

PREFACE

Because of rapid developments in computer technology and computational techniques, advances in a wide spectrum of technologies, and other advances coupled with cross-disciplinary pursuits between technology and its applications to human body processes, the field of biomechanics continues to evolve. Many areas of significant progress can be noted. These include dynamics of musculoskeletal systems, mechanics of hard and soft tissues, mechanics of bone remodeling, mechanics of implant-tissue interfaces, cardiovascular and respiratory biomechanics, mechanics of blood and air flow, flow-prosthesis interfaces, mechanics of impact, dynamics of man-machine interaction, and many more. This is the first of a set of four volumes and it treats the area of Computational Methods in biomechanics.

The four volumes constitute an integrated set. The titles for each of the volumes are:

- Biomechanical Systems Technology: Computational Methods
- Biomechanical Systems Technology: Cardiovascular Systems
- Biomechanical Systems Technology: Muscular Skeletal Systems
- Biomechanical Systems Technology: General Anatomy

Collectively they constitute an MRW (Major Reference Work). An MRW is a comprehensive treatment of a subject area requiring multiple authors and a number of distinctly titled and well integrated volumes. Each volume treats a specific but broad subject area of fundamental importance to biomechanical systems technology.

Each volume is self-contained and stands alone for those interested in a specific volume. However, collectively, this 4-volume set evidently constitutes the first comprehensive major reference work dedicated to the multi-discipline area of biomechanical systems technology.

There are over 120 coauthors from 18 countries of this notable MRW. The chapters are clearly written, self contained, readable and comprehensive with helpful guides including introduction, summary, extensive figures and examples with comprehensive reference lists. Perhaps the most valuable feature of this work is the breadth and depth of the topics covered by leading contributors on the international scene.

The contributors of this volume clearly reveal the effectiveness of the techniques available and the essential role that they will play in the future. I hope that practitioners, research workers, computer scientists, and students will find this set of volumes to be a unique and significant reference source for years to come.