

# CONTENTS

<i>List of contributors</i>	x
<i>Preface</i>	xx
1 Introduction to the <i>Handbook of Computational Social Science</i> <i>Uwe Engel, Anabel Quan-Haase, Sunny Xun Liu, and Lars Lyberg</i>	1
SECTION I	
<b>The scope and boundaries of CSS</b>	<b>15</b>
2 The scope of computational social science <i>Claudio Cioffi-Revilla</i>	17
3 Analytical sociology amidst a computational social science revolution <i>Benjamin F. Jarvis, Marc Keuschnigg, and Peter Hedström</i>	33
4 Computational cognitive modeling in the social sciences <i>Holger Schultheis</i>	53
5 Computational communication science: lessons from working group sessions with experts of an emerging research field <i>Stephanie Geise and Annie Waldherr</i>	66
6 A changing survey landscape <i>Lars Lyberg and Steven G. Heeringa</i>	83

7	Digital trace data: modes of data collection, applications, and errors at a glance <i>Florian Keusch and Frauke Kreuter</i>	100
8	Open computational social science <i>Jan G. Voelkel and Jeremy Freese</i>	119
9	Causal and predictive modeling in computational social science <i>Uwe Engel</i>	131
10	Data-driven agent-based modeling in computational social science <i>Jan Lorenz</i>	150
<b>SECTION II</b>		
<b>Privacy, ethics, and politics in CSS research</b>		<b>169</b>
11	Ethics and privacy in computational social science: a call for pedagogy <i>William Hollingshead, Anabel Quan-Haase, and Wenhong Chen</i>	171
12	Deliberating with the public: an agenda to include stakeholder input on municipal “big data” projects <i>James F. Popham, Jennifer Lavoie, Andrea Corradi, and Nicole Coomber</i>	186
13	Analysis of the principled AI framework’s constraints in becoming a methodological reference for trustworthy AI design <i>Daniel Varona and Juan Luis Suárez</i>	200
<b>SECTION III</b>		
<b>Case studies and research examples</b>		<b>217</b>
14	Sensing close-range proximity for studying face-to-face interaction <i>Johann Schaible, Marcos Oliveira, Maria Zens, and Mathieu Génois</i>	219
15	Social media data in affective science <i>Max Pellert, Simon Schweighofer, and David Garcia</i>	240
16	Understanding political sentiment: using Twitter to map the U.S. 2016 Democratic primaries <i>Niklas M. Loynes and Mark Elliot</i>	256
17	The social influence of bots and trolls in social media <i>Yimin Chen</i>	287

## Contents

18	Social bots and social media manipulation in 2020: the year in review <i>Ho-Chun Herbert Chang, Emily Chen, Meiqing Zhang, Goran Muric, and Emilio Ferrara</i>	304
19	A picture is (still) worth a thousand words: the impact of appearance and characteristic narratives on people's perceptions of social robots <i>Sunny Xun Liu, Elizabeth Arredondo, Hannah Mieczkowski, Jeff Hancock, and Byron Reeves</i>	324
20	Data quality and privacy concerns in digital trace data: insights from a Delphi study on machine learning and robots in human life <i>Uwe Engel and Lena Dahlhaus</i>	343
21	Effective fight against extremist discourse online: the case of ISIS's propaganda <i>S��raphin Alava and Rasha Nagem</i>	363
22	Public opinion formation on the far right <i>Michael Adelmund and Uwe Engel</i>	373
	<i>Index</i>	380