

# Governing Lethal Behavior in Autonomous Robots

Ronald C. Arkin



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# Governing Lethal Behavior In Autonomous Robots

**Katrin Zwirgmaier**



## **Governing Lethal Behavior In Autonomous Robots:**

Governing Lethal Behavior in Autonomous Robots Ronald Arkin, 2009-05-27 Expounding on the results of the author's work with the US Army Research Office DARPA the Office of Naval Research and various defense industry contractors Governing Lethal Behavior in Autonomous Robots explores how to produce an artificial conscience in a new class of robots humaneoids which are robots that can potentially perform more et

**Living with Robots** Paul Dumouchel, Luisa Damiano, 2017-11-06 From artificial intelligence to artificial empathy a timely and well written volume that addresses many contemporary and future moral questions Library Journal Today's robots engage with human beings in socially meaningful ways as therapists trainers mediators caregivers and companions Social robotics is grounded in artificial intelligence but the field's most probing questions explore the nature of the very real human emotions that social robots are designed to emulate Social roboticists conduct their inquiries out of necessity every robot they design incorporates and tests a number of hypotheses about human relationships Paul Dumouchel and Luisa Damiano show that as roboticists become adept at programming artificial empathy into their creations they are abandoning the conventional conception of human emotions as discrete private internal experiences Rather they are reconceiving emotions as a continuum between two actors who coordinate their affective behavior in real time Rethinking the role of sociability in emotion has also led the field of social robotics to interrogate a number of human ethical assumptions and to formulate a crucial political insight there are simply no universal human characteristics for social robots to emulate What we have instead is a plurality of actors human and nonhuman in noninterchangeable relationships Foreshadowing an inflection point in human evolution Living with Robots shows that for social robots to be effective they must be attentive to human uniqueness and exercise a degree of social autonomy More than mere automatons they must become social actors capable of modifying the rules that govern their interplay with humans A detailed tour of the philosophy of artificial intelligence AI especially as it applies to robots intended to build social relationships with humanity If we are to build a robust appropriate ethical structure around the next generation of technical development some combination of deep learning artificial intelligence robotics and artificial empathy we need to understand that managing the impact of these technologies is far too important to be left to those who are enthusiastically engaged in producing them Times Higher Education

*The Legality and Accountability of Autonomous Weapon Systems* Afonso Seixas-Nunes, 2022-05-19 By adopting a multi disciplinary approach this book provides a comprehensive analysis of the legality of the use of autonomous weapons systems under international law It examines different arguments presented by States roboticists and scholars to demonstrate the challenges such systems will create for the laws of war This study examines how technology of warfare seeks to increase the dissociation of risk and communication between weapons and their human operators Furthermore it explains how algorithms might give rise to errors on the battlefield that cannot be directly attributed to human operators Against this backdrop Dr Seixas Nunes examines three

distinct legal frameworks the distinction between the legality of weapons and the laws of targeting different mechanisms of individual accountability and the importance of recovering the category of *dolus eventualis* for programmers and technicians and finally State responsibility for violations of the laws of war caused by weapons software errors     Countering Hybrid Threats Against Critical Infrastructures Dorin Radu, Mirsada Hukić, Ashok Vaseashta, 2025-04-30 This proceedings volume presents a collection of articles from key practitioners from relevant areas with experience in critical infrastructure The authors acknowledge that the responsibility for critical infrastructure protection is primarily a matter of international importance hence a high degree of cross border and cross sectoral interdependencies must be coordinated or where appropriate legally harmonized efforts at the international level including the smooth functioning of the internal policies The book focuses on countering hybrid threats that render critical infrastructures vulnerable An understanding of such threats will render critical infrastructure safe secure and resilient The protection of national critical infrastructures as well as of the functions and services critical to the proper functioning of society is a key priority and requires a new unique and strategic approach Work in this direction must consider the strong interdependencies between the various critical functions and services including financial services the key role of the private sector the changing security environment and emerging risks both in the physical and cyber fields In addition to legal requirements agreements should be promoted with private sector infrastructure and service owners and operators to ensure the continuity of and access to critical services including beyond force majeure by ensuring an acceptable level of preparedness to respond all relevant threats as well as the flexibility to address and mitigate the effects of low probability high impact events     **Robot Ethics** Patrick Lin, Keith Abney, George A. Bekey, 2014-01-10 Prominent experts from science and the humanities explore issues in robot ethics that range from sex to war Robots today serve in many roles from entertainer to educator to executioner As robotics technology advances ethical concerns become more pressing Should robots be programmed to follow a code of ethics if this is even possible Are there risks in forming emotional bonds with robots How might society and ethics change with robotics This volume is the first book to bring together prominent scholars and experts from both science and the humanities to explore these and other questions in this emerging field Starting with an overview of the issues and relevant ethical theories the topics flow naturally from the possibility of programming robot ethics to the ethical use of military robots in war to legal and policy questions including liability and privacy concerns The contributors then turn to human robot emotional relationships examining the ethical implications of robots as sexual partners caregivers and servants Finally they explore the possibility that robots whether biological computational hybrids or pure machines should be given rights or moral consideration Ethics is often slow to catch up with technological developments This authoritative and accessible volume fills a gap in both scholarly literature and policy discussion offering an impressive collection of expert analyses of the most crucial topics in this increasingly important field

Robot Law Ryan Calo, A Michael Froomkin, Ian Kerr, 2016-01-29 Like the Internet before it robotics is a socially and

economically transformative technology Robot Law explores how the increasing sophistication of robots and their widespread deployment into hospitals public spaces and battlefields requires rethinking of a wide variety of philosophical and public policy issues including how this technology interacts with existing legal regimes and thus may inspire changes in policy and in law This volume collects the efforts of a diverse group of scholars who each in their own way has worked to overcome barriers in order to facilitate necessary and timely discussions of a technology in its infancy Identifying controversial legal ethical and philosophical problems the authors reveal how issues surrounding robotics and regulation are more complicated than engineers could have anticipated and just how much definitional and applied work remains to be done This groundbreaking examination of a brand new reality will be of interest and of use to a variety of groups as the authors include engineers ethicists lawyers roboticists philosophers and serving military

The Routledge Handbook on Responsibility in International Relations Hannes Hansen-Magnusson,Antje Vetterlein,2021-07-29 What does responsibility mean in International Relations IR This handbook brings together cutting edge research on the critical debates about responsibility that are currently being undertaken in IR theory This handbook both reflects upon an emerging field based on an engagement in the most crucial theoretical debates and serves as a foundational text by showing how deeply a discussion of responsibility is embedded in broader questions of IR theory and practice Contributions cover the way in which responsibility is theorized across different approaches in IR and relevant neighboring disciplines and demonstrate how responsibility matters in different policy fields of global governance Chapters with an empirical focus zoom in on particular actor constellations of emerging states international organizations political movements or corporations or address how responsibility matters in structuring the politics of global commons such as oceans resources or the Internet Providing a comprehensive overview of IR scholarship on responsibility this accessible and interdisciplinary text will be a valuable resource for scholars and students in many fields including IR international law political theory global ethics science and technology area studies development studies business ethics and environmental and security governance

Robots that Talk and Listen Judith Markowitz,2014-12-12 Robots That Talk and Listen provides a forward looking examination of speech and language in robots from technical functional and social perspectives Contributors address cultural foundations as well as the linguistic skills and technologies that robots need to function effectively in real world settings Among the most difficult and complex is the ability to understand and use language Speech enabled automata are already serving as interactive toys teacher s aides and research assistants These robots will soon be joined by personal companions industrial co workers and military support automata The social impact of these and other robots extends well beyond the specific tasks they perform Contributors tackle the most knotty of those issues notably acceptance of advanced speech enabled robots and developing ethical and moral controls for robots Topics in this book include Language and Beyond The True Meaning of Speech Enabled Robots in Myth and Media Enabling Robots to Converse Language Learning by Automata Handling Noisy Settings Empirical

Studies of Robots in Real World Environments Acceptance of Intelligent Robots Managing Robots that Can Lie and Deceive Envisioning a World Shared with Intelligent Robots **The AI Commander** James Johnson, 2024-08-09 What does AI mean for the role of humans in war The AI Commander addresses the largely neglected question of how the fusion of machines into the war machine will affect the human condition of warfare James Johnson emphasizes the mind both human and machine and the mechanisms of thought intelligence consciousness emotion memory experience etc to consider the effects of AI and autonomy on the human condition of war Johnson investigates the vexing and misunderstood and at times contradictory ethical moral and normative implications whether incremental transformative or revolutionary of synthesizing man and machine in future algorithmic warfare or AI enabled centaur warfighting At the heart of these vexing questions are whether we are inevitably moving toward a situation in which AI enabled autonomous weapons will make strategic decisions in place of humans and thus become the owners of those decisions Can AI powered systems replace human commanders And more importantly should they The AI Commander argues that AI cannot be merely passive and neutral force multipliers of human cognition Instead they will likely become either by conscious choice or inadvertently strategic actors in war AI will transform the role and nature of human warfare but not necessarily in the ways most observers expect **New Pathways to Civil Justice in Europe** Xandra Kramer, Alexandre Biard, Jos Hoevenaars, Eris Themeli, 2021-09-17 This book focuses on four topical and interconnected innovative pathways to civil justice within the context of securing and improving access to justice the use of Artificial Intelligence and its interactions with judicial systems ADR and ODR tracks in privatising justice systems the effects of increased self representation on access to justice and court specialization and the establishment of commercial courts to counter the trend of vanishing court trials Top academics and experts from Europe the US and Canada address these topics in a critical and multidisciplinary manner combining legal socio legal and empirical insights The book is part of Building EU Civil Justice a five year research project funded by the European Research Council It will be of interest to scholars and policymakers as well as practitioners working in the areas of civil justice alternative dispute resolution court systems and legal tech The chapters Introduction The Future of Access to Justice Beyond Science Fiction and Constituting a Civil Legal System Called Just Law Money Power and Publicity are available open access under a Creative Commons Attribution 4.0 International License via [link.springer.com](https://link.springer.com) **A World with Robots** Maria Isabel Aldinhas Ferreira, Joao Silva Sequeira, Mohammad Osman Tokhi, Endre E. Kadar, Gurvinder Singh Virk, 2017-01-05 This book contains the Proceedings of the International Conference on Robot Ethics held in Lisbon on October 23 and 24 2015 The conference provided a multidisciplinary forum for discussing central and evolving issues concerning safety and ethics that have arisen in various contexts where robotic technologies are being applied The papers are intended to promote the formulation of more precise safety standards and ethical frameworks for the rapidly changing field of robotic applications The conference was held at Pavilhão do Conhecimento Ciência Viva in Lisbon and brought together leading researchers and industry

representatives promoting a dialogue that combines different perspectives and experiences to arrive at viable solutions for ethical problems in the context of robotics The conference topics included but were not limited to emerging ethical safety legal and societal problems in the following domains Service Social Robots Robots performing tasks in human environments and involving close human robot interactions in everyday households robots for education and entertainment and robots employed in elderly and other care applications Mobile Robots Self driving vehicles autonomous aircraft trains cars and drones Robots used in medicine and for therapeutic purposes Robots used in surveillance and military functions The Morality of Drone Warfare and the Politics of Regulation Marcus Schulzke, 2016-10-26 This book discusses the moral and legal issues relating to military drones focusing on how these machines should be judged according to the principles of just war theory The author analyses existing drones like the Predator and Reaper but also evaluates the many types of drones in development The book presents drones as not only morally justifiable but having the potential to improve compliance with the principles of just war and international law Realizing this potential would depend on developing a sound regulatory framework which the book helps to develop by considering what steps governments and military forces should take to promote ethical drone use It also critically evaluates the arguments against drones to show which should be abandoned and which raise valid concerns that can inform regulations *Routledge Handbook of Security Studies* Myriam Dunn Cavelty, Thierry Balzacq, 2016-07-01 This revised and updated second edition features over twenty new chapters and offers a wide ranging collection of cutting edge essays from leading scholars in the field of Security Studies The field of Security Studies has undergone significant change during the past 20 years and is now one of the most dynamic sub disciplines within International Relations This second edition has been significantly updated to address contemporary and emerging security threats with chapters on organised crime migration and security cyber security energy security the Syrian conflict and resilience amongst many others Comprising articles by both established and up and coming scholars The Routledge Handbook of Security Studies provides a comprehensive overview of the key contemporary topics of research and debate in the field of Security Studies The volume is divided into four main parts Part I Theoretical Approaches to Security Part II Security Challenges Part III Regional In Security Part IV Security Governance This new edition of the Handbook is a benchmark publication with major importance for both current research and the future of the field It will be essential reading for all scholars and students of Security Studies War and Conflict Studies and International Relations **Robots That Kill** Judith A. Markowitz, 2019-04-11 This book describes real world killer robots using a blend of perspectives Overviews of technologies such as autonomy and artificial intelligence demonstrate how science enables these robots to be effective killers Incisive analyses of social controversies swirling around the design and use of killer robots reveal that science alone will not govern their future Among those disputes is whether fully autonomous robotic weapons should be banned Examinations of killers from the golem to Frankenstein s monster reveal that artificially created beings like them are precursors of real 21st

century killer robots This book laces the death and destruction caused by all these killers with science and humor The seamless combination of these elements produces a deeper and richer understanding of the robots around us

**The Military Revolution and Revolutions in Military Affairs** Mark Fissel, 2022-12-05 The Military Revolution and Revolutions in Military Affairs updates two central debates in military history the one surrounding the concept of military revolution and the one on military affairs whilst advancing original research in both fields Only a handful of publications consider the military revolution and the RMA in tandem This book breaks new ground conceptually and appeals to an exceptionally large and diverse readership Comparative revisionist studies of the military revolution and RMA better enable us to comprehend the historical continuum and reveal the new RMA for what it is And for what it is shortly to become This book presents original contributions within the epicentre of the military revolution debate the 1500s with an emphasis on gunpowder revolution offensively and defensively The connections with the Revolution in Military Affairs are then made explicit by scholars a practitioner and an analyst with an emphasis on airborne lethal autonomous weapons systems This is a chronologically broad and unique methodological approach to a historical debate that begs for clarification as we enter an era where killer robots will almost certainly take from humans their monopoly on violence

**The Law of Armed Conflict and the Use of Force** Frauke Lachenmann, Rüdiger Wolfrum, 2017 This volume collects articles on the law of armed conflict and the use of force from the Max Planck Encyclopedia of Public International Law to facilitate easy access to content from the leading reference work in international law

**Roboethics** Spyros G. Tzafestas, 2015-07-27 This volume explores the ethical questions that arise in the development creation and use of robots that are capable of semiautonomous or autonomous decision making and human like action It examines how ethical and moral theories can and must be applied to address the complex and critical issues of the application of these intelligent robots in society Coverage first presents fundamental concepts and provides a general overview of ethics artificial intelligence and robotics Next the book studies all principal ethical applications of robots namely medical assistive socialized and war roboethics It looks at such issues as robotic surgery children robot and elderly robot therapeutical social interactions and the use of robots especially autonomous lethal ones in warfare In addition a chapter also considers Japanese roboethics as well as key intercultural and robot legislation issues Overall readers are provided with a thorough investigation into the moral responsibility if any of autonomous robots when doing harm This volume will serve as an ideal educational source in engineering and robotics courses as well as an introductory reference for researchers in the field

[The Future Law of Armed Conflict](#) Matthew C. Waxman, Thomas W. Oakley, 2022 New technologies new geopolitical alignments new interests and vulnerabilities and other developments are changing how why and by whom conflict will be waged The Future Law of Armed Conflict considers how law and institutions for creating interpreting and enforcing the law of armed conflict might look two decades ahead as well as what opportunities may exist to influence it in that time This book brings together a diverse set of voices to debate



questions that are likely to emerge and consider possible futures      **Artificial Intelligence and Global Security** Yvonne R. Masakowski, 2020-07-15 Artificial Intelligence and Global Security Future Trends Threats and Considerations brings a much needed perspective on the impact of the integration of Artificial Intelligence AI technologies in military affairs Experts forecast that AI will shape future military operations in ways that will revolutionize warfare      *Law, Ethics and Emerging Military Technologies* George Lucas, 2022-12-16 This book addresses issues of legal and moral governance arising in the development deployment and eventual uses of emerging technologies in military operations Proverbial wisdom has it that law and morality always lag behind technological innovation Hence the book aims to identify enumerate and constructively address the problems of adequate governance for the development deployment and eventual uses of military technologies that have been newly introduced into military operations or which will be available in the near future Proposals for modifications in governance the book argues closely track the anxieties of many critics of these technologies to the extent that they will proliferate prove destructive in unanticipated ways and partially or wholly escape regulation under current treaties and regulatory regimes In addition to such concerns in domestic and especially in international law the book addresses ethical norms in the professions involved in the design and eventual use of specific technologies principally involving the professional norms of practice in engineering and the military as well as biomedical and health care practice which impose moral obligations on their members to avoid reckless endangerment or criminal negligence in the course of their activities Thus in addition to exploring the application of existing legal regimes and moral norms the book examines how these professions might develop or improve the voluntary constraints on forms of malfeasance that are enshrined in their histories and codes of best practices This book should prove of great interest to students of ethics military studies philosophy of war and peace law and international relations

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