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	Autore	Borutzky Wolfgang
	Titolo	Multivariable Control Engineering Problems and their Solutions with GNU Octave / / by Wolfgang Borutzky
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	Descrizione fisica	1 online resource (322 pages)
	Collana	Intelligent Technologies and Robotics Series
	Disciplina	629.8312 003
	Soggetti	Automatic control Telecommunication Electronic circuits Mechanics, Applied Computer simulation Control and Systems Theory Communications Engineering, Networks Electronic Circuits and Systems Engineering Mechanics Computer Modelling
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	Introduction -- Multiple Input Multiple Output Systems -- State Observability -- State Controllability -- Decomposition of an LTI system into subsystems -- Minimal State-Space Realisation of a Transfer Function Matrix -- Stability of Multivariable Systems -- Closed Loop Stability -- State Feedback -- Optimal control -- Robust Control -- Linear Convex Optimisation -- Conclusion.
	Sommario/riassunto	This problem and solution-oriented textbook covers standard control engineering tasks as well as advanced modern control techniques. Throughout, students are provided examples of control engineering problems with step-by-step solutions. Each chapter addresses basic ideas, key control concepts, and definitions and provides a compilation of theoretical results used for the solution of the problems. The book is

aimed not only at engineering students and practitioners but also computer science students and software engineers who, for instance, are working on the design of autonomous cars or with digital twins and need some knowledge of basic control concepts and advanced modern control techniques. The book addresses graduate students and readers in the overlap of engineering and computer science. The book aims to further their understanding of theoretical results learned in undergraduate control classes or in textbooks; the book shows them how to apply their knowledge in exercises to small problems and to see how some examples of problems can be solved. Whenever possible, the problems have been solved by means of the open-source software GNU Octave. In some cases, also the free open-source mathematical software Scilab has been used. Provides problems and solutions for standard control engineering tasks and advanced modern control techniques; Provides a collection of examples of control engineering problems with step-by-step solutions; Addresses control concepts and provides a compilation of theoretical results used for the solution of the problems.