Computer simulation in brain science

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brain science

Edited by

RODNEY M. J. COTTERILL

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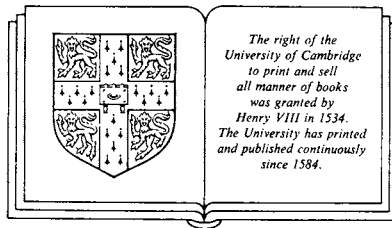Frontmatter/Prelims
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PREFACE

There has recently been a marked increase in research activity regarding the structural and function of the brain. Much of this has been generated by the more general advances in biology, particularly at the molecular and microscopic levels, but it is probably fair to say that the stimulation has been due at least as much to recent advances in computer simulation. To accept this view does not mean that one is equating the brain to an electronic computer, of course; far from it, those involved in brain research have long since come to appreciate the considerable differences between the cerebral cortex and traditional computational hardware. But the computer is nevertheless a useful device in brain science, because it permits one to simulate processes which are difficult to monitor experimentally, and perhaps impossible to handle by theoretical analysis.

The articles in this book are written records of talks presented at a meeting held at the Gentofte Hotel, Copenhagen, during the three days August 20–22, 1986. They have been arranged in an order that places more general aspects of the subject towards the beginning, preceding those applications to specific facets of brain science which make up the balance of the book. The final chapters are devoted to a number of ramifications, including the design of experiments, communication and control.

The meeting could not have been held without the financial support generously donated by the Augustinus Foundation, the Carlsberg Foundation, the Mads Clausen (Danfoss) Foundation, the Danish Natural Science Research Council, the Hartmann Foundation, IBM, the Otto Mønsted Foundation, NORDITA, the NOVO Foundation, and SAS. It is a pleasure to thank these philanthropic bodies, on behalf of all those involved in the enterprise.

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Rodney Cotterill