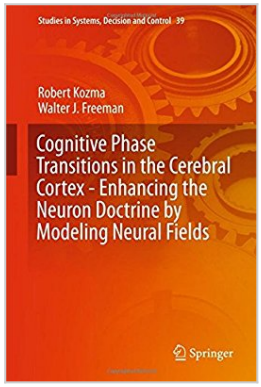

Cognitive Phase Transitions in the Cerebral Cortex - Enhancing the Neuron Doctrine by Modeling Neural Fields (Studies in Systems, Decision and Control)

By Robert Kozma, Walter J. Freeman

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This intriguing book was born out of the many discussions the authors had in the past 10 years about the role of scale-free structure and dynamics in producing intelligent behavior in brains.
The microscopic dynamics of neural networks is well described by the prevailing paradigm based in a narrow interpretation of the neuron doctrine. This book broadens the doctrine by incorporating the dynamics of neural fields, as first revealed by modeling with differential equations (K-sets). The book broadens that approach by application of random graph theory (neuropercolation). The book concludes with diverse commentaries that exemplify the wide range of mathematical/conceptual approaches to neural fields.
This book is intended for researchers, postdocs, and graduate students, who see the limitations of network theory and seek a beachhead from which to embark on mesoscopic and macroscopic neurodynamics.

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Editorial Review

From the Back Cover

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