| 1. | Record Nr.              | UNINA9910819729903321  |
|----|-------------------------|--|
|    | Titolo                  | Robotics : state of the art and future challanges / / George Bekey [et al.]  |
|    | Pubbl/distr/stampa      | Hackensack, NJ, : World Scientific, c2008  |
|    | ISBN                    | 1-84816-007-0  |
|    | Edizione                | [1st ed.]  |
|    | Descrizione fisica      | 1 online resource (152 p.)   |
|    | Altri autori (Persone)  | BekeyGeorge A. <1928->   |
|    | Disciplina              | 629.892  |
|    | Soggetti                | Robotics   |
|    |                         | Robots   |
|    | Lingua di pubblicazione | Inglese  |
|    | Formato                 | Materiale a stampa   |
|    | Livello bibliografico   | Monografia   |
|    | Note generali           | Description based upon print version of record.  |
|    | Nota di bibliografia    | Includes bibliographical references and index.   |
|    | Nota di contenuto       | CONTENTS; 1. Introduction; 2. Robotic Vehicles; 2.1 Introduction; 2.1.1<br>What are robotic vehicles?; 2.1.2 Why are robotic vehicles important?;<br>2.1.3 How do robotic vehicles work? What are the key technologies for<br>mobility?; 2.2 Research Challenges; 2.2.1 Mechanisms and mobility;<br>2.2.2 Power and propulsion; 2.2.3 Computation and control; 2.2.4<br>Sensors and navigation; 2.3 International Survey; 2.3.1 Research on<br>robotic vehicles - the United States; 2.3.1.1 Military and defense<br>systems; 2.3.1.2 Space robotic vehicles; 2.3.1.3 Field robotics; 2.3.1.4<br>Undersea robotics<br>2.3.1.5 Search-and-rescue robotics2.3.2 Research on robotic vehicles -<br>Japan and South Korea; 2.3.2.1 Personal and service robotic vehicles;<br>2.3.2.2 Biomimetic mobility; 2.3.2.3 Undersea robotics; 2.3.3 Research<br>on robotic vehicles - Europe; 2.3.3.1 Navigation and architectures;<br>2.3.3.2 Transportation systems; 2.3.3.3 Personal and service robotics;<br>2.3.4 Undersea robotics; 2.4 Comparative Review of Programs; 2.5<br>Further Readings; 3. Space Robotics; 3.1 What is Space Robotics?; 3.2<br>Issues in Space Robotics<br>3.2.1 How are Space Robots created and used? What technology for<br>space robotics needs to be developed?3.3 International E.orts in Space<br>Robotics; 3.4 The State of the Art in Space Robotics; References; 4.<br>Humanoids; 4.1 Background; 4.2 Definitions of the Humanoid System.;<br>4.2.1 Form and function; 4.2.2 How are humanoids built?; 4.3 Current<br>Challenges in Humanoids; 4.3.1 Design, packaging, and power; 4.3.2 |

|                    | <ul> <li>Bipedal walking; 4.3.3 Wheeled lower bodies; 4.3.4 Dexterous limbs;</li> <li>4.3.5 Mobile manipulation; 4.3.6 Human-robot interaction; 4.4 Key</li> <li>Technologies; 4.5 Fundamental Research Challenges</li> <li>4.6 Regions Visited by the Assessment Team4.7 Observations,</li> <li>Applications, and Conclusions; 4.7.1 Quantitative observations; 4.7.2</li> <li>Qualitative observations; 4.7.3 Applications; 4.8 Conclusions;</li> <li>References; 5. Industrial, Personal, and Service Robots; 5.1</li> <li>Introduction; 5.2 Market Analysis and Trends; 5.3 State of the Art in</li> <li>Theory and Practice; 5.4 International Assessment; 5.4.1 United States;</li> <li>5.4.2 Europe; 5.4.3 Japan and Korea; 5.4.4 Australia; 5.5 International</li> <li>Comparisons; 5.5.1 Relative strengths; 5.5.2 Qualitative observations;</li> <li>5.6 Future Challenges; References</li> <li>6. Robotics for Biological and Medical Applications6.1 Background; 6.2</li> <li>Why Robots and Automation in Biology and Medicine; 6.2.1 Biological</li> <li>applications; 6.2.2 Medical applications; 6.2.3 Robotic tools, devices,</li> <li>and systems; 6.2.4 Key technologies; 6.2.5 Fundamental research</li> <li>challenges; 6.3 Regions Visited by the Assessment Team; 6.3.1 United</li> <li>States; 6.3.2 Japan and Korea; 6.3.3 Europe; 6.4 Quantitative and</li> <li>Qualitative Observations; 6.5 Conclusions; References; 7. Networked</li> <li>Robots; 7.1 Introduction; 7.2 Significance and Potential</li> <li>7.3 State of the Art in Theory and Practice</li> </ul> |
|--------------------|---|
| Sommario/riassunto | This book presents the results of an assessment of the state of robotics<br>in Japan, South Korea, Western Europe and Australia and a comparison<br>of robotics R&D programs in these countries with those in the United<br>States. The comparisons include areas like robotic vehicles, space<br>robotics, service robots, humanoid robots, networked robots, and<br>robots for biological and medical applications, and based on criteria<br>such as quality, scope, funding and commercialization. This important<br>study identifies a number of areas where the traditional lead of the<br>United States is being overtaken by developments  |