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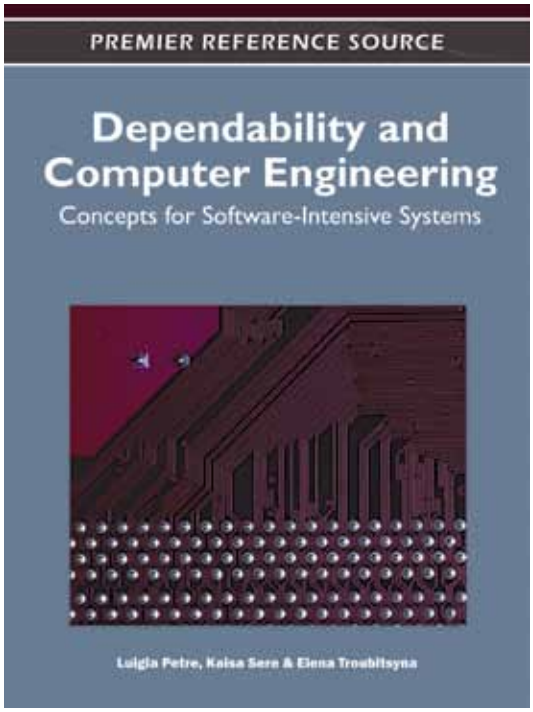
Released: July 2011

Dependability and Computer Engineering: Concepts for Software-Intensive Systems



ISBN: 9781609607470; © 2012; 515 pp.
Print: US $195.00 | Perpetual: US $295.00 | Print + Perpetual: US $390.00

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Rapid development of digital technologies has led to the widespread use of software in all aspects of our life. The degree of reliance that can be justifiably placed on software-intensive systems is expressed by the notion of dependability. The complexity of modern software-intensive systems poses the greatest threat to dependability. Furthermore, software–the most complex system component–is recognized to be the most error-prone part of the system.

Dependability and Computer Engineering: Concepts for Software-Intensive Systems offers a state-of-the-art overview of the dependability research, from engineering various software-intensive systems to validating existing IT-frameworks and solving generic and particular problems related to the dependable use of IT in our society. It is important to understand how dependability is manifested in software-intensive systems, how it is developed, and how it can be enhanced at various levels in systems and organizations. This book uncovers the existing research on the topic as well as the key challenges associated with the engineering of dependable IT systems in the future.

Topics Covered:

- Dependability and Security in Domain-Specific Areas
- Methodologies for Developing Dependable Systems
- Model-Based Reasoning
- Modeling Real-Time Behavior
- Reasoning about Hybrid Systems
- Security in Distributed Systems
- Software and Hardware Correctness
- Software Security
- Testing and Verification of Software-Intensive Systems
- Verification of Complex Control Systems

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal for classroom use.

Luigia Petre is a university lecturer at Åbo Akademi University, Department of Information Technologies, Turku, Finland. She got her PhD in Computer Science in 2005 on modeling techniques in formal methods. Her research interests include energy modeling, network availability, integration of formal methods, and time and space dependent computing. She has co-organized major conferences in her field such as the Integrated Formal Methods (IFM) 2002 as well as Formal Methods (FM) 2008. She has been in the programme committee of IFM in 2002, 2004, 2005, and 2007. Currently, she is coordinating NODES - a Nordic Dependability Network, concerned with deploying a dependability curriculum for the Nordic countries. She is a researcher in the EC-funded project DEPLOY. She has about 30 refereed publications.

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