

ACKNOWLEDGMENTS

The writing of this book coincided with what has felt like the most difficult and dangerous of political times I have experienced. The UK stands on the brink of leaving the community of European peoples that it joined in my first year of life, and far-right political forces are gathering at every turn. So many of the things in the world that I hold dear seem to be under threat: the right of all young people to have an education funded by those who have already benefited in the same way; the obligation on all people and governments to welcome and support those who flee from violence and hardship; the capacity of a democratic society to challenge hate and prejudice; the rights of women, black and ethnic minorities, and LGBTQ+ people to make political claims in the world without risk to their lives and well-being. Following the rising powers of algorithms, as they have begun to dominate economic and political life, my fears for the future are amplified. Let me be clear, machine learning algorithms that anticipate our future propensities are seriously threatening the chances that we have to make possible alternative political futures. In this context, the writing of this book has been challenging for its constant reminder of the limiting of potential political futures. But it has also been intensely uplifting for the incredible generosity of others in encouraging my work. One of the overriding feelings I have as I complete this book is that young people have the full measure of what is at stake ethically in an age of algorithms. After every lecture I have given, over every discussion in corridors and cafes, I have been struck by the depth and force of the understanding and innovative thought of the next generation of young scholars and students. There is much to be hopeful for, and I dedicate this book to this sense of hopefulness and curiosity.

I have worked in the Department of Geography at Durham University for fourteen years. It is not easy to describe how a group of people comes to matter so greatly to whether it will be possible to conduct the work one most wishes to. I can only say that the mood of experimentation, the quiet support of curious juxtapositions of theory and method, the standing together on a snowy union picket line, and the quite breathtaking generosity in reading work has been vital to me. Thank you all—you are pretty incredible: Ben Anderson, Andrew Baldwin, Oliver Belcher, Mike Bentley, Harriet Bulkeley, Sydney Calkin, Kate Coddington, Rachel Colls, Mike Crang, Niall Cunningham, Jonny Darling, Alex Densmore, Nicky Gregson, Paul Harrison, Sarah Hughes, Elizabeth

Johnson, Sarah Knuth, Paul Langley, Lauren Martin, Cheryl McEwan, Colin McFarlane, Joe Painter, and Jeremy Schmidt. The past few years have also been extraordinary for the PhD students I have been so lucky to supervise: Alice Cree, Arely Cruz Santiago, Andrei Dinca, Pete Forman, Sarah Hughes, Olivia Mason, Anna Okada, and Vanessa Schofield. I have never known any period so exciting for the discussions you have provoked and the experimental methods you are pioneering. You all have so much courage, and you make me feel more courageous.

When I reflect on the many forks in the path of writing this book, I can remember quite clearly how particular questions from an audience, or comments over lunch at a workshop, have opened avenues I had not imagined. I am immensely grateful to the many people who have so generously hosted me and engaged with my work. There are too many debts to others to recount fully here, but I thank you profoundly, and I will signal some of the branching points of my journey. A visit I made to the University of Wisconsin–Madison, at the invitation of Eric Schatzberg, Alan Rubel, and their colleagues, had a lasting effect on my work. The lecture audiences and workshop participants at the Holtz Center for Science and Technology Studies and the International Information Ethics Conference have influenced my thought more than they could possibly know—thank you. My time spent at Australian National University, Canberra, brought conversations that have endured—thank you, Fiona Jenkins and colleagues, for inviting me during your Divided Authorities theme, and Fiona and William for hosting my visit. For discussions on robotics, point clouds, and machine learning, I thank Jutta Weber, Oliver Leistert, and their colleagues at University of Paderborn, Germany. Thanks to Nanna Thylstrup and her collaborators on the Uncertain Archives project at University of Copenhagen, and to discussions with Luciana Parisi, Ramon Amaro, and Antoinette Rouvroy—for experiments with algorithms and archives. Peter Niessen and Christine Hentschel at the University of Hamburg probably did not realize how much their invitation to give a lecture in their *Revenge of the Bots* series would indelibly mark the final stages of my writing; thank you, generous audience, especially the computer scientists. Marc Boeckler, Till Straube, and their colleagues at Goethe University, Frankfurt, generously invited me as part of their Digital Disorders theme and made possible the most inspiring interdisciplinary conversations. Thank you. Sometimes, the process of writing can be a lonely affair, but these past years have felt full of conversation and inspiration. I am grateful for the many times I have felt that my work reached new audiences and different perspectives: thank you, Peter Burgess and his students at the *École Nationale Supérieure*, Paris; Pip Thornton,

Andrew Dwyer, Joe Shaw, and others present in the audience at the Turing Institute, London; Jeroen de Kloet and colleagues at the Amsterdam Centre for Globalisation Studies (and Erna Rijdsdijk and Mike Shapiro for asking questions that I can still recall); Nathaniel Tkacz, Celia Lury, and their colleagues at the Warwick Centre for Interdisciplinary Methodologies for discussions of data streams; Huub Dijstelbloem and the University of Amsterdam's Politics of Visualization group; Martin Kornberger, Ann-Christina Lange, and their Copenhagen Business School colleagues working on digital infrastructures; Gunes Tavmen and her colleagues at the University of London, Birkbeck, and the Vasari Institute, for conversations on cloud ethics; Susan Schuppli, Luciana Parisi, Jussi Parrika, and Eyal Weizman, for memorable discussions of the architecture of algorithms; N. Katherine Hayles and all the participants in the Thinking with Algorithms conference in Durham; Jamie Woodward, Maja Zefuss, Noel Castree, Martin Coward, Veronique Pin-Fat, and those in the audience at the Manchester University 125 Years Anniversary lecture. You have no idea how much your generosity has supported my work.

I am grateful for the patience and time afforded to me by many people whose daily working lives bring them close to the lifeworlds of algorithms. Without the insights of computer scientists, doctors, software developers, lawyers—and many others who were willing to share their accounts—it would not have been possible to pursue my questions. It can be difficult to engage with new vocabularies and practices, but this kind of difficulty has been so productive in following threads in the dark and finding insight in the multiple meanings of bias, attribute, decision, weight, and judgment. It seems to me that the basis for ethics in an age of algorithms is not strictly a shared language and common understanding but precisely the persistence of difference and the inexplicable.

The writing of this book was funded by the award of a Leverhulme Major Research Fellowship, “Ethics of Algorithms” (2016–2018). I have been extraordinarily fortunate to be afforded the time and resources to do the work that I so wanted to be able to do. It has become much more difficult in the UK to fund the aspects of scholarship that involve reading, thinking, presenting and discussing work, and writing. Thank you, Leverhulme Trust, and may you long continue to act against the grain of prevailing logics of research funds in our times. During my fellowship, two extraordinary women have undertaken my teaching duties: Sarah Hughes and Sydney Calkin. They are a tour de force, and I thank them for everything they have done. Much of the fieldwork research for the book was funded by the Economic and Social Research Council (ESRC) for research on “Securing against Future Events” (2012–16). Throughout the project I worked in collaboration with Volha Piotukh—a post-

doctoral researcher of simply astounding talent. Volha, my thanks will always fall short. You simply never gave up—you got us into places for interviews and observations that I would have said were impossible. You asked questions that challenged, exposed, and opened new pathways. You are the human embodiment of a whole new methodology for the social sciences and humanities to engage science. Hanging out with you (long-haul flights, broken trains) has been inspirational.

I owe an immeasurable debt to Duke University Press editor Courtney Berger, who has once more offered encouragement and thoughtful critique in equal measure. Thank you to Jenny Tan and Sandra Korn for guiding me patiently through the editorial and production process, and Lalitree Darnielle for working on the art and illustrations with such care. I am especially grateful to the three anonymous reviewers for the incredible investment of their time and insight in making this a better book. A version of chapter 1 appeared previously as “Cloud Geographies: Computing, Data, Sovereignty,” *Progress in Human Geography* 42, no. 1 (2018): 4–24.

Finally, friends and family. You know who you are, and you know how you tolerated the tunnel vision that can be necessary to see something through. Marieke de Goede, we have walked and talked in countless places from Turin to San Diego over twenty-two years, and every conversation has left its mark. My gratitude to you is distilled to a dinner in Boston in April 2016 when you put the whole show back on the road—thank you. Jonathan, you listened patiently to all the nonsense and supplied a different kind of distillation, craft gin—a finer brother there cannot be. Grace and Tom—you are older now, and though the words “mum is finishing a book” bring necessary shrugs of the shoulders (and some giggling), you are so very kind about it. Paul, I only realized in these past few weeks that we never work on completing manuscripts at the same time. Like everything in our lives, they are shared across time, with love and support. Thank you for making it possible, and it is your turn again now.