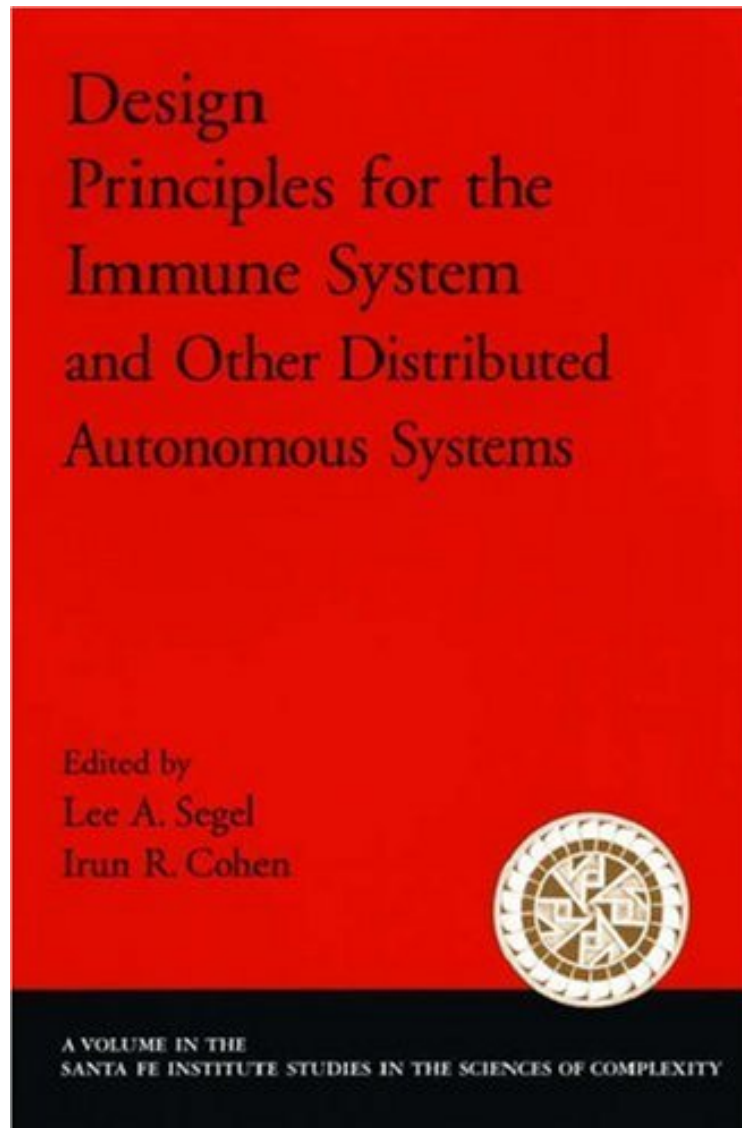


[Download] Design Principles for the Immune System and Other Distributed Autonomous Systems (Santa Fe Institute Studies on the Sciences of Complexity)

## Design Principles for the Immune System and Other Distributed Autonomous Systems (Santa Fe Institute Studies on the Sciences of Complexity)

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From Oxford University Press : Design Principles for the Immune System and Other Distributed Autonomous Systems (Santa Fe Institute Studies on the Sciences of Complexity) before purchasing it in order to gage whether or not it would be worth my time, and all praised Design Principles for the Immune System and Other Distributed

Autonomous Systems (Santa Fe Institute Studies on the Sciences of Complexity):

9 of 9 people found the following review helpful. Agent-based modeling in medicine By Scott Design Principles was written by a collection of authors specializing in diverse fields from computer scientists, theoretical biologist, pathologist, chemists and neurologists. The book began as a workshop held at the Sante Fe Institute in 1999 by the same name. While it is not a collection of abstracts and papers from this workshop, it did serve as the motivating factor to write the book. Design Principles starts with a description of the immune system that serves as a basic introduction both to the topic and to the biases of the multiple authors. Steven Hofmeyr offers a "gentle introduction to the immune system for researchers who do not have much background in immunology." (p.3) The chapter is titled "Introduction to the Immune System". Right off the biases of the book are exposed as Hofmeyr has a Ph.D. in computer sciences with a focus on information detection and distribution. Hofmeyr does an excellent job describing very complex biology without assuming that the reader has a background in either immunology or systems. While the author is gentle in his presentation the chapter is very dense with information which one hopes will be reiterated as one needs the information further in the book. Overall, I would recommend this book to anyone who is interested in pursuing agent based modeling of biological systems. This book would be particularly interesting to those pursuing interests in modeling the process of immunity. My final criticism would be that the title is a bit misleading as I would suggest that the book only gives limited mention and thought to other types of autonomous systems with the exception of Bonabeau's description of control mechanisms learned from social insects and Gordon's chapter titled, "Task Allocation in Ant Colonies."

Design Principles for the Immune System and Other Distributed Autonomous Systems is the first book to examine the inner workings of such a variety of distributed autonomous systems--from insect colonies to high level computer programs to the immune system. It offers insight into the fascinating world of these systems that emerge from the interactions of seemingly autonomous components and brings us up-to-date on the state of research in these areas. Using the immune system and certain aspects of its functions as a primary model, this book examines many of the most interesting and troubling questions posed by complex systems. How do systems choose the right set of agents to perform appropriate actions with appropriate intensities at appropriate times? How in the immune system, ant colonies and metabolic networks does the diffusion and binding of a large variety of chemicals to their receptors permit coordination of system action? What advantages drive the various systems to complexity, and by what mechanisms do the systems cope with the tendency toward unwieldiness and randomness of large complex systems?

"Though the immune system is most thoroughly discussed, the contributors--biological, physical, and computer scientists from around the world--also consider metabolism and ant colonies as other examples of complex, distributed, autonomous systems, and suggest how research findings about biological systems can be applied to computer science."--SciTech Book News About the Author Irun Cohen and Lee A. Segel are both at Weizmann Institute, Israel.