1.	Record Nr.	UNINA9910254231303321
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	Titolo	Modelling and control of dynamic systems using Gaussian process models / / by Juš Kocijan
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
	ISBN	3-319-21021-1
	Edizione	[1st ed. 2016.]
	Descrizione fisica	1 online resource (281 p.)
	Collana	Advances in Industrial Control, , 1430-9491
	Disciplina	620
	Soggetti	Control engineering Chemical engineering Statistics Control and Systems Theory Industrial Chemistry/Chemical Engineering Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences
	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 at the end of each chapters and index.
	Nota di contenuto	System Identification with GP Models -- Incorporation of Prior Knowledge -- Control with GP Models -- Trends, Challenges and Research Opportunities -- Case Studies.
	Sommario/riassunto	This monograph opens up new horizons for engineers and researchers in academia and in industry dealing with or interested in new developments in the field of system identification and control. It emphasizes guidelines for working solutions and practical advice for their implementation rather than the theoretical background of Gaussian process (GP) models. The book demonstrates the potential of this recent development in probabilistic machine-learning methods and gives the reader an intuitive understanding of the topic. The current state of the art is treated along with possible future directions for research. Systems control design relies on mathematical models and these may be developed from measurement data. This process of system identification, when based on GP models, can play an integral part of control design in data-based control and its description as such

is an essential aspect of the text. The background of GP regression is introduced first with system identification and incorporation of prior knowledge then leading into full-blown control. The book is illustrated by extensive use of examples, line drawings, and graphical presentation of computer-simulation results and plant measurements. The research results presented are applied in real-life case studies drawn from successful applications including: a gas–liquid separator control; urban-traffic signal modelling and reconstruction; and prediction of atmospheric ozone concentration. A MATLAB® toolbox, for identification and simulation of dynamic GP models is provided for download. Advances in Industrial Control aims to report and encourage 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.