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Nota di contenuto	RESEARCH DIRECTIONS IN COMPUTATIONAL MECHANICS -- Copyright -- ACKNOWLEDGMENTS -- FOREWORD -- Contents -- EXECUTIVE SUMMARY -- COMPUTATIONAL MECHANICS: THE SUBJECT -- MAJOR INDUSTRIES AND TECHNOLOGICAL AREAS AFFECTED BY COMPUTATIONAL MECHANICS -- Manufacturing: Computer Simulation of Materials, Processes, and Products -- Space Exploration and Military Defense -- Environmental Phenomena -- Fundamental Scientific Research -- SIGNIFICANCE OF COMPUTATIONAL MECHANICS TO NATIONAL INTERESTS -- The High-Performance Computing and Communications Initiative -- CONCLUDING REMARKS -- 1 ADAPTIVE METHODS AND ERROR ESTIMATION -- A POSTERIORI ERROR ESTIMATION -- Adaptive Methods -- 2 PROTOTYPE TEST SIMULATION -- FINITE ELEMENT METHODOLOGY -- NEW TECHNOLOGIES -- 3 PARALLEL COMPUTATION -- COMPUTATION AND SUPERCOMPUTERS -- THE FEDERAL HIGH-PERFORMANCE COMPUTING PROGRAM -- Research

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Sommario/riassunto

Computational mechanics is a scientific discipline that marries physics, computers, and mathematics to emulate natural physical phenomena. It is a technology that allows scientists to study and predict the performance of various products--important for research and

development in the industrialized world. This book describes current trends and future research directions in computational mechanics in areas where gaps exist in current knowledge and where major advances are crucial to continued technological developments in the United States.
