1. Record Nr.   UNINA9910483948703321

   Autore   Hernandez-Guzman Victor Manuel

   Titolo   Energy-based control of electromechanical systems : a novel passivity-based approach / / Victor Manuel Hernandez-Guzman, Ramon Silva-Ortigoza, Jorge Alberto Orrante-Sakanassi

   Pubbl/distr/stampa   Cham, Switzerland : , : Springer, , [2021]
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   ISBN   3-030-58786-X

   Edizione   [1st edition 2021.]

   Descrizione fisica   1 online resource (XX, 619 p. 225 illus., 50 illus. in color.)

   Collana   Advances in Industrial Control, , 1430-9491

   Disciplina   629.8

   Soggetti   Passivity-based control
                    Electric motors - Automatic control
                    Electromechanical devices - Mathematical models

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico   Monografia

   Nota di bibliografia   Includes bibliographical references and index.

   Nota di contenuto   Introduction -- Mathematical Preliminaries -- Permanent Magnet Brushed DC-Motor -- Permanent Magnet Synchronous Motor -- Induction Motor -- Switched Reluctance Motor -- Synchronous Reluctance Motor -- Bipolar Permanent Magnet Stepper Motor -- Brushless DC-Motor -- Magnetic Levitation Systems and Microelectromechanical Systems -- Trajectory Tracking for Robot Manipulators Equipped With PM Synchronous Motors -- PID Control of Robot Manipulators Equipped with SRMs.

   Sommario/riassunto   This book introduces a passivity-based approach which simplifies the controller design task for AC motors. It presents the application of this novel approach to several classes of AC motors, magnetic levitation systems, microelectromechanical systems (MEMS) and rigid robot manipulators actuated by AC-motors. The novel passivity-based approach exploits the fact that the natural energy exchange existing between the mechanical and the electrical subsystems allows the natural cancellation of several high order terms during the stability analysis. This allows the authors to present come of the simplest controllers proposed in scientific literature, but provided with formal stability proofs. These simple control laws will be of use to

practitioners as they are robust with respect to numerical errors and noise amplification, and are provided with tuning guidelines. Energy-based Control of Electromechanical Systems is intended for both theorists and practitioners. Therefore, the stability proofs are not based on abstract mathematical ideas but Lyapunov stability theory. Several interpretations of the proofs are given along the body of the book using simple energy ideas and the complete proofs are included in appendices. The complete modeling of each motor studied is also presented, allowing for a thorough understanding. Advances in Industrial Control reports and encourages the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.

2.	Record Nr.	UNISALENTO991000167909707536
	Autore	Atkinson, Kendall E.
	Titolo	An introduction to numerical analysis / Kendall E. Atkinson
	Pubbl/distr/stampa	New York : Wiley, c1989
	ISBN	0471624896
	Edizione	[2nd ed.]
	Descrizione fisica	xvi, 693 p. : ill. ; 24 cm
	Classificazione	AMS 65-XX LC QA297.A84
	Disciplina	519.4
	Soggetti	Numerical analysis
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di bibliografia	Includes bibliographies and index