

# Contents

|  |     |
|--|-----|
| Preface  | v   |
| A Logical Approach to Systems Engineering Artifacts and Traceability: From Requirements to Functional and Architectural Views<br><i>Manfred Broy</i>                   | 1   |
| Mastering System Analysis and Design through Abstraction and Refinement<br><i>Michael Butler</i>   | 49  |
| Data Abstraction in VCC<br><i>Ernie Cohen</i>  | 79  |
| Families of Software Systems: A Model Checking Approach<br><i>Stefania Gnesi</i>   | 115 |
| A Tutorial on Runtime Verification<br><i>Yliès Falcone, Klaus Havelund and Giles Reger</i>   | 141 |
| Model Checking Meets Probability: A Gentle Introduction<br><i>Joost-Pieter Katoen</i>  | 177 |
| Risk-Driven Engineering of Requirements for Dependable Systems<br><i>Axel van Lamsweerde</i>   | 207 |
| Model-Based Verification, Optimization, Synthesis and Performance Evaluation of Real-Time Systems<br><i>Uli Fahrenberg, Kim G. Larsen, Axel Legay and Claus Thrane</i> | 235 |
| Model-Driven Engineering and Model Transformation: For Fun and Profit<br><i>Richard F. Paige and Dimitrios S. Kolovos</i>  | 275 |
| Symbolic Execution and Software Testing<br><i>Corina S. Păsăreanu</i>  | 313 |
| Model Checking Basics<br><i>Doron Peled</i>  | 335 |
| Subject Index  | 363 |
| Author Index   | 365 |