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Titolo	Adaptive structures [[electronic resource]] : engineering applications / / edited by David Wagg ... [et al.]
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Altri autori (Persone)	WaggDavid
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Soggetti	Smart structures Smart materials Structural control (Engineering) Aerospace engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Based on the 2006 Colston Research Society Symposium on Adaptive Structures, University of Bristol, July 10-12th 2006.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Adaptive Structures; Contents; List of Contributors; Preface; 1 Adaptive Structures for Structural Health Monitoring; 1.1 Introduction; 1.2 Structural Health Monitoring; 1.3 Impedance-Based Health Monitoring; 1.4 Local Computing; 1.5 Power Analysis; 1.6 Experimental Validation; 1.7 Harvesting, Storage and Power Management; 1.7.1 Thermal Electric Harvesting; 1.7.2 Vibration Harvesting with Piezoceramics; 1.8 Autonomous Self-healing; 1.9 The Way Forward: Autonomic Structural Systems for Threat Mitigation; 1.10 Summary; Acknowledgements; References; 2 Distributed Sensing for Active Control 2.1 Introduction2.2 Description of Experimental Test Bed; 2.3 Disturbance Estimation; 2.3.1 Principal Component Analysis; 2.3.2 Application of PCA: Case Studies; 2.3.3 Combining Active Control and PCA to Identify Secondary Disturbances; 2.4 Sensor Selection; 2.4.1 Model Estimation; 2.4.2 Optimal Sensor Strategy; 2.4.3 Experimental Demonstration; 2.5 Conclusions; Acknowledgments; References; 3

Global Vibration Control Through Local Feedback; 3.1 Introduction; 3.2 Centralised Control of Vibration; 3.3 Decentralised Control of Vibration 3.4 Control of Vibration on Structures with Distributed Excitation3.5 Local Control in the Inner Ear; 3.6 Conclusions; Acknowledgements; References; 4 Lightweight Shape-Adaptable Airfoils: A New Challenge for an Old Dream; 4.1 Introduction; 4.2 Otto Lilienthal and the Flying Machine as a Shape-Adaptable Structural System; 4.3 Sir George Cayley and the Task Separation Principle; 4.4 Being Lightweight: A Crucial Requirement; 4.5 Coupling Mechanism and Structure: Compliant Systems as the Basis of Lightweight Shape-Adaptable Systems; 4.5.1 The Science of Compliant Systems
4.5.2 Compliant Systems for Airfoil Shape Adaptation4.5.3 The Belt-Rib Airfoil Structure; 4.6 Extending Coupling to the Actuator System: Compliant Active Systems; 4.6.1 The Need for a Coupled Approach; 4.6.2 Solid-State Actuation for Solid-State Deformability; 4.6.3 Challenges and Trends of Structure-Actuator Integration; 4.7 A Powerful Distributed Actuator: Aerodynamics; 4.7.1 The Actuator Energy Balance; 4.7.2 Balancing Kinematics by Partially Recovering Energy from the Flow; 4.7.3 Active and Semi-Active Aeroelasticity; 4.8 The Common Denominator: Mechanical Coupling; 4.9 Concluding Remarks
AcknowledgementsReferences; 5 Adaptive Aeroelastic Structures; 5.1 Introduction; 5.2 Adaptive Internal Structures; 5.2.1 Moving Spars; 5.2.2 Rotating Spars; 5.3 Adaptive Stiffness Attachments; 5.4 Conclusions; 5.5 The Way Forward; Acknowledgements; References; 6 Adaptive Aerospace Structures with Smart Technologies - A Retrospective and Future View; 6.1 Introduction; 6.2 The Past Two Decades; 6.2.1 SHM; 6.2.2 Shape Control and Active Flow; 6.2.3 Damping of Vibration and Noise; 6.2.4 Smart Skins; 6.2.5 Systems; 6.3 Added Value to the System; 6.4 Potential for the Future
6.5 A Reflective Summary with Conclusions

Sommario/riassunto

Adaptive structures have the ability to adapt, evolve or change their properties or behaviour in response to the environment around them. The analysis and design of adaptive structures requires a highly multi-disciplinary approach which includes elements of structures, materials, dynamics, control, design and inspiration taken from biological systems. Development of adaptive structures has been taking place in a wide range of industrial applications, but is particularly advanced in the aerospace and space technology sector with morphing wings, deployable space structures; piezoelectric device

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Titolo	Brain-Computer Interface Research : A State-of-the-Art Summary 12 / / edited by Christoph Guger, Jose Azorin, Milena Korostenskaja, Brendan Allison
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Collana	SpringerBriefs in Electrical and Computer Engineering, , 2191-8120
Altri autori (Persone)	AzorinJose KorostenskajaMilena AllisonBrendan Z
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	Cervical Vagus Nerve Stimulation -- Toward an Optical BCI: Overcoming the Limitation of Low Sampling Rate for Decoding Limb Movements -- A Summary of the 2023 BCI Award with Discussion of BCI Trends.
Sommario/riassunto	This book showcases recent trends in brain-computer interface development. It highlights fascinating results in areas such as speech neuroprotheses, bionic hands, memory enhancement, and the development of optical BCIs . The contributions describe the three winning projects and other nominated brain-computer interface projects selected by the expert international jury of the BCI Award 2023. In the book, each project is described in detail by the team of scientists behind it, and the editors provide a concluding discussion of the highlights and overall progress in the field.