1. Record Nr. UNINA9910299843503321

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Titolo	Information Adaptation: The Interplay Between Shannon Information and Semantic Information in Cognition / / by Hermann Haken, Juval Portugali
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-11170-1
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (96 p.)
Collana	Understanding Complex Systems, , 2191-5326
Disciplina	006.3 620 621
Soggetti	Computational complexity Sociophysics Econophysics Computational intelligence Statistical physics Complexity Data-driven Science, Modeling and Theory Building Computational Intelligence Applications of Nonlinear Dynamics and Chaos Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Shannonian versus semantic information and cognition -- Information versus data -- The empirical basis of information adaptation -- A complexity theory approach to information -- On synergetic computers and other machines -- Pattern recognition as a paradigm of information adaptation -- From general principles of information adaptation to concrete specific models -- Some further applications and discussions of information adaptation.
Sommario/riassunto	This monograph demonstrates the interplay between Shannon information and semantic information in cognition. It shows that Shannon’s information acts as driving force for the formation of

semantic information; and vice versa, namely, that semantic information participates in the formation of Shannonian information. The authors show that in cognition, Shannonian and semantic information are interrelated as two aspects of a cognitive process termed as information adaptation. In the latter the mind/brain adapts to the environment by the deflating and/or inflating of the information conveyed by the environment. In the process of information adaptation, quantitative variations in Shannon’s information entail different meanings while different meanings affect the quantity of information. The book illustrates the above conceptually and mathematically by reference to three cognitive processes: pattern recognition, face learning and the recognition of a moving object.