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Titolo	Machine learning support for fault diagnosis of system-on-chip // edited by Patrick Girard, Shawn Blanton, and Li-C Wang
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ISBN	3-031-19639-2
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (320 pages)
Disciplina	006.31
Soggetti	Electric fault location Machine learning Systems on a chip
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Prerequisites on Fault Diagnosis -- Conventional Methods for Fault Diagnosis -- Machine Learning and Its Applications in Test -- Machine Learning Support for Logic Diagnosis -- Machine Learning Support for Cell-Aware Diagnosis -- Machine Learning Support for Volume Diagnosis -- Machine Learning Support for Diagnosis of Analog Circuits -- Machine Learning Support for Board-level Functional Fault Diagnosis -- Machine Learning Support for Wafer-level Failure Cluster Identification -- Conclusion.
Sommario/riassunto	This book provides a state-of-the-art guide to Machine Learning (ML)-based techniques that have been shown to be highly efficient for diagnosis of failures in electronic circuits and systems. The methods discussed can be used for volume diagnosis after manufacturing or for diagnosis of customer returns. Readers will be enabled to deal with huge amount of insightful test data that cannot be exploited otherwise in an efficient, timely manner. After some background on fault diagnosis and machine learning, the authors explain and apply optimized techniques from the ML domain to solve the fault diagnosis problem in the realm of electronic system design and manufacturing. These techniques can be used for failure isolation in logic or analog circuits, board-level fault diagnosis, or even wafer-level failure cluster

identification. Evaluation metrics as well as industrial case studies are used to emphasize the usefulness and benefits of using ML-based diagnosis techniques. The benefits of the book for the reader are: Identifies the key challenges in fault diagnosis of system-on-chip and presents the solutions and corresponding results that have emerged from leading-edge research; Explains and applies optimized techniques from the machine-learning domain to solve the fault diagnosis problem in the realm of electronic system design and manufacturing; Includes necessary background information on testing and diagnosis and a compendium of solutions existing in this field; Demonstrates techniques based on industrial data and feedback from actual PFA analysis; Discusses practical problems, including test sequence quality, diagnosis resolution, accuracy, time cost, etc.
