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| 1. Record Nr. | UNINA9910817624403321 |
| Autore | Jaulin Luc |
| Titolo | Automation for robotics / / Luc Jaulin |
| Pubbl/distr/stampa | London, England ; ; Hoboken, New Jersey : , : ISTE : , : Wiley, , 2015 ©2015 |
| ISBN | 1-119-08142-4 1-119-08132-7 1-119-08139-4 |
| Edizione | [1st edition] |
| Descrizione fisica | 1 online resource (258 p.) |
| Collana | Control, Systems and Industrial Engineering Series |
| Disciplina | 629.8 |
| Soggetti | Automatic control Robotics |
| 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 | Cover; Title Page; Copyright; Contents; Introduction; I.1. State representation; I.2. Exercises; I.3. Solutions; 1: Modeling; 1.1. Linear systems; 1.2. Mechanical systems; 1.3. Servomotors; 1.4. Exercises; 1.5. Solutions; 2: Simulation; 2.1. Concept of vector field; 2.2. Graphical representation; 2.2.1. Patterns; 2.2.2. Rotation matrix; 2.2.3. Homogeneous coordinates; 2.3. Simulation; 2.3.1. Euler's method; 2.3.2. Runge-Kutta method; 2.3.3. Taylor's method; 2.4. Exercises; 2.5. Solutions; 3: Linear Systems; 3.1. Stability; 3.2. Laplace transform; 3.2.1. Laplace variable 3.2.2. Transfer function3.2.3. Laplace transform; 3.2.4. Input-output relation; 3.3. Relationship between state and transfer representations; 3.4. Exercises; 3.5. Solutions; 4: Linear Control; 4.1. Controllability and observability; 4.2. State feedback control; 4.3. Output feedback control; 4.4. Summary; 4.5. Exercises; 4.6. Solutions; 5: Linearized Control; 5.1. Linearization; 5.1.1. Linearization of a function; 5.1.2. Linearization of a dynamic system; 5.1.3. Linearization around an operating point; 5.2. Stabilization of a nonlinear system; 5.3. Exercises; 5.4. Solutions; Bibliography Index |
| Sommario/riassunto | In order to enable a better understanding of the key concepts of |

automation, this book develops the fundamental aspects of the field while also proposing numerous concrete exercises and their solutions. The theoretical approach that it presents fundamentally uses the state space and makes it possible to process general and complex systems in a simple way, involving several switches and sensors of different types. This approach requires the use of developed theoretical tools such as linear algebra, analysis and physics, generally taught in preparatory classes for specialist engineering courses.
