

io-port 00053494

Möller, Dietmar P.F.

Modellbildung, Simulation und Identifikation dynamischer Systeme.

Berlin etc.: Springer-Verlag. xii, 230 S. (1992).

The monograph deals with the analysis of systems, primarily of dynamic systems, from a very general point of view. It is unique insofar as the author tries to present the main ideas, methods and tools for systems of any type i.e. for continuous-time systems, discrete-time systems and discrete-event systems. Consequently, the main conceptions are explained and defined in a very abstract way, especially in the first chapter which deals with notions such as 'system', 'attribute' etc. and which tries to incorporate also ideas from cybernetics. This very general point of view is a benefit of this book. Unfortunately, there are scarcely concrete examples in this first chapter and therefore only readers having already some concrete background with analysis and/or simulation of different types of systems will be able to appreciate these considerations. The second chapter is equally introductory and presents main results for (primarily linear and autonomous) differential and difference equations together with a short discussion of topics like 'stability', 'controllability', 'observability' and 'linearization'. It is written primarily for scientists having only little background in mathematics and therefore, mathematicians will not always be happy with the formulations. Moreover, a more detailed discussion of the concepts 'transfer function' and 'z-function' respectively, and their merits in view of modelling and simulation would have been interesting for engineers. The following chapters are devoted to the topics to be found in the book title i.e. to modelling of dynamic systems, to simulation and simulation tools and to various widely used tools for identification. Here it is to be seen that the author has extensive experiences esp. in modelling and simulation of non-engineering (e.g. biological) continuous-time systems. Many well-chosen examples allow to use these chapters also for self-study and to appreciate the first chapter when re-reading it.

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Keywords: continuous-time systems; discrete-time systems; discrete-event systems; identification; modelling