

Springer Series in Reliability Engineering

Hongyan Dui · Shaomin Wu

## Importance-informed Reliability Engineering

This book provides university students and practitioners with a collection of importance measures to design systems with high reliability, maintain them with high availability, and restore them in case of failures.

Optimal reliability design, properly system maintenance and resilience management are vital for retaining a high level of system availability. Reliability importance measures, which are used to identify the weakest components from different perspectives, can be used to achieve this goal.

The book has seven parts. Chapter 1 introduces the basic concepts. Chapter 2 focuses on importance measures for the system design phase and introduces how the system reliability can be improved with importance measures. Chapters 3 and 4 provide importance measures-related methods for scheduling maintenance policies under different scenarios. Chapter 5 provides importance measures for networks. Chapter 6 proposes importance measures for resilience management. The last chapter, or Chapter 7, illustrates the importance measures with case studies adopted from four types of systems: mechanical systems, energy systems, transport networks, and supply chain networks.

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