



entropy



*Special Issue Reprint*

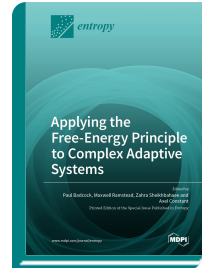
## Applying the Free-Energy Principle to Complex Adaptive Systems

[www.mdpi.com/books/reprint/5884](http://www.mdpi.com/books/reprint/5884)

Edited by  
Paul Badcock  
Maxwell Ramstead  
Zahra Sheikhabaee  
Axel Constant

ISBN 978-3-0365-4773-2 (Hardback)

ISBN 978-3-0365-4774-9 (PDF)



The free energy principle is a mathematical theory of the behaviour of self-organising systems that originally gained prominence as a unified model of the brain. Since then, the theory has been applied to a plethora of biological phenomena, extending from single-celled and multicellular organisms through to niche construction and human culture, and even the emergence of life itself. The free energy principle tells us that perception and action operate synergistically to minimize an organism's exposure to surprising biological states, which are more likely to lead to decay. A key corollary of this hypothesis is active inference—the idea that all behavior involves the selective sampling of sensory data so that we experience what we expect to (in order to avoid surprises). Simply put, we act upon the world to fulfill our expectations. It is now widely recognized that the implications of the free energy principle for our understanding of the human mind and behavior are far-reaching and profound. To date, however, its capacity to extend beyond our brain—to more generally explain living and other complex adaptive systems—has only just begun to be explored. The aim of this collection is to showcase the breadth of the free energy principle as a unified theory of complex adaptive systems—conscious, social, living, or not.



Order Your Print Copy  
You can order print copies at  
[www.mdpi.com/books/reprint/5884](http://www.mdpi.com/books/reprint/5884)

MDPI Books offers quality open access book publishing to promote the exchange of ideas and knowledge in a globalized world. MDPI Books encompasses all the benefits of open access – high availability and visibility, as well as wide and rapid dissemination. With MDPI Books, you can complement the digital version of your work with a high quality printed counterpart.



## Open Access

Your scholarly work is accessible worldwide without any restrictions. All authors retain the copyright for their work distributed under the terms of the Creative Commons Attribution License.



## Author Focus

Authors and editors profit from MDPI's over two decades of experience in open access publishing, our customized personal support throughout the entire publication process, and competitive processing charges as well as unique contributor discounts on book purchases.



## High Quality & Rapid Publication

MDPI ensures a thorough review for all published items and provides a fast publication procedure. State-of-the-art research and time-sensitive topics are released with a minimum amount of delay.



## High Visibility

Due to our global network and well-known channel partners, we ensure maximum visibility and broad dissemination. Title information of books is sent to international indexing databases and archives, such as the Directory of Open Access Books (DOAB), and the Verzeichnis Lieferbarer Bücher (VLB).



## Print on Demand and Multiple Formats

MDPI Books are available for purchase and to read online at any time. Our print-on-demand service offers a sustainable, cost-effective and fast way to publish MDPI Books printed versions.