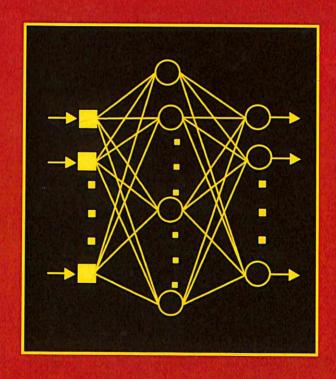
Advances in COMPUTERS Volume 117



Edited by MILL M. MEMON

litors

urson and Atif M. Memon



CONTENTS

	Preface	vii
	. Pitfalls and Countermeasures in Software Quality Measurements and Evaluations Hironori Washizaki	1
•	 Introduction Pitfall: Negative Hawthorne Effects Pitfall: Organization Misalignment Pitfall: Uncertain Future Pitfall: Self-certified Quality Conclusion and Future Prospective Acknowledgments References About the Authors 	2 8 12 15 18 19 19 21
2	Uncertainty-Wise Testing of Cyber-Physical Systems Shaukat Ali, Hong Lu, Shuai Wang, Tao Yue, and Man Zhang	23
	 Introduction Uncertainty-Wise Model-Based Testing Uncertainty-Wise Multiobjective Test Optimization The State of Art Conclusion and Future Research Directions Acknowledgments Appendix References About the Authors 	24 25 38 63 76 78 78 83 92
3.	Testing the Control-Flow, Data-Flow, and Time Aspects of Communication Systems: A Survey Rachida Dssouli, Ahmed Khoumsi, Mounia Elqortobi, and Jamal Bentahar	95
	 Introduction to Communication Software System Testing Basic Concepts of Testing Testing the Control and Data-Flow Aspects Testing the Communication Aspect 	96 97 102 115

	6. Discussion and Conclusion	
	Acknowledgment	142
	References	143
	About the Authors	143
	About the Authors	154
4	. Advances in Testing Software Product Lines	157
	Hartmut Lackner and Bernd-Holger Schlingloff	
	1. Introduction	158
	2. Specification of Variability	160
	3. Model-Based Testing for Product Lines	170
	4. Assessment of Product Line Test Suites	183
	5. Test-Driven Product Sampling	193
	6. Assignment of Product Line Test Cases	200
	7. Related Work	206
	8. Future Developments	209
	9. Summary and Conclusion	210
	References	211
	About the Authors	216
-	A LID TO THE STATE OF THE STATE	
5.	Advances in Model-Based Testing of Graphical User Interfaces	219
	Fevzi Belli, Mutlu Beyazıt, Christof J. Budnik, and Tugkan Tuglular	9
	1. Introduction: User Interfaces and Their Holistic Testing	220
	2. Modeling of GUIs of Interactive Systems	223
	3. Testing and Test Optimization Exemplified by GUI-Modeling With ESG	241
	4. Contract-Based Testing of GUIs	253
	5. Rationalization and Automation of GUI Testing	262
	6. Conclusions	271
	References	274
	About the Authors	279