PREFACE

This book emerged from the last four years of my work, in which my research focused on value sensitive design, its philosophical foundations, limits, and areas where it can be adapted to meet the needs and challenges of emerging technologies. Most of the ideas included here were first presented in lectures to engineers, where I received invaluable feedback, allowing me to refine my theories and realize the true power of the value sensitive design approach, particularly as a means for addressing more challenging technologies like AI.

Building on the practical-mindedness I learned from those engineers and designers, *Designed for Death* offers a pragmatic way forward, a middle-path approach for dealing with the issues attending the rise of the use of artificial intelligence in theatres of war. Artificial intelligence is becoming ever more ubiquitous in society, in terms of its presence in both everyday technologies such as cell phones as well as advanced applications such as fast trading algorithms in the stock market. Coupled with the almost unfathomable quantity of information that characterizes big data, artificial intelligence systems have become ever more nebulous, opaque, and difficult – if not impossible – to understand. Their ability to process inhuman quantities of data and make decisions in an increasingly autonomous fashion have enabled them to make their mark not only in civilian spheres such as research laboratories, pharmaceutical companies, and stock markets, but also naturally in the military domain.

Warfare, more than virtually any other area, is marked by the imperative to race towards greater supremacy and technological prowess as a means to ensure victory and maintain hegemony. Artificial intelligence systems were arguably born in the military domain, and they continue to be a driving technology powering many current military systems in most arsenals, especially global superpowers such as the United States, the United Kingdom, Russia, and China. In particular, the growing global debate on the use of AI-powered autonomous weapons has merited attention. The increasing abdication of human control and executive authority to machines becomes worrisome when we envision the natural consequence of this trend, namely total abdication and thus full autonomy in selecting and engaging targets without human intervention or consent. These fully autonomous weapons systems are the central object of study in this book. More specifically, this book aims to explore ways to ensure that meaningful human control over autonomous weapons systems can be and is designed *for*. It argues that, in order to have a sufficiently comprehensive understanding of meaningful human control, such a theory must account for the real military procedures of how operations are conducted, as well as the design histories and relevant moral agents within the military-industrial complex, which are also fundamental to the design and deployment of such socio-technical systems.

This book adopts the value sensitive design approach as the means to accomplish this, to design *for* meaningful human control. Value sensitive design has been adopted as a principled approach to designing various existing as well as futuristic technologies. The value sensitive design approach is fundamentally predicated on the *interactional* stance towards technology – or, more precisely, that social factors co-construct and co-vary with technological artifacts. Part of the rationale behind this approach is that technologies embody values. However, artificial intelligence systems that employ machine learning and artificial neural networks are often opaque, and thus the values that they may (dis)embody can be unforeseen or unforeseeable. This book takes a look at the different ways in which technologies embody values and how they fit within the larger social contexts, as well as how to more accurately understand the embodiment of values for artificial intelligence systems such as autonomous weapons systems.

Despite what is presented here, many of the challenges concerning autonomous weapons systems remain. Still, I hope that my efforts serve as a sober guide to ameliorating some of the issues barring realistic policies of regulation at the international level, and instead lead to better international cooperation and compromise, the mark of good leadership.