## Contents

1 Application of Machine-Learning Methods to Understand Gene Expression Regulation ........................................ 1  
   Chao Cheng and William P. Worzel

2 Identification of Novel Genetic Models of Glaucoma Using the “EMERGENT” Genetic Programming-Based Artificial Intelligence System .................................................. 17  
   Jason H. Moore, Casey S. Greene and Douglas P. Hill

3 Inheritable Epigenetics in Genetic Programming ................. 37  
   William La Cava and Lee Spector

4 SKGP: The Way of the Combinator ........................................ 53  
   William P. Worzel and Duncan MacLean

5 Sequential Symbolic Regression with Genetic Programming ...... 73  
   Luiz Otávio V.B. Oliveira, Fernando E.B. Otero, Gisele L. Pappa and Julio Albinati

6 Sliding Window Symbolic Regression for Detecting Changes of System Dynamics ............................................. 91  
   Stephan M. Winkler, Michael Affenzeller, Gabriel Kronberger, Michael Kommenda, Bogdan Burlacu and Stefan Wagner

7 Extremely Accurate Symbolic Regression for Large Feature Problems ............................................................... 109  
   Michael F. Korns

8 How to Exploit Alignment in the Error Space: Two Different GP Models .............................................................. 133  
   Mauro Castelli, Leonardo Vanneschi, Sara Silva and Stefano Ruberto
9 Analyzing a Decade of Human-Competitive (“HUMIE”) Winners: What Can We Learn? ................................................................. 149
Karthik Kannappan, Lee Spector, Moshe Sipper,
Thomas Helmuth, William La Cava, Jake Wisdom and
Omri Bernstein

10 Tackling the Boolean Multiplexer Function Using a Highly Distributed Genetic Programming System .......................... 167
Hormoz Shahrzad and Babak Hodjat

Index ......................................................... 181