Rebecca Raper

Raising Robots to be Good

A Practical Foray into the Art and Science of Machine Ethics

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Never let your sense of morals prevent you from doing what is right.
– Isaac Asimov (1960)

Everything's got a moral, if only you can find it.
– Alice from 'Alice's Adventures in Wonderland' (Lewis Carroll, 1865)

Inspired by and made for Lilly and Jack.

Preface and Acknowledgements

Though the outcome of my PhD research, this book has been the culmination of 7 years intense thinking around how we might create machines with morals. I was first introduced to the topic back in 2017 when I saw a PhD advertisement to work on the topic of 'Robots and Kindness'. Up until this point I had only studied philosophy (I had a particular interest in *logic* and *the philosophy of mind*) and a bit of psychology, and knew I wanted to apply my experience to solving problems in Artificial Intelligence but didn't know how. When I saw the project scope asking for a philosopher to look at how we might create *kind robots*, I thought the project was ambitious and crazy enough for me to try out. Little did I know that it would become such a big part of my life, and that 7 years later I would be writing up my ideas into a book, and that it would ultimately give me a whole new career in Robotics.

I was fortunate enough to be given the chance to spend my time working on this area, therefore, after completion of my PhD I decided I wanted to write a book—using the same material—but for a wide audience, so that everyone can enjoy thinking about questions in this area. Though a significant number of the later chapters represent my own thinking on how we might create moral machines, a large portion of the book is devoted to introducing those unfamiliar to the area to the concepts and language to be able to have informed conversations about it. It is my belief that science benefits from a diversity of ideas, therefore, by opening up this area to as many people as possible, science will benefit, and we can move closer (together) to solving one of society's most pressing and interesting challenges.

I would have not succeeded in the past 7 years, and in creating this book, if it were not for the individuals that have supported me on this journey, whether that be academically, personally or in terms of offering more practical support during periods of ill health. First and foremost, I want to thank my family (that's my mum, Gail, brother, Mathew, and sister, Toni) who have provided critical support during the hardest times, and who have endured many dinnertime conversations about *The Trolley Problem*, *Moral Agency* and *Robot Rights*, particularly my mum for reading through the drafts of this book and for giving me 'non expert' insight into whether my writing was understandable to a broad audience. I want to thank my PhD supervisors, Nigel Crook and Matthias Rolf, who introduced me to this topic and also

endured many heated debates surrounding how we might create robots with morals, alongside the Machine Ethics reading group at Oxford Brookes University and other colleagues who have contributed to my thinking in this area, with special mention to Oliver Bridge, Nicola Strong and Phil Harvey for their out of hours discussions. Also, my PhD examiners, David Gunkel and Alan Winfield were invaluable in rigorously dissecting my PhD thesis and providing insight to help shape my ideas to what they eventually are in this book. Finally, I want to thank Springer Nature and the publishing team for sponsoring this project, particularly Susan Grove and Arun Siva Shanmugam for answering many questions as I embarked on this writing journey.

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