

Contents

<i>List of Figures</i>	<i>page</i> x
<i>List of Tables</i>	xii
<i>List of Contributors</i>	xiii
<i>Acknowledgments</i>	xv
0 An Important and Timely Field	1
SALLY A. FINCHER AND ANTHONY V. ROBINS	
Part I Background	9
1 The History of Computing Education Research	11
MARK GUZDIAL AND BENEDICT DU BOULAY	
2 Computing Education Research Today	40
SALLY A. FINCHER, JOSH TENENBERG, BRIAN DORN, CHRISTOPHER HUNDHAUSEN, ROBERT MCCARTNEY, AND LAURIE MURPHY	
3 Computing Education: Literature Review and Voices from the Field	56
PAULO BLIKSTEIN AND SEPI HEJAZI MOGHADAM	
Part II Foundations	79
4 A Study Design Process	81
ANDREW J. KO AND SALLY A. FINCHER	
5 Descriptive Statistics	102
PATRICIA HADEN	
6 Inferential Statistics	133
PATRICIA HADEN	
7 Qualitative Methods for Computing Education	173
JOSH TENENBERG	
8 Learning Sciences for Computing Education	208
LAUREN E. MARGULIEUX, BRIAN DORN, AND KRISTIN A. SEARLE	

9	Cognitive Sciences for Computing Education	231
	ANTHONY V. ROBINS, LAUREN E. MARGULIEUX, AND BRIANA B. MORRISON	
10	Higher Education Pedagogy	276
	KERRY SHEPHARD	
11	Engineering Education Research	292
	MICHAEL C. LOUI AND MAURA BORREGO	
	Part III Topics	323
	Systemic Issues	325
12	Novice Programmers and Introductory Programming	327
	ANTHONY V. ROBINS	
13	Programming Paradigms and Beyond	377
	SHRIRAM KRISHNAMURTHI AND KATHI FISLER	
14	Assessment and Plagiarism	414
	THOMAS LANCASTER, ANTHONY V. ROBINS, AND SALLY A. FINCHER	
15	Pedagogic Approaches	445
	KATRINA FALKNER AND JUDY SHEARD	
16	Equity and Diversity	481
	COLLEEN M. LEWIS, NIRAL SHAH, AND KATRINA FALKNER	
	New Milieux	511
17	Computational Thinking	513
	PAUL CURZON, TIM BELL, JANE WAITE, AND MARK DORLING	
18	Schools (K–12)	547
	JAN VAHRENHOLD, QUINTIN CUTTS, AND KATRINA FALKNER	
19	Computing for Other Disciplines	584
	MARK GUZDIAL	
20	New Programming Paradigms	606
	R. BENJAMIN SHAPIRO AND MIKE TISSENBAUM	
	Systems Software and Technology	637
21	Tools and Environments	639
	LAURI MALMI, IAN UTTING, AND ANDREW J. KO	

22	Tangible Computing	663
	MICHAEL HORN AND MARINA BERS	
23	Leveraging the Integrated Development Environment for Learning Analytics	679
	ADAM CARTER, CHRISTOPHER HUNDHAUSEN, AND DANIEL OLIVARES	
	Teacher and Student Knowledge	707
24	Teacher Knowledge for Inclusive Computing Learning	709
	JOANNA GOODE AND JEAN J. RYOO	
25	Teacher Learning and Professional Development	727
	SALLY A. FINCHER, YIFAT BEN-DAVID KOLIKANT, AND KATRINA FALKNER	
26	Learning Outside the Classroom	749
	ANDREW BEGEL AND ANDREW J. KO	
27	Student Knowledge and Misconceptions	773
	COLLEEN M. LEWIS, MICHAEL J. CLANCY, AND JAN VAHRENHOLD	
28	Motivation, Attitudes, and Dispositions	801
	ALEX LISHINSKI AND AMAN YADAV	
29	Students As Teachers and Communicators	827
	BETH SIMON, CHRISTOPHER HUNDHAUSEN, CHARLIE MCDOWELL, LINDA WERNER, HELEN HU, AND CLIF KUSSMAUL	
	Case Studies	859
30	A Case Study of Peer Instruction: From University of California, San Diego to the Computer Science Community	861
	LEO PORTER AND BETH SIMON	
31	A Case Study of Qualitative Methods	875
	COLLEEN M. LEWIS	
	<i>Index</i>	895