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| Titolo                  | Contemporary trends in nonlinear geometric control theory and its applications [[electronic resource] /] / A. Anzaldo-Meneses ... [et al.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Descrizione fisica      | 1 online resource (496 p.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Altri autori (Persone)  | Anzaldo-MenesesA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| Soggetti                | Nonlinear control theory<br>Geometry, Differential<br>Exterior differential systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Note generali           | Description based upon print version of record.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Nota di bibliografia    | Includes bibliographical references and index.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Nota di contenuto       | Contents ; Foreword ; Part I Invited Survey Chapters ; Variational Problems on Lie Groups and their Homogeneous Spaces: Elastic Curves Tops and Constrained Geodesic Problems ; 1. Introduction ; 2. Space forms and their frame bundles ; 3. Hamiltonians and the extremal curves<br>Controllability of Lie Systems 1. Introduction ; 2. Control systems on Lie groups ; 3. Groups irrelevant for transitivity ; 4. Exploiting compactness and irrelevancy ; 5. Irrelevant groups and algebras ; 6. Irrelevant groups and algebras: the solvable case<br>7. Irrelevant groups and algebras: the semisimple case<br>Canonical Contact Systems for Curves: A Survey ; 1. Introduction ; 2. The canonical contact system for curves ; 3. History ; 4. Involutive subdistributions of corank one<br>5. Contact systems characteristic distributions and involutive subdistributions<br>6. Flatness of contact systems ; 7. An example ; 8. Singular points and extended Kumpere-Ruiz normal forms ; The Brachistochrone Problem and Modern Control Theory ; 1. Introduction |

2. Johann Bernoulli and the brachistochrone problem
3. The standard formulation and Johann Bernoulli's solution
- ; 4. Spurious solutions and the calculus of variations approach
- ; 5. The optimal control approach ; 6. The differential-geometric connection
7. Five modern variations on the theme of the brachistochrone

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Sommario/riassunto

Mathematical control theory has evolved from the study of practical problems in engineering and sciences to the elaboration of deep, important concepts in mathematics and applied sciences. This volume concerns contemporary trends in nonlinear geometric control theory and its applications. It is a fine collection of papers presenting new results, relevant open problems, and important applications regarding academic and real-world problems. The book is dedicated to Velimir Jurdjevic whose scientific activity has been influential in the research of many of the authors. It contains a number of a

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