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Alfons Josef Schuster

Editor

Understanding Information

From the Big Bang to Big Data



Springer

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To all informational agents – existing in all possible worlds.

Preface

There is an agreement across various domains about the impact of “information” on our modern-day life. Terms such as information, revolution or information society express this realization succinctly.

Simplistically, we may say that we are all involved in a kind of transition or race, in which a postindustrial society passes on its baton to information society. Although there is no single definition for concepts such as information society, it is possible to consider information society as a society where the state of well-being and advancement (on an individual as well as on a collective level) seems to depend on the efficient management of the so-called “life cycle” of information.

Essentially, the life cycle of information considers information as a product and involves fundamental information processes such as the acquisition of information and its storage, manipulation, retrieval, dissemination, or usage.

The relationship between information society and these fundamental information processes is extremely rich and versatile. For instance, the question of how information is generated could be divided into dimensions: material, biological, and mental. The material dimension may consider the processes that are responsible for the existence of our universe, while the biological and the mental dimensions may contemplate the production of biological systems and organisms or the processes of human creativity facilitated by a brain.

The motivation of this edited book is to understand the subject of information from a variety of perspectives. In order to generate this understanding, this book includes contributions ranging from cosmology, quantum physics, biology, neuroscience, computer science, and artificial intelligence to the Internet, big data, information society, and philosophy. Although each chapter provides its own domain-specific treatment of information, this edited book aims to synthesize these individual contributions, in order to generate an understanding that goes beyond the intuitive and often too casual conceptions that exist about one of the most important concepts of modern society and frontier science.

Tokyo, Japan
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Alfons Josef Schuster

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