

Conscious Mind, Resonant Brain

How Each Brain Makes a Mind

by Stephen Grossberg, Oxford University Press, 800 pages, \$35

The Magnum Opus of the most important pioneer and current contributor to neural network research

Overview

- Explores how your mind works, notably how you learn to consciously see, hear, feel, and know things
- Explains how mental disorders can be mechanistically understood on a continuum with normal behaviors
- Creates a computational foundation for the next generation of autonomous, adaptive, and intelligent algorithms, devices, and mobile agents in engineering, technology, and AI

Advance Reviews

"Whenever you claim to be "the first to do" this or that in artificial intelligence, it is customary - and correct - to add "with the exception of Stephen Grossberg". Quite simply, Stephen is a living giant and foundational architect of the field."

-- Karl J. Friston, University College London

"This is a breath-taking book authored by a giant pioneer of the brain and mind."

-- Shun-Ichi Amari, RIKEN Brain Science Institute

"Professor Grossberg is a rara avis. In an age of increasing specialization, he has a remarkable, unparalleled, gift of seeing connections between seemingly unrelated ideas. And he writes about these with passion, but without compromising accuracy."

-- V. S. Ramachandran, University of California San Diego

"Stephen Grossberg is a true genius, who has discovered and developed many of the most important concepts and theories about how our brains make our minds. His fundamental contributions to science for over 50 years are richly worthy of a Nobel Prize."

-- Leonid Perlovsky, Harvard University

"Stephen Grossberg is a "big picture" thinker who has had a remarkably deep influence on many aspects of several fields. It's difficult to overstate the range of his vision and the depth of his thinking, and I expect this book to be required reading in many courses for years to come."

-- Stephen Kosslyn, Foundry College

"Although a behavioral modeler and not a neuroscientist, I have followed Stephen Grossberg's research closely for many years, because I regard him as one of the very most creative and insightful neuroscience theorists that the field has seen. His book should be a must read for those wanting to understand how the brain produces mind."

-- Richard Shiffrin, Indiana University

"After reading many papers by the author, I always wished that he would present them in a coherent whole. And here it is. A magnificent volume of great science from mind to brain and back, a condensed ars poetica of a great scientist."

-- György Buzsáki, New York University

"The current volume charts the remarkable developments that have led Dr. Grossberg to a principled, unified theory of the link between brain and mind. Dr. Grossberg's insights are unparalleled in their breadth and detail, leading us to a scientific understanding of the most remarkable aspect of the mind, consciousness."

-- Michael Mozer, Google Brain, Mountain View, CA

"How often do we have the chance to hold a true masterpiece? Grossberg's monumental accomplishments developed over multiple decades now written at an accessible level to a broader audience. What a true privilege!"

-- Luis Pessoa, University of Maryland

"This book is not for the faint of heart. Stephen Grossberg has been a giant in the field of computational neuroscience for 60 years. In this book he presents his carefully developed, integrative neurobiological theory on how the nervous system generates our conscious lives. It is bold yet self-reflective and therein challenging to all students trying to figure out how the brain does its tricks. A must read."

-- Michael Gazzaniga, University of California at Santa Barbara

"Conscious Mind, Resonant Brain is the *magnum opus* of one of the giants of neural networks. The soaring ambition of this book reflects the career achievements of Grossberg's insatiable appetite for understanding how brains work. It is a must-read for those interested in all aspects of how the mind and brain function in health and disease."

-- Donald C. Wunsch II, Missouri University of Science and Technology

"Grossberg has single-handedly elevated the psychophysics and psychology pioneered by Herman von Helmholtz and William James into a comprehensive mathematical theory of brain and behavior with profound implications and strong empirical support."

-- David Hestenes, Arizona State University

"This comprehensive overview of Grossberg's contributions to our understanding of the mind and brain shows exactly how prescient he, and his colleagues, have been. Whatever one's specific interest, from visual illusions to mental illness, this book provides a principled treatment of it. The principles flow from Grossberg's early framing of many of the questions that have come to define computational neuroscience – including his early understanding of the centrality of expectations. Kudos to him for pulling it all together here."

-- Lynn Nadel, University of Arizona

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