

Contents

1	Charting a Course for Computer-Aided Bio-Inspired Design	1
	Robert B. Stone, Ashok K. Goel and Daniel A. McAdams	
2	The AskNature Database: Enabling Solutions in Biomimetic Design	17
	Jon-Michael Deldin and Megan Schuknecht	
3	A Natural Language Approach to Biomimetic Design	29
	L. H. Shu and Hyunmin Cheong	
4	A Thesaurus for Bioinspired Engineering Design.	63
	Jacquelyn K. S. Nagel	
5	Function-Based Biologically Inspired Design	95
	Jacquelyn K. S. Nagel, Robert B. Stone and Daniel A. McAdams	
6	Information-Processing Theories of Biologically Inspired Design	127
	Ashok K. Goel, Swaroop Vattam, Bryan Wiltgen and Michael Helms	
7	Adaptive Evolution of Teaching Practices in Biologically Inspired Design	153
	Jeannette Yen, Michael Helms, Ashok Goel, Craig Tovey and Marc Weissburg	
8	Supporting Analogical Transfer in Biologically Inspired Design	201
	Amaresh Chakrabarti	

9	Overcoming Cognitive Challenges in Bioinspired Design and Analogy	221
	Julie S. Linsey and Vimal K. Viswanathan	
10	An Engineering Approach to Utilizing Bio-Inspiration in Robotics Applications	245
	Saytandra K. Gupta, Wojciech Bejgerowski, John Gerdes, James Hopkins, Lengkeng Lee, Madusudanan Sathia Narayanan, Frank Mendel and Venkat Krovi	
11	An Ontology of Biomimetics	269
	Julian F. V. Vincent	
12	Evolution and Bio-Inspired Design: Natural Limitations	287
	Frank E. Fish and John T. Beneski	
	Author Biographies	313
	Index	323



<http://www.springer.com/978-1-4471-5247-7>

Biologically Inspired Design

Computational Methods and Tools

Goel, A.K.; McAdams, D.A.; Stone, R.B. (Eds.)

2014, XVIII, 325 p., Hardcover

ISBN: 978-1-4471-5247-7