On Power

Neurophilosophical Foundations and Policy Implications

by

Nayef R. F. Al-Rodhan

Series in Philosophy

VERNON PRESS

In the Americas:
Vernon Press
1000 N West Street, Suite 1200,
Wilmington, Delaware 19801
United States

In the rest of the world:
Vernon Press
C/Sancti Espiritu 17,
Malaga, 29006
Spain

Series in Philosophy

Library of Congress Control Number: 2021938615

ISBN: 978-1-64889-145-8

Cover design by Vernon Press.

Cover image by the author.

Table of contents

List of Figures

Introduction

Writing a book about "power" is challenging. Many have tried to decipher the concept, the notion, the meaning of power in human society. Some have managed to present inspired theories, and others have influenced their peers with convincing arguments. Is power a notion, is it a concept, and is it tangible? It's a challenge to grasp because the very meaning of power has been so widely debated, and it remains one of the most contested and contentious notions in philosophy and politics.

The complexity of the term *power* seems endless. Greek mythology, the Sanskrit scripture of the *Bhagavad Gita*, religious texts such as the Bible and the Koran, political philosophers (ancient, modern, and contemporary), statesmen across centuries (CE): all have had something to say about power. Whether invoked in relation to the cosmos or to the gods, or expressed in terms of relations among people or states, power has been a fundamental preoccupation of literature, philosophy, mythology, and political theory. So, where does one begin? How does one make sense of such a complex conceptual maze?

My goal in this project is to provide a panoramic, in-depth, historical, contemporary and predictive analysis of power. I define power as *the ability to exercise influence, positively or negatively, in order to achieve specific endpoints that satisfy primordial or perceived psychological predilections and provide innate neurochemical gratification.* In doing so, I go a step further from previous general conceptualizations of power such as that proposed by Robert Dahl, for example, who described power as any case in which "A has power over B to the extent that he can get B to do something that B would not otherwise do."[1] This book will look deeper into the history of power, outlining its role in the history of humanity and, more importantly, in the context of human nature. This conceptualization will seek to understand not only individual power, but crucially—critically—power as conceived in social, political, cultural and national contexts.

Some key questions have guided my inquiry: How is power expressed in neurochemical terms and what does that tell us about human nature? How has the meaning of power evolved from thousands of years ago to the present day? I posit that the meaning of power *has* changed and evolved dramatically over the course of recent history. What are the main ways that the meaning of power has been transformed over time at the individual, collective, and state levels? How will automation alter the meaning of power? How is human enhancement challenging the notion of power in a societal context? Globally, and at the state level, what imminent changes should one expect in the distribution of power?

The themes explored throughout the book help shed new light on the way power has been exercised in the past and where it is headed in the face of political and technological transformations. I hope to make an original attempt to draw on the recent findings in the field of neuroscience to produce a neurochemical understanding of the nature of power. Thinkers have conventionally defined power as the capacity to influence or coerce. Bertrand Russell regarded it as one of the most profound human desires, one that is boundless and can never be fully satisfied. The advent of neuroscience in the twentieth century, and its incredible tools for mapping changes in the human brain down to the neurocellular and neuroanatomical levels, has brought about new insights into power—including absolute power. These insights into the human brain also demonstrate how political power is expressed neurochemically as well as how transitions and political change can be handled securely and sustainably. But before reaching for contemporary tools to understand and analyze power, let's take a panoramic view of other influential philosophical understandings of power.

Throughout history, philosophers have explored the notion of power in great depth. In the nineteenth century, Friedrich Nietzsche and Arthur Schopenhauer put forward very different conceptions of it. While Schopenhauer insisted on viewing power as the "will to live," devoid of anything more significant than our egoistic human nature, Nietzsche asserted that the substance of morality is contained within power.

For Schopenhauer, there is nothing beyond will. Robert Wicks has summarized his conception: "The world as it is in itself is an endless striving and blind impulse with no end in view, devoid of knowledge, lawless, absolutely free, entirely self-determining and almighty."[2] The "will to live" thus encapsulates the whole notion of power that exists in a world without sense or meaning beyond its attainment. Only our egoistic nature helps us survive in a directionless environment. In Schopenhauer's own words, "the will to live everywhere preys upon itself and in different forms is its own nourishment, till finally the human race, because it subdues all the others, regards nature as a manufactory for its use."[3] Provided we are filled with the feeling of power with which the will endows us, "we need have no fear for our existence, even in the presence of death."[4]

To Nietzsche, by contrast, good and bad in the world are defined by reference to the notion of power. Indeed, there exists good and bad to the precise extent that power is obtained or relinquished. In his writings, good is defined as "everything that heightens the feeling of power in man, the will to power, power itself"; whereas bad is "everything that is born of weakness."[5] Nietzsche thus maintains that one's increasing sense of power and ability to overcome obstacles to its acquisition constitutes the very meaning of happiness in the world. His definition of power, as R. Lanier Anderson has summarized it, is the "tendency toward growth, strength, domination, or expansion."[6]

Nietzsche's notion of power as attained and maintained provides meaning for the concept of "good," but also connotes the perennial struggle for absolute dominance, involving competition and comparison with others. For Nietzsche, the tension inherent in this circumstance is what makes humans strive for more; indeed, strive for the "will to power." This doctrine, Anderson argues, "seems to claim that everything that exists rests fundamentally on an underlying basis of 'power-centers,' whose activity and interactions are explained by a principle that they pursue the expansion of their power."[7] One can retain from his writings that the world is made of power centers that exert force and test their respective strengths against one another. The notion of power centers is disputed and is a focus of extended scholarly controversy. Nietzsche's description of the concept is abstract, evoking references to nineteenth-century physics and the notion of "force-centers," although there are also possible references to concrete entities, such as people and organisms, exerting a will to power. Nietzsche primarily sought to refute Schopenhauer by explaining that life is not meaningless, and that power is precisely what drives humanity to evolve and improve. We aim at the enhancement of our power, because it is "good" for our species and for the world in general.

In the twentieth century, new wars and new realities changed our conception of the world and of human nature. Bertrand Russell distinguished himself with a deep and inspired analysis of the notion of power. Nations and nationalisms had torn profound wounds across continents, which may be why Russell's conception of power is largely focused specifically on *state* power—whether economic, political, or cultural. He insists that some human desires are "essentially boundless and incapable of complete satisfaction," and that "of the infinite desires of man, the chief desires are the desires for power and glory."[8] For Russell, power is "naked," because its subjects respect it "solely because it is power, and not for any other reason."[9] He emphasizes, however, that different types of impulses create the desire for more power, namely "explicit" impulses—inherent in leaders, and "implicit" impulses—inherent in followers.[10] He thus rejects Nietzsche's "master-slave morality," arguing that followers do not feel they have the requisite competence to lead and end up seeking out a leader. Seeking power can thus be a "genuinely cooperative enterprise," in which followers gain vicariously from the achievements of their leader.[11] Furthermore, Russell suggested, and I believe rightfully so, that "human beings find it profitable to live in communities, but their desires, unlike those of bees in a hive, remain largely individual; hence arises the difficulty of social life and the need of government."[12] This vision supports and completes his theory of "naked power."

The features of Russell's concept of power are different from those outlined in the nineteenth century. Power is the ability to achieve goals, but is also a form of social domination, as the "impulse of submission . . . "has its roots in fear."[13]

This analysis of the notion of power thereby includes an appeal to emotionality. Ultimately, Russell's definition of power can be summarized as the "production of intended effects." He breaks forms of influence down into three general categories: the power of force and coercion, the power of reward and punishment, and the power of propaganda and habit.[14] The key ambition of Russell's work is thus to develop a new method of conceiving of the social sciences, which amounts to the deeper examination of the different forms of power; meaning the analysis of the various ways human beings have power over one another.

Russell's analysis highlights central ideas about the notion of power. To me, the validity of his arguments lies in his understanding and thorough exposé of the contrasting notions of "power of" and "power over." This is of interest because the emotional aspect included in his theories can be explained and verified through neuroscience. It strongly resonates with my own theory of human nature, which includes aspects of emotionality, and, critically, the neurochemical reaction produced by fear. Before presenting my own approach to the notion, however, I would like to mention a third philosophical source that has significantly contributed to the discussion of power.

After the Second World War, the world experienced a period of uncertainty on numerous fronts, including in domestic and global politics. Signs of renewal and recovery began to emerge, however, in the following years (at least in Western Europe), and with this, a growing will transcend some of the barriers that defined the previous eras. It was in this context that the European integration process began, as well as other regional cooperation movements. The French postmodernist movement realized the potential of this shift, and seized the opportunity to add an important dimension to the analysis of power—the idea that truth and objectivity do not exist; only power and interest do. According to Michel Foucault, there is no power in the substantive sense. To him, power is characterized by relations. Relations of power consist of a variety of more or less organized, hierarchical, and coordinated clusters. The analysis of power thus necessarily extends beyond the limits of the state. Foucault insists that the "state is far from being able to occupy the whole field of actual power relations."[15] In fact, he rightly explains that "the state can only operate on the basis of other already existing power relations." He also proposed an interesting explanation of the link between power and truth. Truth, he argues, "is not outside power or lacking in power." Indeed, each society has its own "regime of truth." The accepted discourse, the mechanisms installed to discern true and false, the sanctions, the values, the status of those who articulate truth—all of these, combined, form a regime of truth specific to each power relation. In other words, "'truth' is to be understood as a system of ordered procedures for the production, regulation, distribution, circulation

and operation of statements."[16] Foucault maintains that power is "above all a relation of force," but contrary to Nietzsche's goodness–power relationship, he views power as that which represses.[17] He thus emphasizes the idea that "we are subjected to the production of truth through power, and we cannot exercise power except through the production of truth."[18] For Foucault, power and interests are thus unbreakably intertwined.

Michel Foucault has understood that we are influenced by our surroundings, and as such, we are part of a field of power relations that create various regimes of truth depending on where we are within them. My own exploration of the concept of power will offer a neuroscientific analysis that can justify this line of thinking. The added layer of analysis I propose brings scientific evidence to bear to support these philosophical propositions.

Based on this very brief and non-exhaustive review of the literature most relevant to the exploration of the concept of "power," I would like to sketch a brief outline of the theoretical and scientific analysis I propose for gaining a better understanding of it. Both Schopenhauer and Nietzsche insist that the notion of power is strongly linked with humanity's will to survive, to live, to strive for power, to be superior to others. From this, I derive what I call egoism—the primal instinct for survival that is the goal of our neurochemical makeup. Russell's analysis of "power over" and "power of" suggests a form of fear linked with the understanding power. Fear is part of our emotional mapping, and is a central element in our instinct to survive. In this book—and in my previous writings over the past decade—I put forward an interpretation of the concept of power in light of emotionality.

Finally, as Foucault correctly interprets it in my view, power is linked with the environment we find ourselves in. We are influenced by, and taught to behave according to, power relations, and their corresponding regimes of truth. Power is thus strongly connected to our surroundings. From a neuroscientific standpoint, these claims can be substantiated with evidence showing that the malleability of our brains enables our environments to easily affect us. I therefore claim that we all start on an amoral level, and begin learning moral values only when confronted with the realities in which we live. My theory of human nature, which I have termed *emotional amoral egoism*, relies on findings from neuroscience that have accumulated over recent decades. These findings, I argue, bring robust illumination to bear on the concept and reality of power.

The reason I am interested in analyzing power is the opportunity to take a new approach to the traditional discourse. More specifically, I am interested in the application of neuroscientific insights to the analysis of the concept of power in the field of international relations.

When analyzing the concept of power in international relations one is really "investigating influence," as Steven Lukes points out. Power resides in the hands of those who influence. Lukes explains that, among other things, "as a result of mystification, repression, or the sheer unavailability of alternative ideological frames, subordinates remain unaware of their true interests."[19] This is why, even though the terms "influence" and "power" are often used interchangeably, power goes beyond influence. It is not only "the capacity to do things and in social situations to affect others to get the outcome we want," the basic definition Joseph Nye begins with, but also not to allow the development of certain possibilities for others to discover different outcomes.[20] Power can thus be viewed as the ability to influence and control a narrative, without providing the tools to allow an understanding that there might be an alternative. Thus, in contrast to Robert Dahl's version of A getting "B to do something that B would not otherwise do," Lukes suggests a more nuanced version: "A in some way affects B," and "A does so in a non-trivial or significant manner."[21] Rather than the simple exertion of control Dahl offers, power for Lukes involves *shaping perception*. It can be viewed as the ability to "prevent people, to whatever degree, from having grievances by shaping their perceptions, cognitions and preferences in such a way that they accept their role in the existing order of things."[22] But how can we measure and interpret the magnitude of power? Indeed, what if power holders misread people's interests?

The entity that has thus far proven most relevant when it comes to protecting people's interests in the present geopolitical context is the nation-state. As I highlighted in a previous article, the capacity of a state in international politics has long been assessed in terms of its military prowess and physical resources.[23] Frequently, geopolitics has focused on a few specific conceptions of power without providing a comprehensive framework for analyzing all of the elements that contribute to the stability of states and their positions in the international system. I thus analyzed statecraft in the twenty-first century in light of its key components, and this framework goes beyond the dogma of geopolitics. Distinct from traditional geopolitical analysis, my theoretical framework of *meta*-geopolitics provides a more nuanced treatment of the determinants of state power in terms of seven crucial capacities that make up national power.

These capabilities break down as follows: *social and health issues*, *domestic politics*, *economics*, *the environment*, *science and human potential*, *military and security issues*, and *international diplomacy*. I analyze these capabilities in detail in Chapter 3, but it is important to emphasize the following point here. These seven capacities of states provide a measure of state stability and can be used as indicators to predict the longevity of a particular state, and to point to troubling

trends within states that undermine their stability. As a more comprehensive understanding of power in the twenty-first century, the meta-geopolitics paradigm also offers a basis from which to derive policy recommendations because weaknesses in any one of the above-described capacities also often present an opportunity for reform, and thus for improved governance. Understanding the concept of power in the realms of international relations thus also means providing scales to measure the status of a power center or actor. As I present in more detail later in the book, I propose using such measuring scales to assess state capabilities as means of reaching a better understanding power and the *perception* of power in the twenty-first century.

Traditionally, within international relations theory, state power has been linked with a form of hard power, which can be narrowly defined as a military force and economic might. Imposing security barriers, menacing with invasion tactics, or influencing trade agreements has long been seen as the main measuring scale of state power. At the end of the Cold War, and through the spread of liberalism and liberal norms, another form of power began to take shape, and was advocated for—namely, *soft power*. Soft power is primarily linked with the spreading of a state's culture and lifestyle. Furthermore, a strategic combination of hard and soft power led Joseph Nye to suggest, back in 2003, that power can also be *smart*.[24] In fact, according to Nye, in order for power to be smart, a state needs to find "ways to combine resources into successful strategies in the new context of power diffusion and the 'rise of the rest.'" Indeed, he continues, "a smart power provides the answers to five questions: First, what goals or outcomes are preferred?" Second, "what resources are available and in which context?" Third, "what are the positions and preferences of the targets of influence attempts?" Fourth, "which forms of power behavior are most likely to succeed?" And fifth, "what is the probability of success?"[25] The influence of a nation-state can thus be measured by its employment of force or of cultural persuasion. I would add, however, that while all three forms of power are indeed observable and help establish the status and capabilities of a state, power also needs to be *just*. One of the aims of the present work is thus to strongly emphasize that hard, soft, or smart forms of power above all need to be subjected to an overarching form: *just power*. States and other power holders must act in accordance with the respect for human dignity and human rights around the world.

As my argument starts from this geopolitical perspective on power, and incorporates a neuroscientific approach to the concept of power and its impact on social relations, the aim of this book is to propose sustainable solutions in light of the evolution of the concept of power over time, and thereby to help make sense of our highly interconnected and technologically advanced world. The timing of this publication reflects the ever-growing fragility of world

PAGES MISSING

FROM THIS FREE SAMPLE

Bibliography

Adam, David. "Adventures in Brain-Hacking: How an Electrical Stimulator Boosted My IQ." *The Guardian*. February 7, 2018. www.theguardian.com/lifeandstyle/2018/feb/07/brain-hacking-smart-drugs-electrical-stimulation-iq-mensa-modafinil.

Al-Rodhan, Nayef. "A Neuro-philosophy of Dignity-based Governance." Blog of the APA [American Philosophical Association]. October 16, 2018. http://blog.apaonline.org/2018/10/16/a-neuro-philosophy-of-dignity-based-governance.

Al-Rodhan, Nayef. "A Neuro-philosophy of History: 'Sustainable History,' with Dignity, and without Directionality." Blog of the APA [American Philosophical Association]. August 20, 2018. http://blog.apaonline.org/2018/08/20/a-neuro-philosophy-of-history-sustainable-history-with-dignity-and-without-directionality.

Al-Rodhan, Nayef. "A Neuro-Philosophy of Human Nature: Emotional Amoral Egoism and the Five Motivators of Humankind." Blog of the Blog of the APA [American Philosophical Association]. April 4, 2019. http://blog.apaonline.org/2019/04/04/a-neuro-philosophy-of-human-nature-emotional-amoral-egoism-and-the-five-motivators-of-humankind.

Al-Rodhan, Nayef. "A Proposed Theory of Knowledge: Neuro-rational Physicalism." E-International Relations. December 13, 2014. www.e-ir.info/2014/12/13/a-proposed-theory-of-knowledge-neuro-rational-physicalism.

Al-Rodhan, Nayef. "Eight Substrates for a Possible Universal Axiology." E-International Relations. October 21, 2014. www.e-ir.info/2014/10/21/eight-substrates-for-a-possible-universal-axiology.

Al-Rodhan, Nayef. "Emotional Amoral Egoism and its Implications for Understanding Conflicts." E-International Relations. February 28, 2018. www.e-ir.info/2018/02/28/emotional-amoral-egoism-and-its-implications-for-understanding-conflicts.

Al-Rodhan, Nayef. "Free-Wheeling Web Commentary Challenges Media's Traditional Power." YaleGlobal. March 31, 2015. https://yaleglobal.yale.edu/content/free-wheeling-web-commentary-challenges-medias-traditional-power.

Al-Rodhan, Nayef. "Freedom vs. Dignity: A Sustainable History Thesis for the Arab Spring." *Georgetown Journal of International Affairs*. November 7, 2013. www.georgetownjournalofinternationalaffairs.org/online-edition/freedom-vs-dignity-a-sustainable-history-thesis-for-the-arab-spring-by-nayef-al-rodhan.

Al-Rodhan, Nayef. "Future Wars: Reshaping the Ethics and Norms of War." *Wilson Quarterly*, Summer 2015. www.wilsonquarterly.com/quarterly/summer-2015-an-age-of-connectivity/future-wars-reshaping-the-ethics-and-norms-of-war.

Al-Rodhan, Nayef. "Geopolitics of Dignity." Oxpol. June 17, 2014. https://blog.politics.ox.ac.uk/geopolitics-dignity.

Al-Rodhan, Nayef. "Introduction: A Thousand Years of Amnesia." In *The Role of the Arab-Islamic World in the Rise of the West: Implications for Contemporary*

Trans-Cultural Relations. Edited by Nayef Al-Rodhan, 1–24. Basingstoke, UK: Palgrave Macmillan, 2012.

Al-Rodhan, Nayef. "Knowledge and Global Order." BBVA OpenMind, 2013. www.bbvaopenmind.com/wp-content/uploads/2013/08/Knowledge-and-Global-Order_Nayef-Al-Rodhan.pdf.

Al-Rodhan, Nayef. "Neurochemical Man and Emotional Amoral Egoism." *The Montreal Review*. January 2015. www.themontrealreview.com/2009/Who-are-we-Neurochemical-man-and-emotional-amoral-egoism.php.

Al-Rodhan, Nayef. "Neurophilosophy and Transhumanism." Blog of the APA [American Philosophical Association]. February 19, 2019. http://blog.apaonline.org/2019/02/19/neurophilosophy-and-transhumanism.

Al-Rodhan, Nayef. "Post-truth Politics, the Fifth Estate and the Securitization of Fake News." *Global Policy*. June 7, 2017. www.globalpolicyjournal.com/blog/07/06/2017/post-truth-politics-fifth-estate-and-securitization-fake-news.

Al-Rodhan, Nayef. "Predisposed Tabula Rasa." OxPol. May 15, 2015. https://blog.politics.ox.ac.uk/predisposed-tabula-rasa.

Al-Rodhan, Nayef. "Proposal of a Dignity Scale for Sustainable Governance." Oxpol. January 29, 2016. https://blog.politics.ox.ac.uk/11986-2.

Al-Rodhan, Nayef. "Strategic Culture and Pragmatic National Interests." *Global Policy*. July 22, 2015. www.globalpolicyjournal.com/blog/22/07/2015/strategic-culture-and-pragmatic-national-interest.

Al-Rodhan, Nayef. "Symbiotic Realism and Just Power." openDemocracy. April 28, 2015. www.opendemocracy.net/en/symbiotic-realism-and-just-power.

Al-Rodhan, Nayef. "The 'Ocean Model of Civilization,' Sustainable History Theory and Global Cultural Understanding." Oxpol. June 1, 2017. https://blog.politics.ox.ac.uk/ocean-model-civilization-sustainable-history-theory-global-cultural-understanding.

Al-Rodhan, Nayef. "The 'Sustainable History' Thesis: A Guide for Regulating Trans- and Post-humanism." E-International Relations. April 24, 2018. www.e-ir.info/2018/04/24/the-sustainable-history-thesis-a-guide-for-regulating-trans-and-post-humanism.

Al-Rodhan, Nayef. "The Many Ethical Implications of Emerging Technology." *Scientific American*. March 13, 2015. www.scientificamerican.com/article/the-many-ethical-implications-of-emerging-technologies.

Al-Rodhan, Nayef. "The Neurochemistry of Power: Implications for Political Change." OxPol¸ February 27, 2014. https://blog.politics.ox.ac.uk/neurochemistry-power-implications-political-change.

Al-Rodhan, Nayef. "The Seven Capacities of State: A Meta-geopolitical Framework." *Georgetown Journal of International Affairs*. March 8, 2018. www.georgetownjournalofinternationalaffairs.org/online-edition/2018/3/7/the-seven-capacities-of-states-a-meta-geopolitical-framework.

Al-Rodhan, Nayef. "The Social Contract 2.0: Big Data and the Need to Guarantee Privacy and Civil Liberties." OxPol. September 22, 2014. https://blog.politics.ox.ac.uk/social-contract-2-0-big-data-need-guarantee-privacy-civil-liberties.

Al-Rodhan, Nayef. "Transhumanism and War." *Global Policy*. May 18, 2015. www.globalpolicyjournal.com/blog/18/05/2015/transhumanism-and-war.

Al-Rodhan, Nayef. "Us vs. Them: How Neurophilosophy Explains Our Divided Politics." World Economic Forum. October 3, 2016. www.weforum.org/agenda/2016/10/us-versus-them-how-neurophilosophy-explains-populism-racism-and-extremism.

Al-Rodhan, Nayef. *Emotional Amoral Egoism: A Neurophilosophical Theory of Human Nature and its Universal Security Implications*. Berlin: LIT, 2008.

Al-Rodhan, Nayef. *Neo-statecraft and Meta-Geopolitics: Reconciliation of Power Interests and Justice in the 21st Century*. Berlin: Lit Verlag, 2009.

Al-Rodhan, Nayef. *Sustainable History and the Dignity of Man*. Berlin: LIT Verlag, 2009.

Al-Rodhan, Nayef. *Symbiotic Realism: A Theory of International Relations in an Instant and an Interdependent World*. Berlin: LIT, 2007.

Al-Rodhan, Nayef. *The Emergence of Blogs as a Fifth Estate and Their Security Implications*. Geneva: Slatkine, 2007.

Al-Rodhan, Nayef. *The Five Dimensions of Global Security: Proposal for a Multi-sum Security Principle*. Berlin: LIT, 2007.

Allen, Anita L. and Nicolle K. Strand. "Cognitive Enhancement and Beyond: Recommendations from the Bioethics Commission." *Trends in Cognitive Sciences* 19, no. 10 (2015): 549–51.

Allhoff, Fritz, Patrick Lin, and Jesse Steinberg. "Ethics of Human Enhancement: An Executive Summary." *Science and Engineering Ethics* 17, no. 2 (2011): 201–12. https://doi.org/10.1007/s11948-009-9191-9.

Andersen, Ross. "Hell on Earth." *Aeon*. March 13, 2014. aeon.co/essays/how-will-radical-life-extension-transform-punishment.

Anderson, Benedict. *Imagined Communities*. Rev. ed. Verso: London, 2006.

Anderson, R. Lanier. "Friedrich Nietzsche." *Stanford Encyclopedia of Philosophy*. Stanford University, 1997–. Article published March 17, 2017. https://plato.stanford.edu/entries/nietzsche.

Arendt, Hannah. *On Violence*. London: Harcourt, 1970.

Arif, Nadia, Majed Al-Jefri, Isabella Harb Bizzi, Gianni Boitano Perano, Michel Goldman, Inam Haq, Kee Leng Chua et al. "Fake News or Weak Science? Visibility and Characterization of Antivaccine Webpages Returned by Google in Different Languages and Countries." *Frontiers in Immunology* 9, June 5, 2018, 1–12. www.ncbi.nlm.nih.gov/pmc/articles/PMC5996113/pdf/fimmu-09-01215.pdf.

Armatta, Judith. "Comment: Milosevic's Propaganda War." Institute for War and Peace Reporting. February 27, 2003. www.iwpr.net/global-voices/comment-milosevics-propaganda-war.

Avent, Ryan. *The Wealth of Humans: Work, Power, and Status in the Twenty-First Century*. New York: St. Martin's Press, 2016.

Axworthy, Michael, and Patrick Milton. "The Myth of Westphalia: Understanding Its True Legacy Could Help the Middle East." *Foreign Affairs*. December 22, 2016. www.foreignaffairs.com/articles/europe/2016-12-22/myth-westphalia.

Baumgartner, Emily. "As D.I.Y. Gene Editing Gains Popularity, 'Someone Is Going to Get Hurt,'" *New York Times*. May 14, 2018. www.nytimes.com/2018/05/14/science/biohackers-gene-editing-virus.html?searchResultPosition=1.

Beard, Matthew, Gai Galliott, and Sandra Lynch. "Soldier Enhancement: Ethical Risks and Opportunities." *Australian Army Journal* 13, no. 1 (2016): 5–20.

Beer, David. "The Embedded Power of Algorithms." openDemocracy. July 3, 2014. www.opendemocracy.net/david-beer/embedded-power-of-algorithms.

Beer, David. "The Social Power of Algorithms." *Information, Communication & Society* 20, no. 1 (2016), 1–13.

Berger, Bennet, and Elena Vaccarino. "Codetermination: Boosting Cooperation between Management and Employees." World Economic Forum. October 19, 2016. www.weforum.org/agenda/2016/10/codetermination-boosting-cooperation-between-management-and-employees.

Birdsall, Nancy. "The World Is Not Flat: Inequality and Injustice in Our Global Economy." Wider Annual Lecture, United Nations University. March 2006. https://wider.unu.edu/sites/default/files/AL09-2005.pdf.

Bloomfield, Brian, and Karen Dale. "We Have Never Been 'Human': Imaginaries of Cognitive Enhancement and 'Posthuman' Embodiment." Paper presented at the UNIGE Conference "Approaching Posthumanism and the Posthuman," UniBastions, University of Geneva. June 4–6, 2015.

Bomey, Nathan. "Uber Self-Driving Car Crash: Vehicle Detected Arizona Pedestrian 6 Seconds before Accident." *USA Today*. May 24, 2018. www.usatoday.com/story/money/cars/2018/05/24/uber-self-driving-car-crash-ntsb-investigation/640123002.

Booth, Ken. "Strategic Culture: Validity and Validation." *Oxford Journal on Good Governance* 2, no. 1 (2005): 25–28.

Booth, Robert. "Facebook Reveals News Feed Experiment to Control Emotions." *The Guardian*. June 30, 2014. www.theguardian.com/technology/2014/jun/29/facebook-users-emotions-news-feeds.

Boston Dynamics. "Robots." Accessed February 20, 2021. www.bostondynamics.com/robots.

Braidotti, Rosi. "Post-human Critical Theory." In *Critical Posthumanism and Planetary Futures*. Edited by Debashish Banerji and Makarand R. Paranjape, 13–32. Springer, 2016.

Bremner, J. Douglas. "Traumatic Stress: Effects on the Brain." *Dialogues in Clinical Neuroscience* 8, no. 4 (2006): 445–61.

Brickman, Adam M., Usman A. Khan, Frank A. Provenzano, Lok-Kin Yeung, Wendy Suzuki, Hagen Schroeter, Melanie Wall et al. "Enhancing Dentate Gyrus Function with Dietary Flavanols Improves Cognition in Older Adults." *Nature Neuroscience* 17, no. 12 (2014): 1798–1803.

Bromberg-Martin, Ethan S., Masayuki Matsumoto, and Okihide Hikosaka. "Dopamine in Motivational Control: Rewarding, Aversive, and Alerting." *Neuron* 68, no. 5 (2010): 815–34.

Buranyi, Stephen. "What Is the World to Do about Gene-Editing?" *New York Review of Books*. March 21, 2019.

Burgess, Matt. "Twitter Has Admitted Russian Trolls Targeted the Brexit Vote (A Little Bit)." *Wired*. February 8, 2018. www.wired.co.uk/article/twitter-russia-brexit-fake-news-facebook-russia.

Butterworth, Brian. *What Counts: How Every Brain Is Hardwired for Math*. New York: Free Press, 1999.

Buyse, Antoine. "The Role of Human Dignity in ECHR Case-Law." ECHR Blog. October 21, 2016. www.echrblog.blogspot.ch/2016/10/the-role-of-human-dignity-in-echr-case.html.

Caplan, Arthur. "Deleting Memories: Techniques That Can Soften or Erase Memories Raise Many Ethical Questions." *MIT Technology Review*. June 18, 2013. www.technologyreview.com/2013/06/18/177677/deleting-memories.

Chee, Chan Heng, and Harvey Neo. "5 Big Challenges Facing Big Cities of the Future." World Economic Forum. October 29, 2018. www.weforum.org/agenda/2018/10/the-5-biggest-challenges-cities-will-face-in-the-future.

Chin, Casey. "Gene Editing Is Trickier Than Expected—But Fixes Are In Sight." *Wired*. February 28, 2019. www.wired.com/story/precise-gene-editing-is-trickier-than-expected-but-fixes-are-in-sight/?verso=true.

Chrisifis, Angelique. "Emmanuel Macron Promises Ban on Fake News during Elections." *The Guardian*. January 3, 2018. www.theguardian.com/world/2018/jan/03/emmanuel-macron-ban-fake-news-french-president.

Chung, Timothy. "OFFensive Swarm-Enabled Tactics (OFFSET), DARPA. Accessed February 20, 2021. www.darpa.mil/program/offensive-swarm-enabled-tactics.

Clark, Vincent P., and Raja Parasuraman. "Neuroenhancement: Enhancing Brain and Mind in Health and in Disease." *Neuroimage* 85 (2014): 889–94. https://doi.org/10.1016/j.neuroimage.2013.08.071.

Columbia University Medical Center. "Select Memories Can Be Erased, Leaving Others Intact." June 22, 2017. www.cuimc.columbia.edu/news/select-memories-can-be-erased-leaving-others-intact.

Committee for Development Policy. "Global Governance and Global Rules for Development in the Post-2015 Era." United Nations. June 2014. www.un.org/en/development/desa/policy/cdp/cdp_publications/2014cdppolicynote.pdf.

Council of the European Communities. "COUNCIL DIRECTIVE 93/42/EEC of 14 June 1993 concerning Medical Devices." Accessed February 22, 2021. www.eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1993L0042:20071011:en:PDF.

Croquet, Pauline. "Comment la science s'invite dans les films de super héros." *Le Monde*. March 12, 2018. www.lemonde.fr/pixels/article/2018/03/12/les-super-heros-volent-et-envoient-des-eclairs-mais-ont-aussi-recours-a-la-science_5269417_4408996.html.

Cutsuridis, Vassilis. "Memory Prothesis: Is It Time for a Deep Neuromimetic Computing Approach?" *Frontiers in Neuroscience*. 13 (July 2019). https://www.frontiersin.org/articles/10.3389/fnins.2019.00667/full.

Dahl, Robert A. "The Concept of Power." *Behavioral Science* 2, no. 3 (1957): 201–15.

Damasio, Antonio. "'How Neuroscience Helps Us to Understand Human Nature' By Antonio Damasio [Brain World Magazine]." Evolution, Morality, and Politics. April 17, 2020. www.evolutionmoralitypolitics.com/how-neuroscience-helps-us-to-understand-human-nature-by-antonio-damasio/?fbclid=IwAR2mret7BEfCdOIp2C-n8L-dKRZj_SB8J16B14gr9pciYTbVH7YU-F0iuik#.Xpn0u3zsRpo.facebook.

DARPA. "DARPA and the BRAIN Initiative." Accessed February 20, 2021. www.darpa.mil/program/our-research/darpa-and-the-brain-initiative.

DARPA. "DARPA Assured Autonomy Seeks to Guarantee Safety of Learning-Enabled Autonomous Systems." August 6, 2017. www.darpa.mil/news-events/2017-08-16.

DARPA. "Implantable 'Neural Dust' Enables Precise Wireless Recording of Nerve Activity." August 3, 2016. www.darpa.mil/news-events/2016-08-03.

DARPA. "Innovation at DARPA." July 2016. www.darpa.mil/attachments/DARPA_Innovation_2016.pdf.

DARPA. "Minimally Invasive 'Stentrode' Shows Potential as Neural Interface for Brain." February 9, 2016. https://cacm.acm.org/careers/198070-minimally-invasive-stentrode-shows-potential-as-neural-interface-for-brain/fulltext.

DARPA. "Neuroscience of Touch Supports Improved Robotic and Prosthetic Interfaces." October 26, 2016. www.darpa.mil/news-events/2016-10-26.

DARPA. "Nonsurgical Neural Interfaces Could Significantly Expand Use of Neurotechnology." March 16, 2018. www.darpa.mil/news-events/2018-03-16.

DARPA. "OFFSET 'Sprinters' Encouraged to Share Innovative Ideas for Swarm Systems." October 12, 2017. www.darpa.mil/news-events/2017-10-12.

DARPA. "Reliable Neural-Interface Technology (RE-NET)." Accessed February 20, 2021. www.darpa.mil/program/re-net-reliable-peripheral-interfaces.

DARPA. "Researchers Identify Conductor of Brain's Neural Orchestra & Begin to Decode the Score." May 18, 2017. www.darpa.mil/news-events/2017-05-18.

DARPA. "Towards a High-Resolution, Implantable Neural Interface." July 10, 2017. www.darpa.mil/news-events/2017-07-10.

DARPA. "Work Begins to Support Self-Healing of Body and Mind." October 10, 2015. www.darpa.mil/news-events/2015-10-05.

DCIST. "Heterogeneous Group Control." Accessed February 20, 2021. www.dcist.org/2018/01/02/heterogeneous-group-control.

De Bruin-Molé, Megen. "Cannibalizing History and Reanimating the Monster in Contemporary Remix Culture." Paper presented at the UNIGE Conference "Approaching Posthumanism and the Posthuman," UniBastions, University of Geneva. June 4–6, 2015.

De Lartigue, Guillaume, and Chelsea Xu. "Mechanisms of Vagal Plasticity influencing Feeding Behavior." *Brain Research* 1693 (2018): 146–50.

De Ruijter, Anouk. "Non-therapeutic Neuro-enhancement: What Regulatory Framework Can Safeguard the Risks?" Master's thesis, Tilburg University, 2016. arno.uvt.nl/show.cgi?fid=142098.

Denyer, Simon. "Beijing Bets on Facial Recognition in a Big Drive for Total Surveillance." *Washington Post*. January 7, 2018. www.washingtonpost.com/news/world/wp/2018/01/07/feature/in-china-facial-recognition-is-sharp-end-of-a-drive-for-total-surveillance.

Denyer, Simon. "China's Plan to Organize Its Society Relies on 'Big Data' to Rate Everyone." *Washington Post*. October 22, 2016. www.washingtonpost.com/world/asia_pacific/chinas-plan-to-organize-its-whole-society-around-big-data-a-rating-for-everyone/2016/10/20/1cd0dd9c-9516-11e6-ae9d-0030ac1899cd_story.html.

DeYoung, Colin G. "The Neuromodulator of Exploration: A Unifying Theory of the Role of Dopamine in Personality." *Frontiers in Human Neuroscience* 7, no. 762 (November 2013): 1–26.

Diamond, Adele, and Dima Amso. "Contributions of Neuroscience to Our Understanding of Cognitive Development." *Current Directions in Psychological Science* 17, no. 2 (2008): 136–41.

Dill, Brendan, and Richard Holton. "The Addict in Us All." *Frontiers in Psychiatry* 5, no. 139 (2014): 1–20. https://doi.org/10.3389/fpsyt.2014.00139.

Dobbs, Richard. "Megacities: FP's Guide to the Coming Urban Age." *Foreign Policy*. August 16, 2010. https://foreignpolicy.com/2010/08/16/megacities.

Dodou, Kalliopi, and Hamde Nazar. "Cognitive Enhancers: What They Are, How They Work and What is in the Pipeline." *The Pharmaceutical Journal*. February 19, 2013. www.pharmaceutical-journal.com/news-and-analysis/cognitive-enhancers-what-they-are-how-they-work-and-what-is-in-the-pipeline/11117394.article?firstPass=false.

Elliott, Carl. "In Defense of the Beta Blocker." *The Atlantic*. August 2008. www.theatlantic.com/magazine/archive/2008/08/in-defense-of-the-beta-blocker/306961.

Enteen, George M. "George Orwell and the Theory of Totalitarianism: A *1984* Retrospective." *Journal of General Education* 36, no. 3 (1984): 206–15.

Epstein, Robert. "How Google Could Rig the 2016 Election." Politico. August 19, 2015. www.politico.com/magazine/story/2015/08/how-google-could-rig-the-2016-election-121548.

Eureporter. "Eucomed Survey Highlights €17.5bn Needed for 'Necessary' Measures in Europe." September 12, 2013. https://www.eureporter.co/economy/2013/09/12/eucomed-survey-highlights-e17-5bn-needed-for-unnecessary-measures-in-europe/.

European Agency for Safety and Health at Work. "A Review on the Future of Work: Performance-Enhancing Drugs." November 20, 2016. www.osha.europa.eu/en/publications/future-work-performance-enhancing-drugs/view.

"European Convention on Human Rights" (1950). Accessed February 19, 2021. www.echr.coe.int/documents/convention_eng.pdf.

Evans, Patrick. "Will Germany's New Law Kill Free Speech Online?" BBC News. September 17, 2017. www.bbc.com/news/blogs-trending-41042266.

Farah, Martha J., M. Elizabeth Smith, Irena Ilieva, and Roy H. Hamilton. "Cognitive Enhancement." *Wiley Interdisciplinary Reviews: Cognitive Science* 5, no. 1 (2014): 95–103.

Fernandez, Alvaro. "Five Reasons the Future of Brain Enhancement Is Digital, Pervasive and (Hopefully) Bright." World Economic Forum. May 1, 2017. www.weforum.org/agenda/2017/05/five-reasons-the-future-of-brain-enhancement-is-digital-pervasive-and-hopefully-bright.

Fields, R. Douglas. "A Neuroscience Perspective on Brexit." *Psychology Today*. June 26, 2016. www.psychologytoday.com/intl/blog/the-new-brain/201606/neuroscience-perspective-brexit.

Fischer, Adrian G., and Markus Ullsperger. "An Update on the Role of Serotonin and its Interplay with Dopamine for Reward." *Frontiers in Human Neuroscience*. October 11, 2017. https://doi.org/10.3389/fnhum.2017.00484.

Fitz, Nicholas S., and Peter B. Reiner. "The Challenge of Crafting Policy for Do-It-Yourself Brain Stimulation." *Journal of Medical Ethics* 41 (2015): 410–12. https://doi.org/10.1136/medethics-2013-101458.

Foucault, Michel. *Foucault Live (Interviews, 1966–84)*. Edited by Sylvère Lotringer. Translated by John Johnston. New York: Semiotext(e), 1989.

Foucault, Michel. *Power/Knowledge: Selected Interviews and Other Writings 1972–1977*. Edited by Colin Gordon. Translated by Colin Gordon, Leo Marshall, John Mepham, and Kate Soper. New York: Pantheon, 1980.

Freeman, Richard B. "The Great Doubling: Labor in the New Global Economy." In *Ending Poverty in America: How to Restore the American Dream*. Edited by John Edwards, Marion Crain, Arne L. Kalleberg, 55–65. New York: New Press, 2009.

Frey, Carl Benedikt, and Michael A. Osborne. "The Future of Employment: How Susceptible Are Jobs to Computerisation?" *Technological Forecasting and Social Change* 114 (2017): 254–80.

Fukuyama, Francis. "Second Thoughts: The Last Man in a Bottle." *The National Interest* 56 (1999): 16–33.

Fukuyama, Francis. *The Origins of Political Order*. New York: Farrar, Straus, and Giroux, 2012.

Future of Digital Economy and Society System Initiative. "Cyber Resilience Playbook for Public-Private Collaboration." World Economic Forum. January 2018. www3.weforum.org/docs/WEF_Cyber_Resilience_Playbook.pdf.

Future of Life Institute. "ASILOMAR AI Principles." Accessed February 22, 2021. www.futureoflife.org/ai-principles.

Future of Life Institute. "Slaughterbots." November 13, 2017. YouTube video. www.youtube.com/watch?v=HipTO_7mUOw.

Garden, Hermann, Diana M. Bowman, Sebastian Haesler, and David E. Winickoff. "Neurotechnology and Society: Strengthening Responsible Innovation in Brain Science." *Neuron* 92, no. 3 (2016): 642–46.

Gelsinger, Pat. "Four New 'Superpowers' You Should Know About." World Economic Forum. January 15, 2018. www.weforum.org/agenda/2018/01/the-four-superpowers-shaping-our-world.

Gestuvo, M. K., and W. W. Hung. "Common Dietary Supplements for Cognitive Health." *Aging Health* 8, no. 1 (2012): 89–97. https://doi.org/10.2217/AHE.11.92.

Ghernaouti, Solange. *Cyber Power: Crime, Conflict and Security in Cyberspace*. Lausanne, Switzerland: EPFL Press, 2013.

Godwin, Richard. "'We Will Get Regular Body Upgrades': What Will Humans Look Like in 100 Years?" *The Guardian*. September 22, 2018. www.theguardian.com/lifeandstyle/2018/sep/22/regular-body-upgrades-what-will-humans-look-like-in-100-years?CMP=Share_iOSApp_Other.

Goldin, Ian. "Navigating Our Global Future." TEDGlobal 2009, TED: Ideas Worth Spreading. Accessed February 18, 2021. www.ted.com/talks/ian_goldin_navigating_our_global_future/transcript.

Goldsworthy, Adrian. *How Rome Fell*. New Haven: Yale University Press, 2009.

Goody, Jack. *The Theft of History*. New York: Cambridge University Press, 2006.

Gosepath, Stefan. "Equality." In *Stanford Encyclopedia of Philosophy*. Stanford University, 1997–. Article published March 27, 2001. Substantive revision June 27, 2007. https://plato.stanford.edu/entries/equality.

Green, C. Shawn, and Daphné Bavelier. "Action Video Game Training for Cognitive Enhancement." *Current Opinion in Behavioral Sciences* 4 (2015): 103–8.

Green, Joshua. *Moral Tribes: Emotion, Reason, and the Gap Between Us and Them*. New York: Penguin, 2014.

Grind, Kirsten, Sam Schechner, Robert McMillan, John West. "How Google Interferes with Its Search Algorithms and Changes Your Results." *Wall Street Journal*. November 15, 2019. https://www.wsj.com/articles/how-google-interferes-with-its-search-algorithms-and-changes-your-results-11573823753.

Gupta, Varun K., L. Scheunemann, T. Eisenberg, S. Mertel, A. Bhukel, T. S. Koemans, J. M. Kramer, K. S. Liu, S. Schroeder, H. G. Stunnenberg, and F. Sinner. "Restoring Polyamines Protects from Age-Induced Memory Impairment in an Autophagy-Dependent Manner." *Nature Neuroscience* 16, no. 10 (2013): 1453–60.

Harari, Yuval Noah. *Sapiens: A Brief History of Humankind*. London: Harvill Secker, 2014.

Hardin, Russell, and Garrett Cullity. "The Free Rider Problem." In *Stanford Encyclopedia of Philosophy*. Stanford University, 1997–. Article published May 21, 2003. Substantive revision October 13, 2020. https://plato.stanford.edu/entries/free-rider.

Harris, Lasana T., and Susan T. Fiske. "Dehumanized Perception: A Psychological Means to Facilitate Atrocities, Torture, and Genocide?" *Zeitschrift für Psychologie* 219, no. 3 (2011): 175–81.

Harvard Health Publishing. "Testosterone May Improve Mental Function." January 2008. www.health.harvard.edu/press_releases/testosterone-and-memory.

He, Shenghui. "The First Human Trial of CRISPR-based Cell Therapy Clears Safety Concerns as New Treatment for Late-Stage Lung Cancer." *Nature*. August 25, 2020. https://www.nature.com/articles/s41392-020-00283-8.pdf.

Herrera, Geoffrey L. "New Media for a New World? Information Technology and Threats to National Security." In *Globalization and National Security*. Edited by Jonathan Kirshner, 75–104. New York: Routledge, 2006.

Hickman, Leo. "How Algorithms Rule the World." *The Guardian*. July 1, 2013. www.theguardian.com/science/2013/jul/01/how-algorithms-rule-world-nsa.

Himmelreich, Johannes. "The Ethical Challenges Self-Driving Cars Will Face Every Day." *Smithsonian Magazine*. March 27, 2018. www.smithsonianmag.com/innovation/ethical-challenges-self-driving-cars-will-face-every-day-180968596.

Hobbes, Thomas. *Leviathan or the Matter, Forme, & Power of a Common-wealth Ecclesiasticall and Civill*. London: Andrew Ckooke, at the Green Dragon in St. Paul's Churchyard, 1651.

Horel, Stéphane. "Comment le lobby des implants médicaux a fait plier la Commission européenne." *Le Monde*. November 27, 2018. www.lemonde.fr/implant-files/article/2018/11/27/comment-les-legislateurs-europeens-ont-cede-au-lobby-des-implants-medicaux_5389262_5385406.html.

Hornung, Jean-Pierre. "The Human Raphe Nuclei and the Serotonergic System." *Journal of Chemical Neuroanatomy* 26, no. 4 (2003): 331–43.

Hu, Jiangyuan, Larissa Ferguson, Kerry Adler, Carole A. Farah, Margaret H. Hastings, Wayne S. Sossin, and Samuel Schacher. "Selective Erasure of Distinct

Forms of Long-Term Synaptic Plasticity Underlying Different Forms of Memory in the Same Postsynaptic Neuron." *Current Biology* 27, no. 13 (2017): 1888–99.

Hughes, James J. "Posthumans and Democracy in Popular Culture." In *The Palgrave Handbook of Posthumanism in Film and Television*. Edited by Michael Hauskeller, Thomas D. Philbeck, and Curtis D. Carbonell, 235–45. London: Palgrave Macmillan, 2015.

Human Enhancement and the Future of Work: Report from a Joint Workshop Hosted by the Academy of Medical Sciences, the British Academy, the Royal Academy of Engineering and the Royal Society. November 2012. https://acmedsci.ac.uk/file-download/35266-135228646747.pdf.

Hurd, Ian. *How to Do Things with International Law*. New Jersey: Princeton University Press, 2017.

Ienca, Marcello, and Roberto Andorno. "Towards New Human Rights in the Age of Neuroscience and Neurotechnology." *Life Sciences, Society, and Policy* 13, no. 5 (December 2017): 1–27. https://doi.org/10.1186/s40504-017-0050-1.

Iglseder, Bernhard. "Doping für das Gehirn." *Zeitschrift für Gerontologie und Geriatrie* 51, no. 2 (2018): 143–48. https://doi.org/10.1007/s00391-017-1351-y.

International Committee of the Red Cross. "Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977." Accessed February 20, 2021. https://ihl-databases.icrc.org/ihl/WebART/470-750045?OpenDocument.

International Consortium of Investigative Journalists. "Implant Files." Accessed February 22, 2021. www.icij.org/investigations/implant-files.

Jenkins, Amy. "Autonomous Diagnostics to Enable Prevention and Therapeutics (ADEPT)." DARPA. Accessed February 20, 2021. www.darpa.mil/program/autonomous-diagnostics-to-enable-prevention-and-therapeutics.

"Joint Declaration on Freedom of Expression and Fake News, Disinformation and Propaganda." Joint declaration of the United Nations Special Rapporteur on Freedom of Opinion and Expression, the Organization for Security and Co-operation in Europe Representative on Freedom of the Media, the Organization of American States Special Rapporteur on Freedom of Expression and the African Commission on Human and Peoples' Rights Special Rapporteur on Freedom of Expression and Access to Information. March 3, 1917. www.osce.org/fom/302796?download=true.

Judt, Tony. *Postwar*. New York: Penguin, 2005.

Juengst, Eric, and Daniel Moseley. "Human Enhancement." In *Stanford Encyclopedia of Philosophy*. Stanford University, 1997–. Article published April 7, 2015. Substantive revision May 15, 2019. https://plato.stanford.edu/entries/enhancement.

Kahneman, Daniel. *Thinking Fast and Slow*. New York: Farrar, Straus, and Giroux, 2011.

Kamienski, Lukasz. *Shooting Up: A Short History of Drugs and War*. New York: Oxford University Press, 2016.

Kaplan, Fred. "Rethinking Nuclear Policy: Taking Stock of the Stockpile." *Foreign Affairs* 95, no. 5 (2016): 18–25.

Kelsay, John. *Arguing the Just War in Islam*. Cambridge: Harvard University Press, 2007.

Kissinger, Henry. *World Order*. New York: Penguin, 2014.

Knefel, John. "How the Pentagon is Building the 'Enhanced' Super Soldier of Tomorrow." 2016. www.inverse.com/article/9988-how-the-pentagon-is-building-the-enhanced-super-soldiers-of-tomorrow.

Kreitner, Richard. "Post-Truth and Its Consequences: What a 25-Year-Old Essay Tells Us about the Current Moment." *The Nation*. November 30, 2016. www.thenation.com/article/post-truth-and-its-consequences-what-a-25-year-old-essay-tells-us-about-the-current-moment.

Krill, Austen, and Steven M. Platek. "In-Group and Out-Group Membership." *Frontiers in Evolutionary Neuroscience* 1, no. 1 (2009). https://doi.org/10.3389/neuro.18.001.2009.

Lander, Eric, Françoise Baylis, Feng Zhang, Emmanuelle Charpentier, Paul Berg, Catherine Bourgain, Bärbel Friedrich et al. "Adopt a Moratorium on Heritable Genome Editing." *Nature* 567, no. 7747 (March 2019): 165–68.

Lavrin, Janko. *Tolstoy: An Approach Bound with Dostoyevsky: A Study*. Abingdon: Routledge, 2015.

Levin, Sam. "Safety Driver Charged in 2018 Incident Where Self-Driving Uber Car Killed a Woman." *The Guardian*. September 16, 2020. https://www.theguardian.com/us-news/2020/sep/16/uber-self-driving-car-death-safety-driver-charged.

Levitsky, Steven, and Daniel Ziblatt. *How Democracies Die*. New York: Penguin Random House, 2018.

Liddington-Cox, Alexander. "Balkan Trolls Are Reportedly Stirring Up Australian Hard-right through Facebook." *Business Insider*. March 15, 2019. www.businessinsider.com.au/balkan-trolls-are-reportedly-stirring-up-australian-hard-right-through-facebook-2019-3.

Lin, Patrick, Max Mehlman, and Keith Abney. "Enhanced Warfighters: Risks, Ethics, and Policy." Case Research Paper Series in Legal Studies, Working Paper 2013-2, Case Western Reserve University School of Law. January 2013. www.case.edu/law/sites/case.edu.law/files/2021-01/mehlman%20CLE%202-2021.pdf.

Lin, Patrick, Max Mehlman, Keith Abney, Shannon French, Shannon Vallor, Jai Galliott, Michael Burnam-Fink et al. "Super Soldiers (Part 2): The Ethical, Legal and Operational Implications." In *Global Issues and Ethical Considerations in Human Enhancement Technologies*. Edited by Steven J. Thompson, 139–60. Hershey, PA: IGI Global, 2014.

Lin, Patrick. "More Than Humans? The Ethics of Biologically Enhancing Soldiers." *The Atlantic*. February 16, 2012. www.theatlantic.com/technology/archive/2012/02/more-than-human-the-ethics-of-biologically-enhancing-soldiers/253217.

Linvill, Darren L., and Patrick L Warren. "Troll Factories: Manufacturing Specialized Disinformation on Twitter." *Political Communication* 37, no. 4 (2020): 447–467.

Luckhurst, Roger. "*Nineteen Eighty Four* and the Politics of Dystopia." Discovering Literature: 20th Century (British Library). May 25, 2016. www.bl.uk/20th-century-literature/articles/nineteen-eighty-four-and-the-politics-of-dystopia.

Lukes, Steven. *Power: A Radical View*. 1st ed. London: Macmillan Press, 1974.

Lukes, Steven. *Power: A Radical View*. 2nd ed. Basingstoke, UK: Palgrave Macmillan, 2005.

Luxton, Emma. "Which Companies Make All Their Employees Wealthy?" World Economic Forum. April 29, 2016. www.weforum.org/agenda/2016/04/which-companies-make-all-their-employees-wealthy.

M. S. "What is Populism? The Economist Explains." *The Economist*. December 19, 2016. www.economist.com/the-economist-explains/2016/12/19/what-is-populism.

MacAskill, Ewen. "George Bush: 'God Told Me to End the Tyranny in Iraq,'" *The Guardian. October* 7, 2005. www.theguardian.com/world/2005/oct/07/iraq.usa.

Maher, Brendan. "Poll Results: Look Who's Doping." *Nature*, 452 (2008): 674–75. https://doi.org/10.1038/452674a.

Masci, David. "Human Enhancement: The Scientific and Ethical Dimensions of Striving for Perfection." Pew Research Center. July 26, 2016. www.pewresearch.org/science/2016/07/26/human-enhancement-the-scientific-and-ethical-dimensions-of-striving-for-perfection.

Maslen, Hannah, Thomas Douglas, Roi Cohen Kadosh, Neil Levy, and Julian Savulescu. "The Regulation of Cognitive Enhancement Devices: Extending the Medical Model." *Journal of Law and the Biosciences* 1, no. 1 (2014): 68–93.

Mazower, Mark. *No Enchanted Palace: The End of Empire and the Ideological Origins of the United Nations*. Princeton, NJ: Princeton University Press, 2009.

McPherson, Lionel K. "Is Terrorism Distinctively Wrong?" *Ethics* 117, no. 3 (April 2007): 524–46.

Mearsheimer, James. *The Tragedy of Great Power Politics*. New York: Norton, 2003.

Miah, Andy. "Ethics Issues Raised by Human Enhancement." BBVA OpenMind. Accessed February 22, 2021. www.bbvaopenmind.com/en/articles/ethics-issues-raised-by-human-enhancement.

Miller, Seumas. "Torture." In *Stanford Encyclopedia of Philosophy*. Stanford University, 1997–. Article published February 7, 2006. Substantive revision May 5, 2017. https://plato.stanford.edu/entries/torture.

Mims, Christopher. "A Hardware Update for the Human Brain." *Wall Street Journal*. June 5, 2017. www.wsj.com/articles/a-hardware-update-for-the-human-brain-1496660400.

Mingarelli, Giovanna. "How Can We Protect Young People from Cyber Bullying?" World Economic Forum. November 24, 2014. www.weforum.org/agenda/2014/11/how-can-we-protect-young-people-from-cyber-bullying.

Moe-Behrens, Gerd H. G., Rene Davis, and Karmella Ann Haynes. "Preparing Synthetic Biology for the World." *Frontiers in Microbiology* 4 (2013): 1–10.

Morgenthau, Hans J. "The Problem of Sovereignty Reconsidered." *Columbia Law Review* 48, no. 3 (April 1948): 341–65.

Morton, Oliver. "A Whole New World: Synthetic Biology." *The Economist*. April 6, 2019.

Morton, Oliver. "Reprogramming Life: How It Works." *The Economist*. April 6, 2019.

Muggah, Robert. "Countries Are So Last-Century. Enter the 'Net State,'" World Economic Forum. November 9, 2017. www.weforum.org/agenda/2017/11/countries-nations-net-states-globalization-populism.

National Human Genome Research Institute. "Ethical, Legal and Social Implications Research Program." Accessed February 22, 2021. www.genome.gov/10001618/the-elsi-research-program/#al-1.

National Institutes of Health. "Teen Substance Use Shows Promising Decline." December 13, 2016. www.nih.gov/news-events/news-releases/teen-substance-use-shows-promising-decline.

National Institutes of Health. "Vitamin A: Fact Sheet for Professionals." January 14, 2021. www.ods.od.nih.gov/factsheets/vitamina-consumer.

National Institutes of Health. "Vitamin B12: Fact Sheet for Professionals." March 30, 2020. www.ods.od.nih.gov/factsheets/vitaminb12-healthprofessional.

National Institutes of Health. "Vitamin E: Fact Sheet for Professionals." November 20, 2020. www.ods.od.nih.gov/factsheets/VitaminE-Consumer.

Nature Research. "Brain–Machine Interface." Accessed February 19, 2021. www.nature.com/subjects/brain-machine-interface.

Nebehay, Stephanie. "WHO Looks at Standards in 'Uncharted Water' of Gene Editing." Reuters. December 3, 2018. www.swissinfo.ch/eng/who-looks-at-standards-in--uncharted-water--of-gene-editing/44591602.

Neem, Sandeep. "Assured Autonomy." DARPA. Accessed February 20, 2021. www.darpa.mil/program/assured-autonomy.

Nehlig, Astrid. "The Neuroprotective Effects of Cocoa Flavanol and Its Influence on Cognitive Functions." *British Journal of Clinical Pharmacology* 75, no. 3 (2013): 716–27.

Nelson, Jeremy T., R. Andy McKinley, Edward J. Golob, Joel S. Warm, and Raja Parasuraman. "Enhancing Vigilance in Operators with Prefrontal Cortex Transcranial Direct Current Stimulation (tDCS)." *Neuroimage* 85 (2014): 909–17.

New England BioLabs. "CRISPR/Cas9 and Targeted Genome Editing: A New Era in Molecular Biology." Accessed February 19, 2021. www.neb.com/tools-and-resources/feature-articles/crispr-cas9-and-targeted-genome-editing-a-new-era-in-molecular-biology.

Newitz, Annalee. "What Is Singularity and Will You Live to See It?" Gizmodo. May 10, 2010. www.io9.gizmodo.com/what-is-the-singularity-and-will-you-live-to-see-it-5534848.

Nietzsche, Friedrich. *The Anti-christ: Attempt at a Critique of Christianity* (1895). In *The Portable Nietzsche*. Edited and translated by Walter Kaufmann. New York: Penguin, 1982 [1954].

Nozick, Robert. *Anarchy, State, and Utopia*. New York: Basic, 1974.

Nye, Joseph Jr. "Get Smart: Combining Hard and Soft Power." *Foreign Affairs*. July/August 2009. www.foreignaffairs.com/articles/2009-07-01/get-smart.

Nye, Joseph Jr. *The Future of Power*. New York: Public Affairs, 2011.

O'Mara, Shane. "The Captive Brain: Torture and the Neuroscience of Humane Interrogation." *QJM: An International Journal of Medicine* 111, no. 2 (February 2018): 73–78. https://doi.org/10.1093/qjmed/hcx252.

O'Mara, Shane. *Why Torture Doesn't Work: The Neuroscience of Interrogation*. Cambridge, MA: Harvard University Press, 2015.

Ohler, Norman. *Blitzed: Drugs in Nazi Germany*. London: Penguin, 2017.

Overly, Steven. "Google Makes Changes to Search to Curb Misleading Info about U.S. Election." *Politico*, September 10, 2020, https://www.politico.com/news/2020/09/10/google-search-to-curb-election-misinformation-411882

Ovid. *Metamorphoses*. Translated by A. D. Melville. New York: Oxford University Press, 1986.

Page, Thomas. "The Inevitable Rise of the Robocops." CNN. May 22, 2017. www.edition.cnn.com/2017/05/22/tech/robot-police-officer-future-dubai/index.html.

Pallet, Véronique, and Katia Touyarot. "Vitamin A and Cognitive Processes." *Nutrition and Aging* 3, no. 1 (2015): 21–31. https://doi.org/10.3233/NUA-150048.

Palmer, Andrew. "Thought Experiments." *The Economist*. Accessed February 19, 2021. www.economist.com/technology-quarterly/2018-01-06/thought-experiments.

Paris, Jonathan, and Sam Selvadurai. "The Future of Power: Implications for Global Actors by 2040, Monday 13–Wednesday 15 January 2014 | WP1294 (Conference Report)." Wilton Park. March 2014. www.wiltonpark.org.uk/wp-content/uploads/2020/09/WP1294-Report.pdf.

Peled, Miko. *The General's Son: Journey of an Israeli in Palestine*. 2nd ed. Charlottesville, VA: Just World Books, 2016.

Perragin, Charles, and Guillaume Renouard. "A quoi sert le mythe du transhumanisme?" *Le Monde Diplomatique*. August 1, 2018. www.monde-diplomatique.fr/2018/08/PERRAGIN/58988.

Persson, Ingmar, and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement*. New York: Oxford University Press, 2012.

Peschin, Susan. "How Should We Regulate Genome Editing?" World Economic Forum. May 4, 2017. www.weforum.org/agenda/2017/05/how-should-we-regulate-genome-editing.

Phelps, Elizabeth A., et al. "Emotion and Decision-Making: Multiple Modulatory Neural Circuits." *Annual Review of Neuroscience* 37 (2014): 268–69.

Philjobs. "Ontologist." Updated April 17, 2019. www.philjobs.org/job/show/10446.

Phillips, Nicola. "Power and Inequality in the Global Political Economy." *International Affairs* 93, no. 2 (2017): 429–44. https://doi.org/10.1093/ia/iix019.

Pickett, Kate. "5 Reasons Why We Need to Reduce Global Inequality." World Economic Forum. September 22, 2015. www.weforum.org/agenda/2015/09/5-reasons-why-we-need-to-reduce-global-inequality.

Pimentel, Diego Alejo Vázquez, Iñigo Macías Aymar, and Max Lawson. "Reward Work, Not Wealth." Oxfam International. January 22, 2018. https://doi.org/10.21201/2017.1350.

Pogge, Thomas. *World Poverty and Human Rights*. 2nd ed. Cambridge, UK: Polity, 2010.

Popper, Karl. *The Logic of Scientific Discovery*. London: Routledge, 2002.

Post, Jerrold M. "The Persian Gulf Crisis: US Policy toward the Persian Gulf." Prepared statement to the US House of Representatives. December 11, 1990. www.books.google.com.

Rawls, John. *A Theory of Justice*. London: Oxford, 2005 [1971].

Reisinger, Don. "Humans—Not Technology—Are the Leading Cause of Self-Driving Car Accidents in California." *Fortune*. August 29, 2018. www.fortune.com/2018/08/29/self-driving-car-accidents.

Riley, Stephen, and Gerhard Bos. "Human Dignity." *Internet Encyclopedia of Philosophy*. Accessed February 19, 2021. www.iep.utm.edu/hum-dign.

Robbins, Martin. "Artificial Intelligence: Gods, Egos and Ex-Machina." *The Guardian*. January 26, 2016. www.theguardian.com/science/the-lay-scientist/2016/jan/26/artificial-intelligence-gods-egos-and-ex-machina.

Roberts, David. "Policy in an Age of Post-truth Politics." Grist. April 28, 2011. www.grist.org/politics/2011-04-28-policy-in-an-age-of-post-truth-politics.

Root, Philip. "Fast Lightweight Autonomy (FLA)." DARPA. Accessed February 20, 2021. www.darpa.mil/program/fast-lightweight-autonomy.

Rothkopf, David. "Superclass and the Inequity of Globalization." YaleGlobal. May 14, 2008 https://yaleglobal.yale.edu/content/superclass-and-inequity-globalization.

Rothkopf, David. *Superclass: The Global Power Elite and the World They Are Making*. London: Little, Brown, 2008.

Rousseau, Jean-Jacques. *The Social Contract or Principles of Political Right*, trans. Henry J. Tozer. London: Swann Schonenschein, 1895.

Rudin, Peter. "AI and Neurotechnology: Ethics a Must for Human Survival." Singularity 2030. November 17, 2017. www.singularity2030.ch/ai-and-neuro-technology-ethics-a-must-for-human-survival.

Russell, Bertrand. "What Desires Are Politically Important?" Nobel Lecture, The Nobel Prize. December 11, 1950. www.nobelprize.org/prizes/literature/1950/russell/lecture.

Russell, Bertrand. *Power: A New Social Analysis*. London: George Allen & Unwin, 1938.

Said, Edward W. *Orientalism*. London: Penguin Books, 2019.

Sample, Ian. "Asthma Drug Could Rejuvenate the Brain Study Suggests." *The Guardian*. October 27, 2015. www.theguardian.com/science/2015/oct/27/asthma-drug-could-rejuvenate-ageing-brains-study-suggests.

Sarotte, Mary Elise. "How the Fall of the Berlin Wall Really Happened." *New York Times*. November 6, 2014. www.nytimes.com/2014/11/07/opinion/how-the-berlin-wall-really-fell.html.

Sazak, Selim Can. "No Westphalia for the Middle East." *Foreign Affairs*. October 27, 2016.

Schelle, Kimberly J., et al. "A Survey of Substance Use for Cognitive Enhancement by University Students in the Netherlands." *Frontiers in Systems Neuroscience* 9 (2015): 1–11. https://doi.org/10.3389/fnsys.2015.00010.

Schelling, Thomas. *Arms and Influence*. New Haven, CT: Yale University Press, 1966.

Scheuerman, William. "Globalization." In *Stanford Encyclopedia of Philosophy*. Stanford University, 1997–. Article published June 21, 2002. Substantive revision November 5, 2018. https://plato.stanford.edu/entries/globalization.

Scholte, Jan Aart. "Civil Society and Governance in the Global Polity." In *Towards a Global Polity*. Edited by Morten Ougaard and Richard Higgo, 145–65. London: Routledge, 2002.

Schopenhauer, Arthur. *The World as Will and Idea*. 3rd. ed. Translated by R. B. Haldane and J. Kemp. 3 vols. London: Kegan, Paul, Trench, Trübner, 1891.

Schultheiss, Oliver C., and Anja Schiepe-Tsika. "The Role of the Dorsoanterior Striatum in Implicit Motivation: The Case of the Need for Power." *Frontiers in Human Neuroscience* 7 (2013). https://doi.org/10.3389/fnhum.2013.00141.

Schweller, Randall L. "The Balance of Power in World Politics." In *Oxford Research Encyclopedia of Politics*. May 9, 2016. https://doi.org/10.1093/acrefore/9780190228637.013.119.

Searle, John. *The Social Construction of Reality*. New York: The Free Press, 1995.

Seck, Hope Hodge. "Super SEALs: Elite Units Pursue Brain-Stimulating Technologies." 2017. www.military.com/daily-news/2017/04/02/super-seals-elite-units-pursue-brain-stimulating-technologies.html.

Shearer, Elisa and Amy Mitchell, "News Use Across Social Media Platforms in 2020." Pew Research Center Journalism & Media, January 12, 2021, https://www.journalism.org/2021/01/12/news-use-across-social-media-platforms-in-2020/

Shunk, Dave. "Ethics and the Enhanced Soldier of the Near Future." *Military Review*. January–February 2015, 91–98. www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview_20150228_art017.pdf.

Siegel, Jenifer Z., and Molly J. Crockett. "How Serotonin Shapes Moral Judgment and Behavior." *Annals of the New York Academy of Sciences* 1299, no. 1 (2013): 42–51. https://doi.org/10.1111/nyas.12229.

Singhal, Amit. "A Flawed Elections Conspiracy Theory." Politico. August 26, 2015. www.politico.com/magazine/story/2015/08/google-2016-election-121766.

Smillie, Luke D., and Jan Wacker. "Dopaminergic Foundations of Personality and Individual Differences." *Frontiers in Human Neuroscience*. October 30, 2014. https://doi.org/10.3389/fnhum.2014.00874.

Smith, M. Elizabeth, and Martha J. Farah. "Are Prescription Stimulants 'Smart Pills'? The Epidemiology and Cognitive Neuroscience of Prescription Stimulant Use by Normal Healthy Individuals." *Psychological Bulletin* 137, no. 5 (2011): 717–741.

Sophocles. *Oedipus Rex*. Translated by David Grene. In *The Complete Greek Tragedies: Sophocles I*. Edited by David Grene and Richard Lattimore. New York: Washington Square Press, 1967.

Southern, Pat. *The Roman Empire from Severus to Constantine*. London: Routledge, 2001.

Statista. "Worldwide Desktop Market Share of Leading Search Engines from January 2010 to April 2018." February 2021. www.statista.com/statistics/216573/worldwide-market-share-of-search-engines.

Stock, Adam. "Mid Twentieth-Century Dystopian Fiction and Political Thought." PhD diss., Durham University, 2011. www.core.ac.uk/download/pdf/2734350.pdf?repositoryId=32.

Strom, Stephanie. "At Chobani, Now It's Not Just the Yogurt That's Rich." *New York Times*. April 26, 2016. www.nytimes.com/2016/04/27/business/a-windfall-for-chobani-employees-stakes-in-the-company.html.

TED: Ideas Worth Spreading. "Government and Politics: Cyber-Influence and Power." Accessed February 18, 2021. www.ted.com/read/ted-studies/government-and-politics.

The Economist. "A Moment for Reflection: GM Human Beings." December 1, 2018.

The Economist. "And Man Made Life." May 22, 2010.

The Economist. "Bot Flies: Miniature Robotics." December 16, 2017.

The Economist. "Elon Musk Enters the World of Brain-Computer Interfaces." April 1, 2017. www.economist.com/science-and-technology/2017/03/30/elon-musk-enters-the-world-of-brain-computer-interfaces.

The Economist. "Into the Danger Zone: The Future of Tech Startups." June 2, 2018.

The Economist. "Know Your Enemy: Target Recognition in Warfare." July 29, 2017.

The Economist. "Neurostimulation: Hacking Your Brain." March 7, 2015. www.economist.com/technology-quarterly/2015/03/05/hacking-your-brain.

The Economist. "The Art of the Lie: Post-truth Politics." September 10, 2016. www.economist.com/leaders/2016/09/10/art-of-the-lie.

The Economist. "The Baby Crisperer: Gene Editing." December 1, 2018.

The Economist. "Yes, I'd Lie to You: The Post-truth World." September 10, 2016. www.economist.com/briefing/2016/09/10/yes-id-lie-to-you.

The Guardian. "World's First Gene-Edited Babies Created in China, Claims Scientist." November 26, 2018. www.theguardian.com/science/2018/nov/26/worlds-first-gene-edited-babies-created-in-china-claims-scientist.

Thucydides. *The History of the Peloponnesian War*. Translated by Rex Warner. Rev. ed. London: Penguin, 1972.

Tolstoy, Leo. "On Patriotism." 1894. Accessed July 17, 2017. www.nonresistance.org/docs_pdf/Tolstoy/On_Patriotism.pdf.

Tracey, Irene, and Rod Flower. "The Warrior in the Machine: Neuroscience Goes to War." *Nature Reviews Neuroscience* 15, no. 12 (2014): 825–34.

Turney, Jon. "Imagining Technology." Nesta Working Paper No. 13/05. March 2013. www.academia.edu.

Tyson, Laura. "What are the Benefits of a Profit-Sharing Economy?" World Economic Forum. August 3, 2015. www.weforum.org/agenda/2015/08/what-are-the-benefits-of-a-profit-sharing-economy.

United Nations. "Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment" (1984). Accessed February 19, 2021. www.ohchr.org/Documents/ProfessionalInterest/cat.pdf.

United Nations. "Universal Declaration of Human Rights" (1948). Accessed February 19, 2021. www.un.org/en/universal-declaration-human-rights.

US Food and Drug Administration. "510(k) Clearances." Accessed February 22, 2021. www.fda.gov/medicaldevices/productsandmedicalprocedures/deviceapprovalsandclearances/510kclearances/default.htm.

Van Rijmenam, Mark. *The Organisation of Tomorrow: How AI, Blockchain and Analytics Turn Your Business into a Data Organisation*. Abingdon, UK: Taylor & Francis, 2020.

Verweij, Marco, Timothy J. Senior, Juan F. Domínguez D, and Robert Turner. "Emotions, Rationality and Decision-Making: How To Link Affective and Social Neuroscience with Social Theory." *Frontiers in Neuroscience*. September 22, 2015. https://doi.org/10.3389/fnins.2015.00332.

Vetulani, Jerzy. "Neurochemistry of Impulsiveness and Aggression." *Psychiatria Polska* 47, no. 1 (2013), 103–15.

Vinge, Vernor. "The Coming Technological Singularity: How to Survive in the Post-human Era." In *Vision-21: Interdisciplinary Science and Engineering in the Era of Cyberspace: Proceedings of a Symposium Cosponsored by the NASA Lewis Research Institute and Held in Westlake, Ohio, March 30–31, 1993*. NASA Office of Management, Scientific and Technical Information Program, 1993.

Voarino, Nathalie, Veljko Dubljević, and Eric Racine. "tDCS for Memory Enhancement: Analysis of the Speculative Aspects of Ethical Issues." *Frontiers in Human Neuroscience*. January 11, 2017. https://doi.org/10.3389/fnhum.2016.00678.

Voltmer, Katrin. "Introduction: Democratization Conflicts as Communicative Contestations." In *Media, Communication, and the Struggle for Democratic Change Case Studies on Contested Transitions*. Edited by Voltmer, Christian Christensen, Irene Neverla, Nicole Stremlau, Barbara Thomass, Nebojša Vladisavljević, and Herman Wasserman, 1–32. Palgrave Macmillan, 2019.

Von Bernhardi, Rommy, Laura Eugenín-von Bernhardi, and Jaime Eugenín. "What is Neural Plasticity?" In *The Plastic Brain*. Edited by Rommy von Bernhardi, Jaime Eugenín, and Kenneth J. Muller, 1–15. New York: Springer, 2017.

Wakabayashi, Daisuke. "Self-Driving Uber Car Kills Pedestrian in Arizona, Where Robots Roam." *New York Times*. March 19, 2018. www.nytimes.com/2018/03/19/technology/uber-driverless-fatality.html.

Walzer, Michael. *Just and Unjust Wars*. 4th ed. New York: Basic, 1977.

Ward, Tom. "Dubai Is Introducing Robotic Policemen, to Make Up 25% of the Force by 2030." May 31, 2017. https://www.weforum.org/agenda/2017/05/dubai-is-introducing-robotic-policemen-to-make-up-25-of-the-force-by-2030.

Weber, Max. *Economy and Society: An Outline of Interpretative Sociology*. Berkeley: University of California Press, 1978.

Weeks, Lewis E. "The Radio Election of 1924." *Journal of Broadcasting* 8, no 3 (1964): 233–43.

Wexler, Anna. "A Pragmatic Analysis of the Regulation of Consumer Transcranial Direct Current Stimulation (tDCS) Devices in the United States." *Journal of Law and the Biosciences* 2, no. 3 (2016): 669–96.

Whipple, Tom. "How to Edit a Human." *The Economist*. July 3, 2018.

White House, Office of the Press Secretary. "Fact Sheet: BRAIN Initiative." April 2, 2013. www.obamawhitehouse.archives.gov/the-press-office/2013/04/02/fact-sheet-brain-initiative.

Wicks, Robert. "Arthur Schopenhauer." In *Stanford Encyclopedia of Philosophy*. Stanford University, 1997–. Article published May 12, 2003. Substantive revision May 11, 2017. https://plato.stanford.edu/entries/schopenhauer.

Williams, Bernard. *Moral Luck: Philosophical Papers 1973–1980*. Cambridge: Cambridge University Press, 1981.

World Economic Forum. "Annual Meeting of the Future Councils 2017." Accessed February 22, 2021. www.weforum.org/focus/annual-meeting-of-the-future-councils-17.

Wright, Michelle F. "Cyberbullying: Prevalence, Characteristics, and Consequences." In *Analyzing Human Behavior in Cyberspace*. Edited by Zheng Yan, 167–91. Hershey, PA: IGI Global, 2019.

Wright, Robert. *Why Buddhism Is True: The Science and Philosophy of Meditation and Enlightenment*. New York: Simon and Schuster, 2017.

Yuste, Rafael Sara Goering, Guoqiang Bi, Jose M. Carmena, Adrian Carter, Joseph J. Fins, Phoebe Friesen et al. "Four Ethical Priorities for Neurotechnologies and AI." *Nature News* 551, no. 7679 (2017): 159–63.

Zettler, Patricia. "What Lies Ahead for FDA Regulation of tDCS Products?" *Journal of Law and the Biosciences* 3, no. 2 (2016): 318–23.

Zotev, Vadim, Raquel Phillips, Han Yuan, Masaya Misaki, and Jerzy Bodurka. "Self-Regulation Of Human Brain Activity Using Simultaneous Real-Time fMRI and EEG Neurofeedback." *NeuroImage* 85 (2014): 985–95.

Zuckerberg, Mark. "One of our big focus areas for 2018 is making sure the time we all spend on Facebook is time well spent." Facebook. January 11, 2018. www.facebook.com/zuck/posts/10104413015393571.

About the Author

Professor Nayef Al-Rodhan is a neuroscientist, philosopher and geostrategist. He is an Honorary Fellow, St. Antony's College, University of Oxford, Senior Fellow and Head of the Geopolitics and Global Futures Programme at the Geneva Center for Security Policy, Geneva, Switzerland, and Senior Research Fellow at the Institute of Philosophy, School of Advanced Studies, University of London. He is also a member of the Council on Frontier Risks at the World Economic Forum (WEF). He is a prize-winning scholar who was voted among the top thirty most influential neuroscientists in the world. He has written twenty-two books and 250 articles. He was educated at the Mayo Clinic, Yale University, and Harvard University. Through many innovative books and articles, he has made significant conceptual contributions to the interplay between neuroscience, philosophy, international relations, and policy. He has applied this to the study of human nature, history, global security, national security, contemporary geopolitics, cultural discourse, global futures, frontier cascading risks, outer space security, synthetic biology, transhumanism, artificial intelligence, human dignity, sustainable governance, conflict, the neurochemistry of power, and war and peace.

Acknowledgements

I would like to thank the following people for their very valuable assistance with this book: Ioana Puscas, Dominique Müller, and Christine Garnier-Simon (Geopolitics and Global Futures Programme, Geneva Centre for Security Policy, Switzerland). I am also grateful to my colleagues at the following institutions: Geneva Center for Security Policy, Geneva, Switzerland; St Antony's College, University of Oxford, UK; and the Institute of Philosophy, School of Advanced Study, University of London.

Index

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z