



Dynamic Modeling of Musculoskeletal Motion: A Vectorized Approach for Biomechanical Analysis in Three Dimensions

By Gary T. Yamaguchi

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Dynamic Modeling of Musculoskeletal Motion introduces biomechanists to modern methods of modeling and analyzing dynamic biomechanical systems in three dimensions. Using vector kinematics, the reader is taught a systematic method which significantly reduces the complexity of working with multiple, moving limb segments in three dimensions. Operations which usually require the application of differential calculus are replaced by simple algebraic formulae. To derive dynamical equations of motion, a practical introduction to Kane's Method is given.

Kane's Method builds upon the foundation of vector kinematics and represents one of the most exciting theoretical developments of the modern era. Together, these techniques enable biomechanists to decipher and model living systems with great realism, efficiency and accuracy. Interwoven with the theoretical presentation are chapters and examples which highlight the subtle differences between inanimate linkages and the biomechanical systems we seek to understand.

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Editorial Review

Review

'In conclusion, Dynamic modeling of "musculoskeletal modeling" by Gary Yamaguchi is an excellent book for those of us who want to take up (or teach) 3-D musculoskeletal modeling. The book is especially suited as a reference, for obtaining a comprehensive overview, or as material for graduate courses in the area of 3-D modeling. It is well worth having.'

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