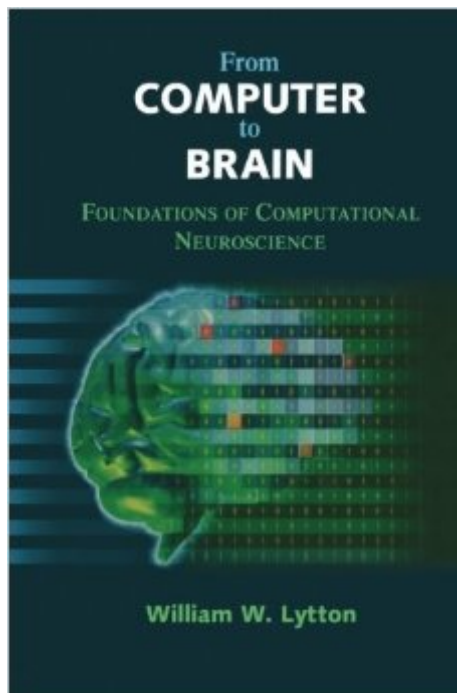# From Computer To Brain: Foundations Of Computational Neuroscience

## Synopsis

Biology undergraduates, medical students and life-science graduate students often have limited mathematical skills. Similarly, physics, math and engineering students have little patience for the detailed facts that make up much of biological knowledge. Teaching computational neuroscience as an integrated discipline requires that both groups be brought forward onto common ground. This book does this by making ancillary material available in an appendix and providing basic explanations without becoming bogged down in unnecessary details. The book will be suitable for undergraduates and beginning graduate students taking a computational neuroscience course and also to anyone with an interest in the uses of the computer in modeling the nervous system.

## Book Information

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## Customer Reviews

I really enjoyed reading this book - it reads easily, and it is often actually fun to read. That being said, this book was not entirely what I expected. I learned a lot about how computers operate, artificial neural networks, and how the abstract concepts of neural networks approximate (or fail to approximate) the biological reality. Other than simple linear algebra-based artificial neural network simulations, this book will not teach you how to do computational modeling of neurons or networks, but I don't think that a how-to-model manual was the author's intent. This book is a very accessible introduction to concepts in computational neuroscience that are difficult for novices to learn from other texts because computational neuroscience is typically formulated in the language of mathematics. In order to actually do some modeling of your own, you are still going to need to

develop the required skills in math and programming. Neuroscience is overwhelmingly full of facts, which you can very easily appreciate if you read a general neuroscience text like From Neuron to Brain. The great thing about this book is that it is primarily principle-based - it doesn't get lost in a myriad of facts. Each chapter seems to contain one solid theoretical principle or concept that can be used to understand the brain.

A clear and comprehensive introduction to computational neuroscience. The author, as an active researcher in the field, is highly qualified to be the guide for a beginner, as well as for an expert who would like to refresh and reorganize what they know. This book covers the biological and mathematical aspects of the body of knowledge that we have about the brain today. It covers the basic biology of neurons and their networks, the modeling of their biophysics, how they process information, how they learn and remember, and how neural activity relates to the wider field of computing. The reader will be accompanied throughout the book by the author's erudition as well as a good sense of humor.

Very good book for beginners. Simple and direct to the point. Gives good explanation for people coming from the biologics or computer sciences. Has an reference area on the end of the book for topics like calculus and other import concepts.I really recommend it.

From Computer to Brain: Foundations of Computational Neuroscience Graphical Models: Foundations of Neural Computation (Computational Neuroscience) Computational Explorations in Cognitive Neuroscience: Understanding the Mind by Simulating the Brain Visual Population Codes: Toward a Common Multivariate Framework for Cell Recording and Functional Imaging (Computational Neuroscience Series) Fundamentals of Computational Neuroscience Foundations of Behavioral Neuroscience (9th Edition) Buddha's Brain: The Practical Neuroscience of Happiness, Love, and Wisdom Buddha's Brain: The Practical Neuroscience of Happiness, Love & Wisdom Neuroscience: Exploring the Brain, 3rd Edition Neuroscience: Exploring the Brain Deep Sleep: Brain Wave Subliminal (Brain Sync Series) (Brain Sync Audios) Biomimetic Neural Learning for Intelligent Robots: Intelligent Systems, Cognitive Robotics, and Neuroscience (Lecture Notes in Computer Science) Algorithms on Strings, Trees and Sequences: Computer Science and Computational Biology Verification of Computer Codes in Computational Science and Engineering The Computational Beauty of Nature: Computer Explorations of Fractals, Chaos, Complex Systems, and Adaptation Introduction to Computational Social Science: Principles and Applications (Texts in

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