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Paradigms of Artificial Intelligence.
A Methodological & Computational Analysis

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The artificial intelligence theory and methods, formally existing since the middle of the fifties, are rather marked by certain bipolarity between two fundamental approaches to the topic. Namely, there exists a formally symbolic approach oriented to mathematics and mathematical logic, and, on the other hand, rather psychologically oriented approach aiming to the models of brain functions, neural models and other similar concepts. The confrontation of these two paradigms characterizes the development of the artificial intelligence models for a long time.

The referred book was written, especially, to analyze both paradigms and to determine their role in the development of AI. The basic motivation for writing it was to suggest criteria which are to be fulfilled by any effective method for building AI systems, and also by any successful theory for understanding cognition. This aim is connected with the importance which the author attaches to the human factor in the artificial intelligence models. Especially, with the limitations of the human subject to understand a theory or a number of design steps which lead to rather instrumental criterion for the evaluation of paradigms. The human subject's capabilities and limitations inspire the development of more advanced and more suitable frameworks in the cognitive sciences and AI.

The book is formally divided into three main parts where the first one of them is oriented to the basic concepts, main trends and particular models respecting the symbolic paradigm. Similarly, the second part is focused to the methods and background of the models oriented to the connectionistic paradigm. Finally, in the third part the author presents the methodological analysis of both above approaches, he studies different levels of description, computational limits, knowledge types and other aspects of their comparison. The book is completed by the Authors Index, Subject Index, and, especially, by a rich (348 items) Bibliography.

The book is written in a well readable style which successfully combines the necessary exactness and respect to the intuitive clearness of the explanation. The overview of AI methods and approaches summarized in it is representative and well illustrates the state of research in the relevant branches. The book should be useful for researchers, students and (skilled) observers of AI, and its presentation of the topic is fully adequate to this purpose. The field of AI develops rapidly and it is useful to have a book which shows and discusses the trends and methodological rules of the development.

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