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   Autore   Ulmann Bernd

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   Nota di bibliografia   Includes bibliographical references and index.

   Nota di contenuto Front Matter -- 1 Introduction -- 2 Mechanical analog computers -- 3
                      The first electronic analog computers -- 4 Basic computing elements
                      -- 5 Analog computer anatomy -- 6 Typical systems -- 7 Programming
                      -- 8 Programming examples -- 9 Hybrid computers -- 10 Digital
                      differential analyzers -- 11 Applications -- 12 Future and chances --
                      Back Matter

   Sommario/riassunto This book is a comprehensive introduction to analog computing. As
                       most textbooks about this powerful computing paradigm date back to
                       the 1960's and 1970's, it fills a void and forges a bridge from the early
                       days of analog computing to future applications. The idea of analog
                       computing is not new. In fact, this computing paradigm is nearly
                       forgotten, although it offers a path to both high-speed and low-power
                       computing, which are in even more demand now than they were back in
                       the heyday of electronic analog computers. This first chapters of this
                       book define the notion of analog computing and cover the early history
                       of mechanical and electromechanical analog computers before focusing
                       on the development and the basics of electronic analog computing
                       elements and computers based on these. Two chapters give an
                       introduction to the programming of analog computers with a number
                       of detailed sample problems and solutions. These problems range from
                       simple mass-spring-damper systems to predator-prey simulations and
                       conformal mappings. The following chapters introduce the basic
                       concepts of hybrid computers and digital differential analyzers, the

latter of which offer an enormous potential for future applications based on field programmable gate arrays (FPGAs) or the like. The second half of the book is dedicated to an overview of typical applications of analog computers based on a comprehensive bibliography. The last chapter describes future prospects for the analog computing paradigm.