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Disciplina	629.8924019
Soggetti	Biomedical engineering Manufactures Control engineering Robotics Automation Occupational therapy Biomedical Engineering and Bioengineering Machines, Tools, Processes Control, Robotics, Automation Occupational Therapy
Lingua di pubblicazione	Inglese
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Note generali	"Doctoral thesis accepted by the University of Florence, Italy"--Title page.
Nota di contenuto	Introduction -- Mathematical background -- Optimization-based scaling procedure -- ABS hand exoskeleton prototypes: experimental results -- Aluminum hand exoskeleton prototype -- Conclusion.
Sommario/riassunto	This book describes the development of portable, wearable, and highly customizable hand exoskeletons to aid patients suffering from hand disabilities. It presents an original approach for the design of human hand motion assistance devices that relies on (i) an optimization-based kinematic scaling procedure, which guarantees a significant adaptability to the user’s hands motion, and (ii) a topology optimization-based design methodology, which allowed the design of a lightweight, comfortable device with a high level of performance. The book covers the whole process of hand exoskeleton development, from

establishing a new design strategy,to the construction and testing of hand exoskeleton prototypes, using additive manufacturing techniques. As such, it offers timely information to both researchers and engineers developing human motion assistance systems, especially wearable ones.