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## Sommario/riassunto

This book illustrates simply, but with many details, the state of the art of reliability science, exploring clear reliability disciplines and applications through concrete examples from their industries and from real life, based on industrial experiences. Many experts believe that reliability is not only a matter of statistics but is a multidisciplinary

scientific topic, involving materials, tests, simulations, quality tools, manufacturing, electronics, mechatronics, environmental engineering and Big Data, among others. For a complex mechatronic system, failure risks have to be identified at an early stage of the design. In the automotive and aeronautic industries, fatigue simulation is used both widely and efficiently. Problems arise from the variability of inputs such as fatigue parameters and life curves. This book aims to discuss probabilistic fatigue and reliability simulation. To do this, Reliability and Physics-of-Healthy in Mechatronics provides a study on some concepts of a predictive reliability model of microelectronics, with examples from the automotive, aeronautic and space industries, based on entropy and Physics-of-Healthy.

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