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Nota di contenuto	Chapter 1. Metallic Orthopaedics history and challenges, and why designing -- Chapter 2 -- The basis of metallic strength and frailer theories -- Chapter 3. The bio-mechanical interaction principal -- Chapter 4. The design methodologies of the prosthesis using topology optimization -- Chapter 5. Medical challenges -- Chapter 6. Non-parametric optimization theories -- Chapter 7. Orthopaedics modelling -- Chapter 8. Case studies.
Sommario/riassunto	This book introduces a fundamental understanding of orthopedic design for both engineers and medical staff. It addresses the gap and mystery that often exists between these two fields and provides a common ground for understanding. The book covers various aspects of orthopedic design, including the anatomy and biomechanics of bones and joints, the materials used in orthopedic devices, and the testing and evaluation of orthopedic devices. It also introduces computer-aided design with additive manufacturing in a practical sense, including the principles of non-parametric optimization (topology and shape

optimization) in a scientific and practical way. The author provides dedicated examples and research studies to further clarify the concepts presented in the book and includes some of their own peer-reviewed papers to support the material. Additionally, it covers the practical applications of computer-aided design and additive manufacturing in orthopedic design, including the use of virtual prototyping, computer simulation, and 3D printing techniques. The book aims to provide a comprehensive guide to orthopedic design and the latest advancements in the field.