

# Contents

## Part I Analog and Mixed-Signal Applications

<b>1</b>	<b>I-Flows: A Novel Approach to Computational Intelligence for Analog Circuit Design Automation Through Symbolic Data Mining and Knowledge-Intensive Reasoning . . . . .</b>	<b>3</b>
	Fanshu Jiao, Sergio Montano, Cristian Ferent and Alex Doboli	
<b>2</b>	<b>Automatic Synthesis of Analog Integrated Circuits Including Efficient Yield Optimization . . . . .</b>	<b>29</b>
	Lucas C. Severo, Fabio N. Kepler and Alessandro G. Girardi	
<b>3</b>	<b>Application of Computational Intelligence Techniques to Maximize Unpredictability in Multiscroll Chaotic Oscillators . . . . .</b>	<b>59</b>
	Victor Hugo Carbajal-Gómez, Esteban Tlelo-Cuautle and Francisco V. Fernández	
<b>4</b>	<b>Optimization and Co-simulation of an Implantable Telemetry System by Linking System Models to Nonlinear Circuits . . . . .</b>	<b>83</b>
	Yao Li, Hao Zou, Yasser Moursy, Ramy Iskander, Robert Sobot and Marie-Minerve Louërât	
<b>5</b>	<b>Framework for Formally Verifying Analog and Mixed-Signal Designs . . . . .</b>	<b>115</b>
	Mohamed H. Zaki, Osman Hasan, Sofiène Tahar and Ghiath Al-Sammame	

<b>6</b>	<b>Automatic Layout Optimizations for Integrated MOSFET Power Stages</b> . . . . .	<b>147</b>
	David Guilherme, Jorge Guilherme and Nuno Horta	
<b>7</b>	<b>Optimizing Model Precision in High Temperatures for Efficient Analog and Mixed-Signal Circuit Design Using Modern Behavioral Modeling Technique: An Industrial Case Study</b> . . . . .	<b>177</b>
	Sahbi Baccar, Timothée Levi, Dominique Dallet and François Barbara	
<b>8</b>	<b>Nonlinearities Behavioral Modeling and Analysis of Pipelined ADC Building Blocks</b> . . . . .	<b>217</b>
	Carlos Silva, Philippe Ayzac, Nuno Horta and Jorge Guilherme	

**Part II Radio-Frequency Design**

<b>9</b>	<b>SMAS: A Generalized and Efficient Framework for Computationally Expensive Electronic Design Optimization Problems</b> . . . . .	<b>251</b>
	Bo Liu, Francisco V. Fernández, Georges Gielen, Ammar Karkar, Alex Yakovlev and Vic Grout	
<b>10</b>	<b>Computational Intelligence Techniques for Determining Optimal Performance Trade-Offs for RF Inductors</b> . . . . .	<b>277</b>
	Elisenda Roca, Rafael Castro-López, Francisco V. Fernández, Reinier González-Echevarría, Javier Sieiro, Neus Vidal and José M. López-Villegas	
<b>11</b>	<b>RF IC Performance Optimization by Synthesizing Optimum Inductors</b> . . . . .	<b>297</b>
	Mladen Božanić and Saurabh Sinha	
<b>12</b>	<b>Optimization of RF On-Chip Inductors Using Genetic Algorithms</b> . . . . .	<b>331</b>
	Eman Omar Farhat, Kristian Zarb Adami, Owen Casha and John Abela	
<b>13</b>	<b>Automated System-Level Design for Reliability: RF Front-End Application</b> . . . . .	<b>363</b>
	Pietro Maris Ferreira, Jack Ou, Christophe Gaquière and Philippe Benabes	

<b>14</b>	<b>The Backtracking Search for the Optimal Design of Low-Noise Amplifiers . . . . .</b>	<b>391</b>
	Amel Garbaya, Mouna Kotti, Mourad Fakhfakh and Patrick Siarry	
<b>15</b>	<b>Design of Telecommunication Receivers Using Computational Intelligence Techniques. . . . .</b>	<b>413</b>
	Laura-Nicoleta Ivanciu and Gabriel Oltean	
<b>16</b>	<b>Enhancing Automation in RF Design Using Hardware Abstraction . . . . .</b>	<b>439</b>
	Sabeur Lafi, Ammar Kouki and Jean Belzile	
<b>17</b>	<b>Optimization Methodology Based on IC Parameter for the Design of Radio-Frequency Circuits in CMOS Technology. . . . .</b>	<b>471</b>
	Abdellah Idrissi Ouali, Ahmed El Oualkadi, Mohamed Moussaoui and Yassin Laaziz	

Computational Intelligence in Analog and Mixed-Signal

(AMS) and Radio-Frequency (RF) Circuit Design

Fakhfakh, M.; Tlelo-Cuautle, E.; Siarry, P. (Eds.)

2015, XXII, 491 p. 267 illus., 174 illus. in color.,

Hardcover

ISBN: 978-3-319-19871-2