
The Boundary Element Method for Engineers and Scientists: Theory and Applications is a detailed introduction to the principles and use of boundary element method (BEM), enabling this versatile and powerful computational tool to be employed for engineering analysis and design. In this book, Dr. Katsikadelis presents the underlying principles and explains how the BEM equations are formed and numerically solved using only the mathematics and mechanics to which readers will have been exposed during undergraduate studies. All concepts are illustrated with worked examples and detailed discussion of practical applications. This second edition features three new chapters, including coverage of the dual reciprocity method (DRM) and analog equation method (AEM), with their application to complicated problems, including time dependent and nonlinear problems, as well as problems described by fractional differential equations. The book is also an excellent reference and textbook for the development of cavity expansion theory and its applications in solid and soil mechanics. This book is a comprehensive resource for engineers and researchers in the fields of geomechanics, geotechnical engineering, and environmental engineering. It is designed to be a valuable tool for those interested in the latest developments in the field, as well as for those looking to deepen their understanding of the fundamental principles of the subject. The book covers a wide range of topics and applications, from laboratory experiments to real-world case studies, providing readers with a comprehensive understanding of the subject. It is suitable for use as a textbook in undergraduate and graduate courses in geomechanics, geotechnical engineering, environmental engineering, and related fields. It is also a valuable reference for professionals in the industry. The book is divided into several sections, each covering a specific aspect of the subject. These sections include: Boundary Element Method, Applications in Geomechanics, and Geotechnical Engineering, and Applications in Environmental Engineering. Each section is further divided into chapters, each covering specific topics within that section. The book is well-organized and easy to follow, with clear explanations and worked examples throughout. It is an excellent resource for both students and professionals in the field of geomechanics, geotechnical engineering, and environmental engineering.
renowned international researchers to provide an excellent survey of recent studies of nonlinear systems. The first section consists of eight chapters that focus on nonlinear dynamic modeling and analysis techniques, while the next section is composed of five chapters that center on state estimation methods and stability analysis for nonlinear systems.

Research and Applications in Structural Engineering. Mechanics and Mathematics contain the Proceedings of the First International Conference on Structural Engineering, Mechanics and Mathematics (SIEM'2013, Cape Town, South Africa, 2-4 September 2013). Over 420 papers are featured. Many topics are covered, but the contributions may be seen to fall into two main categories: peer-reviewed papers presented at the 1st International and Interdisciplinary Conference on Image and Imagery (IMG 2019), held in Alghero, Italy, in July 2019. Highlighting interdisciplinary and multi-disciplinary research concerning graphics science and education, the papers address theoretical research as well as applications, including education, in several fields of science, technology and art. "Mainly focusing on graphics for communication, visualization, description and storytelling, and for learning and thought construction, the book provides architects, engineers, computer scientists, and designers with the latest information in the field, particularly in the context of science, arts and education. Combining topics from numerous applications in biomechanics, Applied Biomedical Engineering Mechanics demonstrates how to analyze physiological processes from an engineering perspective and apply the results to the benefit of future medical care. The book extends its discussion to the investigation of diagnostic and surgical procedures. It also presents guidelines for prosthetics design and explains how to optimize performance in sports games such as soccer, baseball, and gymnastics. Using a problem-based format, the book explains how to formulate diagnostic and interventional procedures, based on the analysis of physiological and organ system-based processes, thus providing a valuable reference to practitioners. The practical applications presented in the book include numerous case studies and experiments, with a focus on the latest advances in neurosurgery, orthopedics, and plastic surgery. The book is an essential resource for students and professionals in the field of biomedical engineering."