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Nota di contenuto	Wearable Robots; Contents; Foreword; Preface; List of Contributors; 1 Introduction to wearable robotics; 1.1 Wearable robots and exoskeletons; 1.1.1 Dual human-robot interaction in wearable robotics; 1.1.2 A historical note; 1.1.3 Exoskeletons: an instance of wearable robots; 1.2 The role of bioinspiration and biomechatronics in wearable robots; 1.2.1 Bioinspiration in the design of biomechatronic wearable robots; 1.2.2 Biomechatronic systems in close interaction with biological systems; 1.2.3 Biologically inspired design and optimization procedures 1.3 Technologies involved in robotic exoskeletons 1.4 A classification of wearable exoskeletons: application domains; 1.5 Scope of the book; References; 2 Basis for bioinspiration and biomimetism in wearable robots; 2.1 Introduction; 2.2 General principles in biological design; 2.2.1 Optimization of objective functions: energy consumption; 2.2.2 Multifunctionality and adaptability; 2.2.3 Evolution; 2.3 Development of biologically inspired designs; 2.3.1 Biological models; 2.3.2

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2.3.4 Sensorimotor mechanisms as a model 2.3.5 Biomechanics of human limbs as a model; 2.3.6 Recursive interaction: engineering models explain biological systems; 2.4 Levels of biological inspiration in engineering design; 2.4.1 Biomimetism: replication of observable behaviour and structures; 2.4.2 Bioimitation: replication of dynamics and control structures; 2.5 Case Study: limit-cycle biped walking robots to imitate human gait and to inspire the design of wearable exoskeletons; 2.5.1 Introduction; 2.5.2 Why is human walking efficient and stable?  
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3.5.1 Introduction

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## Sommario/riassunto

A wearable robot is a mechatronic system that is designed around the shape and function of the human body, with segments and joints corresponding to those of the person it is externally coupled with. Teleoperation and power amplification were the first applications, but after recent technological advances the range of application fields has widened. Increasing recognition from the scientific community means that this technology is now employed in telemanipulation, man-amplification, neuromotor control research and rehabilitation, and to assist with impaired human motor control. Logical in st

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