Contents

List of Figures and Tables vii Contributors viii Foreword, Simon Peyton Jones xii Preface xiii

Part 1 Why Teach Computer Science in School

- 1 Introduction to Part 1: Why Teach Computer Science in School Sue Sentance 3
- 2 The Nature of Computing as a Discipline Matti Tedre 5
- 3 Computational Thinking: A Competency Whose Time Has Come Shuchi Grover and Roy Pea 19
- 4 Investigating Attitudes Towards Learning Computer Science Quintin Cutts and Peter Donaldson 39
- 5 Computer Science, Interaction and the World Carsten Schulte, Sue Sentance and Erik Barendsen 57

Part 2 Aspects of Teaching and Learning

- 6 Introduction to Part 2: Aspects of Teaching and Learning Computer Science Sue Sentance 75
- **7 Perspectives on Computing Curricula** Erik Barendsen and Carsten Schulte 77

- **8 Teaching of Concepts** Paul Curzon, Peter W. McOwan, James Donohue, Seymour Wright and William Marsh 91
- 9 Teaching Programming Michael E. Caspersen 109
- **10 Teaching Computing in Primary Schools** Tim Bell and Caitlin Duncan 131
- **11 Assessment in the Computing Classroom** Sue Sentance, Cynthia Selby and Maria Kallia 151
- **Part 3** Delving Deeper: Research-led Teaching of Computer Science
- 12 Introduction to Part 3: Delving Deeper: Research-led
 Teaching of Computer Science Carsten Schulte 169
- 13 Misconceptions and the Beginner Programmer

 Juha Sorva 171
- **14 Equity and Inclusion in Computer Science Education** *Jill*Denner and Shannon Campe 189
- **15 Language and Computing** *Ira Diethelm, Juliana Goschler and Timo Lampe* 207
- **16 Taxonomies and Competency Models** Peter Hubwieser and Sue Sentance 221

Glossary 243 Index 245