Contents

1	Complex Engineered Systems: A New Paradigm	
	<i>Ali A. Minai, Dan Braha, and Yaneer Bar-Yam</i>	1
2	Engineering Complex Systems: Multiscale Analysis and Evolutionary Engineering	
	<i>Yaneer Bar-Yam</i>	22
3	The Structure and Dynamics of Complex Product Design	
	<i>Dan Braha and Yaneer Bar-Yam</i>	40
4	On the Nature of Design	
	<i>Sergi Valverde and Ricard V. Solé</i>	72
5	Creation of desirable complexity: strategies for designing self-organized systems	
	<i>Carl Anderson</i>	101
6	Understanding the Complexity of Design	
	<i>Jonathan R.A. Maier and Georges M. Fadel</i>	122
7	Spiraling out of Control: Problem-Solving Dynamics in Complex Distributed Engineering Projects	
	<i>Jürgen Mihm and Christoph H. Loch</i>	141
8	The Dynamics of Collaborative Design: Insights From Complex Systems and Negotiation Research	
	<i>Mark Klein, Hiroki Sayama, Peyman Faratin, and Yaneer Bar-Yam</i>	158
9	Modularity in the Design of Complex Engineering Systems	
	<i>Carliss Y. Baldwin and Kim B. Clark</i>	175

10 Engineering Complex Systems	
<i>Douglas O. Norman and Michael L. Kuras</i>	206
11 Negotiation algorithms for collaborative design settings	
<i>Mark Klein, Peyman Faratin, Hiroki Sayama, and Yaneer Bar-Yam</i>	246
12 Information Theory – The Bridge Connecting Bounded Rational Game Theory and Statistical Physics	
<i>David H. Wolpert</i>	262
13 Engineering Amorphous Systems, Using Global-to-Local Compilation	
<i>Radhika Nagpal</i>	291
14 A machine learning method for improving task allocation in distributed multi-robot transportation	
<i>Torbjørn S. Dahl, Maja J. Matarić and Gaurav S. Sukhatme</i>	307
15 Towards Pro-active Embodied Agents: On the Importance of Neural Mechanisms Suitable to Process Time Information	
<i>Guido de Croon, Stefano Nolfi, and Eric Postma</i>	338
16 Autonomous Discovery and Functional Response to Topology Change in Self-Reconfigurable Robots	
<i>Behnam Salemi, Peter Will and Wei-Min Shen</i>	364