Introduction to Philosophy of Technology

Mark Coeckelbergh

New York Oxford
OXFORD UNIVERSITY PRESS

TABLE OF CONTENTS

Preface for Teachers xi

Acknowledgments xv

PART 1: *Introduction: Philosophy of Technology?*

1. Introduction 3

Case/Technology: Nuclear Technology and the Atomic Bomb 3

1.1. Thinking about Technology? 4

1.2. Approach, Structure of the Book, and Overview of Chapters 7

Review Questions 11

Discussion Questions 11

Key Terms 11

2. History and Landscape 12

Case/Technology: Search Engines, Knowledge, and Memory 12

2.1. Beginnings: Two Ancient Myths 13

In Focus: Bernard Stiegler 14

2.2. A Brief History of the Discipline 20

Case/Technology: The Machine 20

2.3. Historical Context, Landscape of the Discipline, and Critical Questions 25

Case/Technology: The Industrial Revolution 25

In Focus: Carl Mitcham 26

Review Questions 29

Discussion Questions 29

Recommended Reading 30

Key Terms 30

PART 2: *Thinking about Technology by Starting from Theory*

3. Phenomenology and Hermeneutics: Heidegger, McLuhan, and Contemporary Work 33

Case/Technology: Robotics and Artificial Intelligence and the Question about Mastery 33
3.1. Heidegger's Essay Concerning Technology: Beyond an Instrumental Understanding of Technology 34
In Focus: Martin Heidegger 34
3.2. McLuhan's Understanding of Media 39
In Focus: Marshall McLuhan 40
In Focus: Maurice Merleau-Ponty 42
Case/Technology: The Internet 43
3.3. Some Contemporary Work in Phenomenology and Hermeneutics of Technology 46
Case/Technology: Artificial Intelligence 46
In Focus: Hubert Dreyfus 47
Review Questions 49
Discussion Questions 49
Recommended Reading 50
Key Terms 50

4. Postphenomenology, Material Hermeneutics, and Mediation Theory 51

Case/Technology: Driving a Car 51
4.1. Introduction: The Empirical Turn 52
4.2. Ihde's Postphenomenology and Material Hermeneutics 52
In Focus: Don Ihde 53
Case/Technology: Robot as Quasi-Other 55
4.3. Contemporary Postphenomenology and Mediation Theory 57
In Focus: Peter-Paul Verbeek 58
Case/Technology: Medical Sonography/Ultrasound 60
4.4. Critical Discussion 64
Review Questions 68
Discussion Questions 68
Recommended Reading 69
Key Terms 69

5. Critical Theory and Feminism 70

Case/Technology: Digital Technologies in a Corporate and Capitalist Context 70

5.1. Marx: Political Economy and Technology 70

In Focus: Karl Marx 71

5.2. Marx 2.0: Social Media and Exploitation 75

Case/Technology: Social Media and Web 2.0 75

5.3. Critical Theory about Technology beyond Marx: From Marcuse and Foucault to Feenberg and Winner 78

In Focus: Michel Foucault 83

Case/Technology: Surveillance: The Panopticon and Airport Security 84

Case/Technology: Biased Algorithms and Algorithms Not in the Interest of Consumers: Job Selection, Criminal Justice, and Online Stores 86

In Focus: Andrew Feenberg 87

In Focus: Langdon Winner 93

5.4. Feminist Thinking about Technology 95

Case/Technology: Design of Household Robots 96

In Focus: Donna Haraway 97

5.5. Critical Discussion 100

Review Questions 103

Discussion Questions 103

Recommended Reading 103

Key Terms 104

6. Pragmatism, Analytic Approaches, and Transcultural Philosophy 105

Case/Technology: Neonatal Care and Technology 105

6.1. Pragmatism 106

In Focus: John Dewey 107

6.2. Analytic Philosophy of Technology 112

Case/Technology: Money and Contemporary Financial Technologies (Cryptocurrencies and Blockchain) 114

John Searle's Social Ontology 116

6.3. Intercultural and Transcultural Philosophy of Technology? 117

In Focus: Gilbert Simondon 119

Case/Technology: Digital Communication Technologies and the Good Life 124
Review Questions 127
Discussion Questions 127
Recommended Reading 127
Key Terms 128

PART 3: *Thinking about Technology by Starting from Technology*

7. From Information Technologies to Philosophy and Ethics of Information 131

Case/Technology: Digital and Virtual Worlds, *The Matrix*, and Beyond 131
7.1. Introduction 132
In Focus: Norbert Wiener 132
7.2. All about Information: Floridi's Philosophy and Ethics of Information 133
Case/Technology: Fake News and the Internet 138
7.3. Critical Discussion 138
7.4. Conclusions for Philosophy of Technology 145
Review Questions 147
Discussion Questions 147
Recommended Reading 148
Key Terms 148

8. From Robotics and AI to Thinking about Moral Status and Human Relationships 149

Case/Technology: Self-Driving Cars 149
8.1. Introduction 150
8.2. Moral Machines? The Discussion about Moral Agency 151
Case/Technology: Biased Algorithms 151
8.3. The Discussion about Moral Patiency 156
8.4. Changing the Question: Toward More Relational Thinking 161
In Focus: Emmanuel Levinas 164

8.5. The Debate about Sex Robots and Human Relationships: Feminist (or Egalitarian) Questions 166
Case/Technology: Sex Robots 166
8.6. Humans, Non-Humans, and the More-Than-Human 170
Review Questions 170
Discussion Questions 171
Recommended Reading 171
Key Terms 171

9. From Genetic Engineering and Cyborgs to Transhumanism and Posthumanism 172

Case/Technology: Gene Editing 172
9.1. Introduction 173
9.2. Transhumanism and Human Enhancement 176
9.3. Posthumanism and Cyborgs 180
In Focus: Donna Haraway 183
In Focus: Stelarc 184
In Focus: Bruno Latour 186
Review Questions 190
Discussion Questions 190
Recommended Reading 190
Key Terms 190

10. From Climate Change and Geoengineering to Questioning "Nature" and Thinking in and about the "Anthropocene" 191

Case/Technology: (Solar) Radiation Management as a Method of Geoengineering 191
10.1. Introduction: Earth, We Have a Problem 191
10.2. The Problem with "Nature": Modern Versus Non-Modern Approaches 195
Case/Technology: Central Heating Versus Wood-Burning Stove 195
10.3. The Anthropocene: Some Philosophical Responses 199
Review Questions 205
Discussion Questions 206

Recommended Reading 206
Key Terms 206

PART 4: *Thinking about Technology by Going Beyond Philosophy of Technology (Philosophy of Technology +)*

11. Philosophy of Technology and Other Philosophy: (Re)Connecting with Other Philosophical Subdisciplines 209

Case/Technology: Social Media and Its Effects on Our Lives 209
11.1. Introduction 210
11.2. Ethics and Moral Philosophy: Thinking about Virtue and Thinking about Technology 212
11.3. Philosophical Anthropology: Thinking about the Human and Thinking about Technology 216
Case/Technology: Cochlear Implants 218
11.4. Philosophy of Language: Thinking about Language and Thinking about Technology 220
In Focus: John Searle 221
In Focus: Ludwig Wittgenstein 223
11.5. Other Subfields: Some Examples 226
11.6. Conclusions for Philosophers of Technology 228
Review Questions 228
Discussion Questions 229
Recommended Reading 229
Key Terms 229

12. Philosophy of Technology and Other Academic Disciplines: Interdisciplinarity and Transdisciplinarity 230

Case/Technology: Robotics and Interdisciplinarity 230
12.1. Introduction 231
12.2. Some Examples of Interdisciplinary and Transdisciplinary Work for Philosophers of Technology 234
In Focus: Deborah Johnson 236
Case/Technology: Humanoid Robots 237

In Focus: Wiebe Bijker 241
12.3. Challenges for Transdisciplinary Work 246
Review Questions 252
Discussion Questions 252
Recommended Reading 253
Key Terms 253

13. Philosophy of Technology and Practices beyond Academia 254
Case/Technology: "Killer Drones" and Activism 254
13.1. Beyond Academia: Innovation, Policy, and Art 255
In Focus: Jeroen van den Hoven 257
In Focus: Robert Frodeman 259
Case/Technology: Smartphones, Tablets, and Other Smart Devices 261
13.2. Some Directions and Recommendations Concerning the Future of Research in Philosophy of Technology and Its Potential Implications for Education 265
Review Questions 268
Discussion Questions 268
Key Terms 268

References 269
Glossary 290
Index 302