
This volume collects the contributions presented at the “Working Conference on System Theory in Immunology”, held in Rome, May 1978. The aim of the Conference was to “bring together immunologists on one side and experts in system theory and applied mathematics on the other, in order to identify problems of common interest and to establish a network of joint effort toward their solution.”

The material is divided into five sections, along the scheme of the conference program. The articles in the first section deal with experimental and theoretical aspects of the mechanisms of antigenic stimulation of immunocompetent cells. The second section discusses the mechanism of cell interactions in the regulation of antibody production. Section 3 contains contributions on the problems of the evaluation of antibody affinity and of the maturation of the immune response. The last two sections are devoted to immunological modeling. In particular, biological aspects of Jernes’s network theory are examined in Section 5.

The methods of system theory for describing dynamic phenomena could indeed contribute to the understanding of basic immunologic facts. The book represents an attempt to base the interaction between mathematics and immunology on an extensive exchange of ideas. Unfortunately, such an attempt has not been repeated since. Indeed, theoretical immunology is developing in relative isolation from experimental immunology [see Immunology Today 4, 209 (1983)]. Most of the theoreticians, including contributors to these books, do not publish their ideas in the general biologic literature and their reports are not included in the programs of biologic conferences.

Since both laboratory research and theory have developed considerably since 1978, the book will be of use mainly to students and researchers interested in revisiting the definition of basic issues and methods.

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This book was prepared by the authors in conjunction with their development of a first-year graduate course on robot control and mechanical design at the Massachusetts Institute of Technology. According to the preface, the book is intended “to provide students and researchers with a sound scientific basis on the central aspects and concepts of robot manipulation.” It is the opinion of this reviewer that the authors succeeded admirably in meeting these objectives with respect to the mechanical aspects of robot manipulators.

The first four chapters of the book cover the basic mechanical concepts of robot manipulators such as direct and inverse kinematics, differential motions and force transformations, which allow the analysis of static or slowly moving manipulators. The fifth chapter presents methods for dynamic analysis of manipulators. Although much of this material has appeared in other books, most notably Paul [1], the treatment here is exceptionally clear and understandable. The final two chapters on trajectory control and compliant motion control discuss topics which have previously only been presented at technical conferences and in scientific and engineering journals. Again, the authors do a good job of synthesizing the information, indicating what is currently known, and where more research is needed.
While this book is excellent within its scope, it must be realized that it treats only one area of robotics, namely mechanical analysis. Other equally significant areas in robotics include sensory systems, computer interfacing and control, programming languages, simulation and economics. Overviews of these topics can be found in the books by Snyder [2] and Engelberger [3]. Also, it must be realized that the book is intended for mechanical engineering graduate students. The reader who is not competent in basic mechanics will find the book rough going. Readers in this latter category are referred to the other books cited in this review for a more introductory treatment of the topic. Overall the book is well written, and a contribution to its field.


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This book is excellent not only in introducing the reader to image analysis and mathematical morphology but also as a comprehensive treatment of the subject. The author merges the current theories in mathematical morphology with their implementation via digital means, and gives several applications in diverse fields of interest. Mathematical morphology considers the geometry of objects, such as measuring certain features of the objects, their sizes, texture, orientation, clustering, etc. Moving from the theoretical aspects to experimentation will most likely involve digitizing of images of the object; hence image analysis. Some of the applications cited by the author include the study of milling of rocks, the histology of the brain, cloud movements, estimation of mineral orebodies and computer reading of handwriting. Because of the merging of theory and practice, the book should appeal to a wide audience. Dependent upon the reader, who may be interested in the theoretical aspects (mathematician, statistician), in image analysis, and/or in the applications, the author offers a plan on how to read the book.

As stated in the preface, 40% of the material in the book has not been published before, 40% comes from works of an initial core team of researchers, and the rest from other sources. The material is divided into four parts. Part 1 develops the mathematical tools necessary. While somewhat mathematical, the author provides many helpful examples to illustrate the concepts. Part 2 discusses digital morphology and connects this with the Euclidean morphology previously discussed. Also included is a section addressing the problem of sampling. Part 3 examines specific criteria, including covariance, size, connectivity and grey-tones. Part 4 concludes the book with a discussion of random models.

As an applied statistician studying biological point processes and their geometric properties, I have found the book to be of great benefit. It is a readable book containing both theory and its implementation, which unfortunately, is often rare.

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AIC is an annual conference in Chicago IL., featuring plenary sessions presented by outstanding Immunologists as well as offering a forum for students and trainees to present their latest findings in both workshop and poster formats. Join us for the 49th Annual Meeting of the Autumn Immunology Conference. Founded in 1972, our annual meeting features plenary sessions presented by outstanding Immunologists as well as offering a forum for students and trainees to present their latest findings in both workshop and poster formats. Students & post-docs. A trainee-focused conference uniquely formatted to help undergraduate and graduate students learn about immunology and immunology-related career opportunities. Why Attend? Principal investigators. also held our first joint symposium with the Chinese Society for Immunology in Shanghai and look forward to building further collaborations with our Chinese counterparts. In addition to these major events, our calendar of specialist and regional meetings was busier than ever. The strengths of the Regional Group meetings are to bring together immunologists without the need to travel great distances, saving both money and time, and strengthening local research networks. The UK is a world leader in immunology research and we are now witnessing how decades of investment and research into immunity are yielding breakthroughs in the treatment of critical disease areas such as infection, cancer, autoimmunity and allergy. The aim of the Conference was to bring together immunologists on one side and experts in system theory and applied mathematics on the other, in order to identify problems of common interest and to establish a network of joint effort toward their solution. The methodologies of system theory for processing experimental data and for describing dynamical phenomena could indeed contribute significantly to the understanding of basic immunological facts. Conversely, the complexity of experimental results and of interpretative models should stimulate mathematicians to formulate new problems and to d