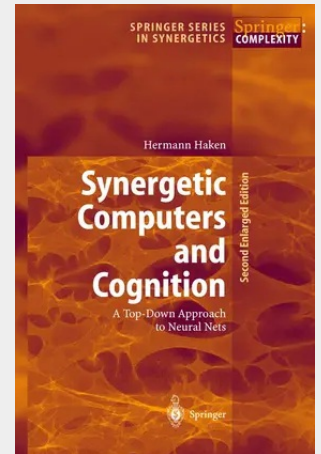


Synergetic Computers and Cognition

A Top-Down Approach to Neural Nets

The first edition of this book has found great interest among scientists and engineers dealing with pattern recognition and among psychologists working on psychophysics or Gestalt psychology. This book also proved highly useful for graduate students of informatics. The concept of the synergetic computer offers an important alternative to the by now more traditional neural nets. I just mention a few advantages: There are no ghost states so that time-consuming methods such as simulated annealing can be avoided; the synaptic strengths are explicitly determined by the prototype patterns to be stored, but they can equally well be learned, and the learning procedure allows a classification. Also a precise meaning and function can be attributed to "hidden variables". The synergetic computer has found a number of important practical applications in industry. I use the opportunity of this second edition to include a new section on transformation properties of the equations of the synergetic computer and on the invariance properties of its order parameter equations. A new section is devoted to the problem of stereopsis that is dealt with by the basic concept of the synergetic computer. Finally, attention is paid to a recent development, namely to the use of pulse-coupled neural nets for pattern recognition.

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