

Table of Contents

Engineering of Software-Intensive Systems: State of the Art and Research Challenges	1
<i>Matthias Hölzl, Axel Rauschmayer, and Martin Wirsing</i>	

I Ensemble Engineering

Software Engineering for Ensembles	45
<i>Matthias Hölzl, Axel Rauschmayer, and Martin Wirsing</i>	
Change-Enabled Software Systems	64
<i>Oscar Nierstrasz, Marcus Denker, Tudor Gîrba, Adrian Lienhard, and David Röthlisberger</i>	
On the Challenge of Engineering Socio-technical Systems	80
<i>José Luiz Fiadeiro</i>	
Design of Complex Cyber Physical Systems with Formalized Architectural Patterns	92
<i>Lui Sha and José Meseguer</i>	
Cyber-Physical Systems and Events	101
<i>Carolyn Talcott</i>	
Design and Deployment of Large-Scale Software-Intensive Systems in Urban Districts	116
<i>Teruo Higashino</i>	

II Theory and Formal Methods

Formal Ensemble Engineering	132
<i>J.W. Sanders and Graeme Smith</i>	
Structured Interacting Computations: A Position Paper	139
<i>William Cook and Jayadev Misra</i>	
Extending Formal Methods for Software-Intensive Systems	146
<i>Graeme Smith</i>	
Ensemble Engineering and Emergence	162
<i>Hu Jun, Zhiming Liu, G.M. Reed, and J.W. Sanders</i>	

Mathematical Support for Ensemble Engineering	179
<i>Michael Johnson</i>	
Behaviour Equivalences in Timed Distributed π -Calculus	190
<i>Gabriel Ciobanu</i>	

III Novel Computing Paradigms

The Chemical Reaction Model: Recent Developments and Prospects	209
<i>Jean-Pierre Banâtre, Pascal Fradet, and Yann Radenac</i>	
Spatial Organization of the Chemical Paradigm and the Specification of Autonomic Systems	235
<i>Jean-Louis Giavitto, Olivier Michel, and Antoine Spicher</i>	
Emerging Models of Computation: Directions in Molecular Computing: Position Paper for InterLink Workshop, May 2007	255
<i>Darko Stefanovic</i>	
Author Index	267