

PREFACE IN ENZYMOLOGY

The use of computers and computational methods has become ubiquitous in biological and biomedical research. This has been driven by numerous factors, a few of which follow: One primary reason is the emphasis being placed on computers and computational methods within the National Institutes of Health (NIH) roadmap; another factor is the increased level of mathematical and computational sophistication among researchers, particularly among junior scientists, students, journal reviewers, and NIH study section members; and another is the rapid advances in computer hardware and software, which make these methods far more accessible to the rank-and-file research community.

A general perception exists that the only applications of computers and computer methods in biological and biomedical research are either basic statistical analysis or the searching of DNA sequence data bases. While these are important applications, they only scratch the surface of the current and potential applications of computers and computer methods in biomedical research. The various chapters within this volume include a wide variety of applications that extend this limited perception.

The training of the majority of senior M.D.'s and Ph.D.'s in clinical or basic disciplines at academic medical centers rarely includes advanced coursework in mathematics, numerical analysis, statistics, or computer science. Generally, their hardware and software are maintained by a hospital staff that installs all hardware and software and even restricts what is available on their computers. Therefore, a critical aspect of this volume is information and methodology transfer to this target audience. This specific audience is indifferent as to whether the hardware and software are modern, object-oriented, portable, reusable, use the latest markup language, interchangeable, or easily maintained. These users are only interested in analyzing their data. The chapters within this volume have been written in order to be accessible to this target audience.

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Michael L. Johnson and Ludwig Brand

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