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Titolo	Software-Intensive Systems and New Computing Paradigms [[electronic resource] ] : Challenges and Visions // edited by Martin Wirsing, Jean-Pierre Banatre, Matthias Hölzl, Axel Rauschmayer
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Collana	Programming and Software Engineering ; ; 5380
Disciplina	005.1
Soggetti	Software engineering Computer programming Programming languages (Electronic computers) Computer logic Computer communication systems Software Engineering/Programming and Operating Systems Software Engineering Programming Techniques Programming Languages, Compilers, Interpreters Logics and Meanings of Programs Computer Communication Networks
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Nota di contenuto	Engineering of Software-Intensive Systems: State of the Art and Research Challenges -- Engineering of Software-Intensive Systems: State of the Art and Research Challenges -- I Ensemble Engineering -- Software Engineering for Ensembles -- Change-Enabled Software Systems -- On the Challenge of Engineering Socio-technical Systems -- Design of Complex Cyber Physical Systems with Formalized Architectural Patterns -- Cyber-Physical Systems and Events -- Design and Deployment of Large-Scale Software-Intensive Systems in Urban Districts -- II Theory and Formal Methods -- Formal Ensemble Engineering -- Structured Interacting Computations -- Extending Formal Methods for Software-Intensive Systems -- Ensemble

Engineering and Emergence -- Mathematical Support for Ensemble  
Engineering -- Behaviour Equivalences in Timed Distributed  $\tau$ -Calculus  
-- III Novel Computing Paradigms -- The Chemical Reaction Model  
Recent Developments and Prospects -- Spatial Organization of the  
Chemical Paradigm and the Specification of Autonomic Systems --  
Emerging Models of Computation: Directions in Molecular Computing.

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Sommario/riassunto

To identify the emergent trends in software-intensive and distributed and decentralized computer systems and their impact on the Information Society in the next 10--15 years, the European Commission has established two Coordinated Actions: Initially the project 'Beyond the Horizon' and then, starting in 2006, the project 'InterLink'. This state-of-the-art survey presents the results of three workshops of the InterLink working group on software-intensive systems and novel computing paradigms. The objective was to imagine the landscape in which next generations of software-intensive systems will operate and the challenges they present to computing, software engineering, cognition and intelligence. The volume starts with an overview of the current state of the art and the research missions in engineering software-intensive systems. The remainder of the book consists of 15 invited papers of the working group participants and is structured in three major parts: ensemble engineering, theory and formal methods, and novel computing paradigms. These papers cover a broad spectrum of relevant topics ranging from methods, languages and tools for ensemble engineering, socio-technical and cyber-physical systems, ensembles in urban environments, formal methods and mathematical foundations for ensembles, orchestration languages to disruptive paradigms such as molecular and chemical computing.

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