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PREFACE

This volume includes papers presented at the Fifth Annual Computational Neuroscience meeting (CNS*96) held in Boston, Massachusetts, July 14 - 17, 1996. This collection includes 148 of the 234 papers presented at the meeting. Acceptance for meeting presentation was based on the peer review of preliminary papers originally submitted in May of 1996. The papers in this volume represent final versions of this work submitted in January of 1997.

As represented by this volume, computational neuroscience continues to expand in quality, size and breadth of focus as increasing numbers of neuroscientists are taking a computational approach to understanding nervous system function. Defining computational neuroscience as the exploration of how brains compute, it is clear that there is almost no subject or area of modern neuroscience research that is not appropriate for computational studies. The CNS meetings as well as this volume reflect this scope and diversity.

In order to emphasize the interrelated nature of computational neuroscience research, the papers in this volume are grouped into five different levels of investigation and analysis: subcellular, cellular, network, systems, and methodology. The papers found in each category represent research using a wide range of experimental preparations, analysis techniques, and technical approaches. In my view the focus of computational neuroscience on computational problems across numerous particular preparations and systems is one of the strengths of our field. As neuroscientific research as a whole continues to become more and more specialized, this breadth of interest and attention is not only refreshing, but I believe increasingly necessary. In this regard it is particularly encouraging to see the growing number of computational studies being conducted at the cellular and molecular levels. Perhaps nowhere else in neuroscience is the risk of getting lost in the trees and separated from overall brain function as great.

Of course, ultimately, any separation of brain studies into categories will be defeating. It is already clear, for example, that subcellular relationships can influence nervous system function even at the highest levels. Accordingly, it is easy to predict that computational studies initiated at one level of investigation will inevitably lead to other levels as well. Perhaps for this reason some of the most animated discussions at the CNS meeting each year involve cross-level analysis. The opportunity to interact with neurobiologists with such broad interests is one of the best features of the CNS meetings.

Jim Bower

REVIEWERS FOR CNS*96

The papers presented in this volume were first submitted in preliminary form in February of 1996. Each submitted paper was peer reviewed prior to its acceptance at the meeting under the supervision of the program committee. The meeting organizers are particularly thankful for the efforts of the reviewers in assuring acceptance of the highest quality papers.

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