

Contents

Acknowledgments7

List of Figures9

List of Abbreviations 11

1 Introduction: “We’re Doing Something Completely New”13

2 Approaching Human Computation-Based Citizen Science Analytically 33

Crowdsourcing and Crowdfunding 34

Citizen Science (Games) and the Entanglements of Play, Work, and Science 36

Sociotechnical Systems and the Study of Algorithms, Computer Code,
and Artificial Intelligence 40

Infrastructures and Infrastructuring 48

A Theoretical Framework for Analyzing Emerging Hybrid Systems..... 50

3 Methodology: Encountering Human Computation Ethnographically79

Praxiographically Inspired Co-Laborative Ethnography 80

Constructivist Grounded Theory 83

Doing Research On, With, and Among Researchers and Developers 85

A Toolkit of Methods for Emerging Hybrid Systems 90

4 Envisioning and Designing the Future 101

Human-In-The-Loop Imaginaries105

Weaving Together the Imaginaries 127

Imagining as Practice: Infrastructuring and Experimentation129

Between Counter-Imaginary and Infrastructuring136

5 Multiple Meanings and Everyday Negotiations: Play/Science Entanglements139

A Snapshot of Foldit140

A Snapshot of Stall Catchers143

Contributing to Cope With Everyday Life 145

A Phenomenon Between Play and Science 153

Emerging Spaces in Play/Science Entanglements and Frictions 179

6 Intraversions: Human-Technology Relations in Flux 183

Never Obsolete: Intraversions of Participant-Technology Relations in Foldit 186

“First Use No Humans:” Intraversions of Participant-Technology Relations in Stall Catchers 198

Reconfigurations of Participant-Technology Relations 209

Extending the Loop: Intraversions of Researcher-Technology Relations 210

Moving Forward in Concert 236

Contingent, Imagined, and Emergent Intraversions 243

7 Building Trust in and With Human Computation 247

Trust as an Analytical Concept 248

Trust as a Sociomaterial Practice 252

The Question of Trust and Proprietary Software 269

Distributed Trust 270

8 Conclusions 273

Engaging at the Edge of Artificial Intelligence 276

Beyond the Edge 278

Glossary 281

References 283