

Artificial Unintelligence How Computers Misunderstand The World

Artificial UnintelligenceHow Computers Misunderstand the WorldMIT Press

One of New York Magazine's best books on Silicon Valley! The true, behind-the-scenes history of the people who built Silicon Valley and shaped Big Tech in America Long before Margaret O'Mara became one of our most consequential historians of the American-led digital revolution, she worked in the White House of Bill Clinton and Al Gore in the earliest days of the commercial Internet. There she saw firsthand how deeply intertwined Silicon Valley was with the federal government--and how shallow the common understanding of the secrets of the Valley's success actually was. In almost five years of pioneering research, O'Mara has produced the definitive history of Silicon Valley for our time, the story of mavericks and visionaries, but also of powerful institutions creating the framework for innovation, from the Pentagon to Stanford University. It is also a story of a community that started off remarkably homogeneous and tight-knit and successful, but whose belief in its own mythology has deepened into a collective hubris that has led to astonishing triumphs and as devastating second-order effects. Deploying a wonderfully rich and diverse cast of protagonists, from the justly famous to the unjustly obscure, across four generations of explosive growth in the Valley, from the forties to the present, O'Mara has wrestled one of the most fateful developments in modern American history into magnificent narrative form. She is on the ground with all of the key tech companies, chronicling the evolution in their offerings through each successive era, and has a profound fingertip feel for the politics of the sector and its relation to the larger cultural narrative about technology that has evolved over the years. Perhaps most impressive, O'Mara has penetrated the inner kingdom of tech venture capital, the insular and still remarkably old-boy world that became the cockpit of American capitalism and the crucible for bringing technological innovation to market, or not. The transformation of big tech into the engine room of the American economy--the nexus of so many of our hopes and dreams--and, increasingly, our nightmares--can be understood, in Margaret O'Mara's masterful hands, as the story of one California valley. As her majestic history makes clear, its fate is the fate of us all.

Written as a wake-up call to the field of media studies, *The Message is Murder* analyses the violence bound up in the everyday functions of digital media. At its core is the concept of 'computational capital' - the idea that capitalism itself is a computer, turning qualities into quantities, and that the rise of digital culture and technologies under capitalism should be seen as an extension of capitalism's bloody logic. Engaging with Borges, Turing, Claude Shannon, Hitchcock and Marx, this book tracks computational capital to reveal the lineages of capitalised power as it has restructured representation,

consciousness and survival in the twentieth and twenty-first centuries. It argues that the global intensification of information technology and digital media culture in the twenty-first century relies on the discursive, informatic and screen-mediated production of social difference. Ultimately The Message is M... makes the case for recognising media communications across all platforms - books, films, videos, photographs and e... language itself - as technologies of political economy, entangled with the social contexts of a capitalism that is inherently racial, gendered and genocidal.

This book is the first to examine the history of imaginative thinking about intelligent machines. As real Artificial Intelligence (AI) begins to touch on all aspects of our lives, this long narrative history shapes how the technology is developed, used and regulated. It is therefore a crucial social and ethical issue. Part I of this book provides a historical overview from ancient Greece to the start of modernity. These chapters explore the revealing pre-history of key concerns of contemporary AI discourse, from the nature of mind and creativity to issues of power and rights, from the tension between fascination and ambivalence to investigations into artificial voices and technophobia. Part II focuses on the twentieth and twenty-first centuries in which a greater density of narratives emerge alongside rapid developments in AI technology. These chapters reveal not only how AI narratives have consistently been entangled with the emergence of real robotics and AI, but they offer a rich source of insight into how we might live with these revolutionary machines. Through their close textual engagements, these chapters explore the relationship between imaginative narratives and contemporary debates about the social, ethical and philosophical consequences, including questions of dehumanization, automation, anthropomorphisation, cybernetics, cyberpunk, immortality, slavery, and governance. The contributions, from leading humanities and social science scholars, show that narratives about AI offer a crucial epistemic site for exploring contemporary debates about the impact of these powerful new technologies.

Rebooting AI

The Mavericks Who Brought A. I. to Google, Facebook, and the World

Politics and Ideology in Artificial Intelligence

Human Compatible

Substrates of Computational Capital

AI Narratives

Artificial Unintelligence

Dramatic statements about the promise and peril of artificial intelligence for humanity abound, as an industry of experts claims that AI is poised to reshape nearly every sphere of life. Who profits from the idea that the age of AI has arrived? Why do ideas of AI's transformative potential keep reappearing in social and political discourse, and

how are they linked to broader political agendas? Yarden Katz reveals the ideology embedded in the concept of artificial intelligence, contending that it both serves and mimics the logic of white supremacy. He demonstrates that understandings of AI, as a field and a technology, have shifted dramatically over time based on the needs of its funders and the professional class that formed around it. From its origins in the Cold War military-industrial complex through its present-day Silicon Valley proselytizers and eager policy analysts, AI has never been simply a technical project enabled by larger data and better computing. Drawing on intimate familiarity with the field and its practices, Katz instead asks us to see how AI reinforces models of knowledge that assume white male superiority and an imperialist worldview. Only by seeing the connection between artificial intelligence and whiteness can we prioritize alternatives to the conception of AI as an all-encompassing technological force. Bringing together theories of whiteness and race in the humanities and social sciences with a deep understanding of the history and practice of science and computing, *Artificial Whiteness* is an incisive, urgent critique of the uses of AI as a political tool to uphold social hierarchies.

Longlisted for the National Book Award New York Times Bestseller A former Wall Street quant sounds an alarm on the mathematical models that pervade modern life -- and threaten to rip apart our social fabric We live in the age of the algorithm. Increasingly, the decisions that affect our lives--where we go to school, whether we get a car loan, how much we pay for health insurance--are being made not by humans, but by mathematical models. In theory, this should lead to greater fairness: Everyone is judged according to the same rules, and bias is eliminated. But as Cathy O'Neil reveals in this urgent and necessary book, the opposite is true. The models being used today are opaque, unregulated, and uncontestable, even when they're wrong. Most troubling, they reinforce discrimination: If a poor student can't get a loan because a lending model deems him too risky (by virtue of his zip code), he's then cut off from the kind of education that could pull him out of poverty, and a vicious spiral ensues. Models are propping up the lucky and punishing the downtrodden, creating a "toxic cocktail for democracy." Welcome to the dark side of Big Data. Tracing the arc of a person's life, O'Neil exposes the black box models that shape our future, both as individuals and as a society. These "weapons of math destruction" score teachers and students, sort resumes, grant (or deny) loans, evaluate workers, target voters, set parole, and monitor our health. O'Neil calls on modelers to take more responsibility for their algorithms and on policy makers to regulate their use. But in the end, it's up to us to become more savvy about the models that govern our lives. This important book empowers us to ask the tough questions, uncover the truth, and demand change. -- Longlist for National Book Award (Non-Fiction) -- Goodreads, semi-finalist for the 2016 Goodreads Choice Awards (Science and Technology) -- Kirkus, Best Books of 2016 -- New York Times, 100 Notable Books of 2016 (Non-Fiction) -- The Guardian, Best Books of 2016 -- WBUR's "On Point," Best Books of 2016: Staff Picks -- Boston

Globe, Best Books of 2016, Non-Fiction

'This colourful page-turner puts artificial intelligence into a human perspective . . . Metz explains this transformative technology and makes the quest thrilling.' Walter Isaacson, author of *Steve Jobs*

_____ **Long dismissed as a technology of the distant future, artificial intelligence was a project consigned to the fringes of the scientific community. Then two researchers changed everything. One was a 64-year old computer science professor and the other was a 36-year-old neuroscientist and chess prodigy. Though they took very different paths, together they helped catapult AI to the forefront of our daily lives and created a business worth billions. This is the story of a technological revolution and the arms race it has sparked among companies such as Google, Microsoft, Facebook, and Elon Musk's OpenAI. It is also the story of the struggle between international powers, shareholder value, the pursuit of scientific knowledge, and the very human concerns about privacy, security, bias and prejudice that AI raises. New York Times Silicon Valley journalist Cade Metz draws on unparalleled access to create an extraordinarily vivid account of an ongoing technological revolution. And he poses the question that will dominate the next half-century- where will AI take us next?**

_____ **'Metz tells his engrossing story through the lives of a dozen geniuses, scores of brilliant men (mostly), and an ongoing, cutthroat industrial and academic arms race . . . A must-read, fully-up-to-date report on the holy grail of computing.'** Kirkus Reviews

Are all film stars linked to Kevin Bacon? Why do the stock markets rise and fall sharply on the strength of a vague rumour? How does gossip spread so quickly? Are we all related through six degrees of separation? There is a growing awareness of the complex networks that pervade modern society. We see them in the rapid growth of the Internet, the ease of global communication, the swift spread of news and information, and in the way epidemics and financial crises develop with startling speed and intensity. This introductory book on the new science of networks takes an interdisciplinary approach, using economics, sociology, computing, information science and applied mathematics to address fundamental questions about the links that connect us, and the ways that our decisions can have consequences for others.

97 Things About Ethics Everyone in Data Science Should Know

Algorithms of Oppression

Reckoning and Judgment

Artificial Intelligence and the Problem of Control

Your Computer Is on Fire

Networks, Crowds, and Markets

The Science of Socially Aware Algorithm Design

What identity means in an algorithmic age: how it works, how our lives are controlled by it, and how we can resist it Algorithms are everywhere, organizing the near limitless data that exists in our world. Derived from our every search, like, click, and purchase, algorithms determine the news we get, the ads we see, the information accessible to us and even who our friends are. These complex configurations not only form knowledge and social relationships in the digital and physical world, but also determine who we are and who we can be, both on and offline. Algorithms create and recreate us, using our data to assign and reassign our gender, race, sexuality, and citizenship status. They can recognize us as celebrities or mark us as terrorists. In this era of ubiquitous surveillance, contemporary data collection entails more than gathering information about us. Entities like Google, Facebook, and the NSA also decide what that information means, constructing our worlds and the identities we inhabit in the process. We have little control over who we algorithmically are. Our identities are made useful not for us—but for someone else. Through a series of entertaining and engaging examples, John Cheney-Lippold draws on the social constructions of identity to advance a new understanding of our algorithmic identities. We Are Data will educate and inspire readers who want to wrest back some freedom in our increasingly surveilled and algorithmically-constructed world.

WINNER: The 2018 McGannon Center Book Prize and shortlisted for the Goddard Riverside Stephan Russo Book Prize for Social Justice The New York Times Book Review: "Riveting." Naomi Klein: "This book is downright scary." Ethan Zuckerman, MIT: "Should be required reading." Dorothy Roberts, author of Killing the Black Body: "A must-read." Astra Taylor, author of The People's Platform: "The single most important book about technology you will read this year." Cory Doctorow: "Indispensable." A powerful investigative look at data-based discrimination—and how technology affects civil and human rights and economic equity The State of Indiana denies one million applications for healthcare, foodstamps and cash benefits in three years—because a new computer system interprets any mistake as “failure to cooperate.” In Los Angeles, an algorithm calculates the comparative vulnerability of tens of thousands of homeless people in order to prioritize them for an inadequate pool of housing resources. In Pittsburgh, a child welfare agency uses a statistical model to try to predict which children might be future victims of abuse or neglect. Since the dawn of the digital age, decision-making in finance, employment, politics, health and human services has undergone revolutionary change. Today, automated systems—rather than humans—control which neighborhoods get policed, which families attain

needed resources, and who is investigated for fraud. While we all live under this new regime of data, the most invasive and punitive systems are aimed at the poor. In *Automating Inequality*, Virginia Eubanks systematically investigates the impacts of data mining, policy algorithms, and predictive risk models on poor and working-class people in America. The book is full of heart-wrenching and eye-opening stories, from a woman in Indiana whose benefits are literally cut off as she lays dying to a family in Pennsylvania in daily fear of losing their daughter because they fit a certain statistical profile. The U.S. has always used its most cutting-edge science and technology to contain, investigate, discipline and punish the destitute. Like the county poorhouse and scientific charity before them, digital tracking and automated decision-making hide poverty from the middle-class public and give the nation the ethical distance it needs to make inhumane choices: which families get food and which starve, who has housing and who remains homeless, and which families are broken up by the state. In the process, they weaken democracy and betray our most cherished national values. This deeply researched and passionate book could not be more timely.

"A startling exposé of the invisible human workforce that powers the web--and how to bring it out of the shadows. Hidden beneath the surface of the internet, a new, stark reality is looming--one that cuts to the very heart of our endless debates about the impact of AI. Anthropologist Mary L. Gray and computer scientist Siddharth Suri unveil how the services we use from companies like Amazon, Google, Microsoft, and Uber can only function smoothly thanks to the judgment and experience of a vast human labor force that is kept deliberately concealed. The people who do 'ghost work' make the internet seem smart. They perform high-tech, on-demand piecemeal work: flagging X-rated content, proofreading, transcribing audio, confirming identities, captioning video, and much more. The shameful truth is that no labor laws protect them or even acknowledge their existence. They often earn less than legal minimums for traditional work, they have no health benefits, and they can be fired at any time for any reason, or for no reason at all. An estimated 8 percent of Americans have worked in this 'ghost economy,' and that number is growing every day. In this unprecedented investigation, Gray and Suri make the case that robots will never completely eliminate 'ghost work' and the unchecked quest for artificial intelligence could spark catastrophic work conditions if not stopped in its tracks. Ultimately, they show how this essential type of work can create opportunity--rather than misery--for those who do it."--Dust jacket.

The applications of Artificial Intelligence lie all around us; in our homes, schools and offices, in our cinemas, in art galleries and - not least - on the Internet. The results of Artificial Intelligence have been invaluable to biologists, psychologists, and linguists in helping to understand the processes of memory, learning, and language from a fresh angle. As a concept, Artificial Intelligence has fuelled and sharpened the philosophical debates concerning the nature of the mind, intelligence, and the uniqueness of human beings. In this Very Short Introduction, Margaret A. Boden reviews the philosophical and technological challenges raised by Artificial Intelligence, considering whether programs could ever be really intelligent, creative or even conscious, and shows how the pursuit of Artificial Intelligence has helped us to appreciate how human and animal minds are possible. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Programmed Inequality

How Big Data Increases Inequality and Threatens Democracy

How Stories Explain Computing

Self-Tracking

Artificial Intimacy

How Computers Misunderstand the World

Power, Politics, and the Planetary Costs of Artificial Intelligence

Technology scholars declare an emergency: attention must be paid to the inequality, marginalization, and biases woven into our technological systems. This book sounds an alarm: we can no longer afford to be lulled into complacency by narratives of techno-utopianism, or even techno-neutrality. We should not be reassured by such soothing generalities as "human error," "virtual reality," or "the cloud." We need to realize that nothing is virtual: everything that "happens online," "virtually," or "autonomously" happens offline first, and often involves human beings whose labor is deliberately kept invisible. Everything is IRL. In *Your Computer Is on Fire*, technology scholars train a spotlight on the inequality, marginalization, and biases woven into our technological systems.

A revealing look at how negative biases against women of color are embedded in search engine results and algorithms Run a Google search for "black girls"—what will you find? "Big Booty" and other sexually explicit terms are likely to come up as top search terms. But, if you type in "white girls," the results are radically different. The

suggested porn sites and un-moderated discussions about “ why black women are so sassy ” or “ why black women are so angry ” presents a disturbing portrait of black womanhood in modern society. In Algorithms of Oppression, Safiya Umoja Noble challenges the idea that search engines like Google offer an equal playing field for all forms of ideas, identities, and activities. Data discrimination is a real social problem; Noble argues that the combination of private interests in promoting certain sites, along with the monopoly status of a relatively small number of Internet search engines, leads to a biased set of search algorithms that privilege whiteness and discriminate against people of color, specifically women of color. Through an analysis of textual and media searches as well as extensive research on paid online advertising, Noble exposes a culture of racism and sexism in the way discoverability is created online. As search engines and their related companies grow in importance—operating as a source for email, a major vehicle for primary and secondary school learning, and beyond—understanding and reversing these disquieting trends and discriminatory practices is of utmost importance. An original, surprising and, at times, disturbing account of bias on the internet, Algorithms of Oppression contributes to our understanding of how racism is created, maintained, and disseminated in the 21st century.

Two leaders in the field offer a compelling analysis of the current state of the art and reveal the steps we must take to achieve a truly robust artificial intelligence. Despite the hype surrounding AI, creating an intelligence that rivals or exceeds human levels is far more complicated than we have been led to believe. Professors Gary Marcus and Ernest Davis have spent their careers at the forefront of AI research and have witnessed some of the greatest milestones in the field, but they argue that a computer beating a human in Jeopardy! does not signal that we are on the doorstep of fully autonomous cars or superintelligent machines. The achievements in the field thus far have occurred in closed systems with fixed sets of rules, and these approaches are too narrow to achieve genuine intelligence. The real world, in contrast, is wildly complex and open-ended. How can we bridge this gap? What will the consequences be when we do? Taking inspiration from the human mind, Marcus and Davis explain what we need to advance AI to the next level, and suggest that if we are wise along the way, we won't need to worry about a future of machine overlords. If we focus on endowing machines with common sense and deep understanding, rather than simply focusing on statistical analysis and gathering ever larger collections of data, we will be able to create an AI we can trust--in our homes, our cars, and our doctors' offices. Rebooting AI provides a lucid, clear-eyed assessment of the current science and offers an inspiring vision of how a new generation of AI can make our lives better.

What happens when the human brain, which evolved over eons, collides with twenty-first-century technology? Machines can now push psychological buttons, stimulating and sometimes exploiting the ways people make friends, gossip with neighbors, and grow intimate with lovers. Sex robots present the humanoid face of this technological revolution—yet although it is easy to gawk at their uncanniness, more familiar technologies based in artificial

intelligence and virtual reality are insinuating themselves into human interactions. Digital lovers, virtual friends, and algorithmic matchmakers help us manage our feelings in a world of cognitive overload. Will these machines, fueled by masses of user data and powered by algorithms that learn all the time, transform the quality of human life? Artificial Intimacy offers an innovative perspective on the possibilities of the present and near future. The evolutionary biologist Rob Brooks explores the latest research on intimacy and desire to consider the interaction of new technologies and fundamental human behaviors. He details how existing artificial intelligences can already learn and exploit human social needs—and are getting better at what they do. Brooks combines an understanding of core human traits from evolutionary biology with analysis of how cultural, economic, and technological contexts shape the ways people express them. Beyond the technology, he asks what the implications of artificial intimacy will be for how we understand ourselves.

You Look Like a Thing and I Love You

How Algorithms Are Rewriting the Media

The Metaphysics of Virtual Reality

Virtual Friends, Digital Lovers, and Algorithmic Matchmakers

2062

Reasoning About a Highly Connected World

The AI Advantage

‘A compelling invitation to imagine the future we want’ —BRIAN CHRISTIAN, author of The Most Human Human By 2062 we will have built machines as intelligent as us - so the leading artificial intelligence and robotics experts predict. But what will this future look like? In 2062, world-leading researcher Toby Walsh considers the impact AI will have on work, war, economics, politics, everyday life and even death. Will automation take away most jobs? Will robots become conscious and take over? Will we become immortal machines ourselves, uploading our brains to the cloud? How will politics adjust to the post-truth, post-privacy digitised world? When we have succeeded in building intelligent machines, how will life on this planet unfold? Based on a deep understanding of technology, 2062 describes the choices we need to make today to ensure that the future remains bright. ‘Clarity and sanity in a world full of fog and uncertainty - a timely book about the race to remain human.’ —RICHARD WATSON, author of Digital Vs. Human and futurist-in-residence at Imperial College, London ‘One of the deepest questions facing humanity, pondered by a mind well and truly up to the

task.’ —ADAM SPENCER, broadcaster

A concise but informative overview of AI ethics and policy. Artificial intelligence, or AI for short, has generated a staggering amount of hype in the past several years. Is it the game-changer it's been cracked up to be? If so, how is it changing the game? How is it likely to affect us as customers, tenants, aspiring home-owners, students, educators, patients, clients, prison inmates, members of ethnic and sexual minorities, voters in liberal democracies? This book offers a concise overview of moral, political, legal and economic implications of AI. It covers the basics of AI's latest permutation, machine learning, and considers issues including transparency, bias, liability, privacy, and regulation.

The hidden costs of artificial intelligence, from natural resources and labor to privacy and freedom What happens when artificial intelligence saturates political life and depletes the planet? How is AI shaping our understanding of ourselves and our societies? In this book Kate Crawford reveals how this planetary network is fueling a shift toward undemocratic governance and increased inequality. Drawing on more than a decade of research, award-winning science, and technology, Crawford reveals how AI is a technology of extraction: from the energy and minerals needed to build and sustain its infrastructure, to the exploited workers behind "automated" services, to the data AI collects from us. Rather than taking a narrow focus on code and algorithms, Crawford offers us a political and a material perspective on what it takes to make artificial intelligence and where it goes wrong. While technical systems present a veneer of objectivity, they are always systems of power. This is an urgent account of what is at stake as technology companies use artificial intelligence to reshape the world.

From hidden connections in big data to bots spreading fake news, journalism is increasingly computer-generated. Nicholas Diakopoulos explains the present and future of a world in which algorithms have changed how the news is created, disseminated, and received, and he shows why journalists—and their values—are at little risk of being replaced.

Where Design Meets Life

How to Be Human in the Age of the Machine

Artificial Whiteness

How Artificial Intelligence Works and Why It's Making the World a Weirder Place

Technicolor

Hello World

How Britain Discarded Women Technologists and Lost Its Edge in Computing

Jer Thorp's analysis of the word "data" in 10,325 New York Times stories written between 1984 and 2018 shows a distinct trend: among the words most closely associated with "data," we find not only its classic companions "information" and "digital," but also a variety of new neighbors—from "scandal" and "misinformation" to "ethics," "friends," and "play." To live in data in the twenty-first century is to be incessantly extracted from, classified and categorized, statisti-fied, sold, and surveilled. Data—our data—is mined and processed for profit, power, and political gain. In Living in Data, Thorp asks a crucial question of our time: How do we stop passively inhabiting data, and instead become active citizens of it? Threading a data story through hippo attacks, glaciers, and school gymnasiums, around colossal rice piles, and over active minefields, Living in Data reminds us that the future of data is still wide open, that there are ways to transcend facts and figures and to find more visceral ways to engage with data, that there are always new stories to be told about how data can be used. Punctuated with Thorp's original and informative illustrations, Living in Data not only redefines what data is, but reimagines who gets to speak its language and how to use its power to create a more just and democratic future. Timely and inspiring, Living in Data gives us a much-needed path forward. Over the course of a generation, algorithms have gone from mathematical abstractions to powerful mediators of daily life. Algorithms have made our lives more efficient, more entertaining, and, sometimes, better informed. At the same time, complex algorithms are increasingly violating the basic rights of individual citizens. Allegedly anonymized datasets routinely leak our most sensitive personal information; statistical models for everything from mortgages to college admissions reflect racial and gender bias. Meanwhile, users manipulate algorithms to "game" search engines, spam filters, online reviewing services, and navigation apps. Understanding and improving the science behind the algorithms that run our lives is rapidly becoming one of the most pressing issues of this century. Traditional fixes, such as laws, regulations and watchdog groups, have proven woefully inadequate. Reporting from the cutting edge of scientific research, The Ethical Algorithm offers a new approach: a set of principled solutions based on the emerging and exciting science of socially aware algorithm design. Michael Kearns and Aaron Roth explain how we can better embed human principles into machine code - without halting the advance of data-driven scientific exploration. Weaving together innovative research with stories of citizens, scientists, and activists on the front lines, The Ethical Algorithm offers a compelling vision for a future, one in which we can better protect humans from the unintended impacts of algorithms while continuing to inspire wondrous advances in technology.

What happens when people turn their everyday experience into data: an introduction to the essential ideas and key challenges of

self-tracking. People keep track. In the eighteenth century, Benjamin Franklin kept charts of time spent and virtues lived up to. Today, people use technology to self-track: hours slept, steps taken, calories consumed, medications administered. Ninety million wearable sensors were shipped in 2014 to help us gather data about our lives. This book examines how people record, analyze, and reflect on this data, looking at the tools they use and the communities they become part of. Gina Neff and Dawn Nafus describe what happens when people turn their everyday experience—in particular, health and wellness-related experience—into data, and offer an introduction to the essential ideas and key challenges of using these technologies. They consider self-tracking as a social and cultural phenomenon, describing not only the use of data as a kind of mirror of the self but also how this enables people to connect to, and learn from, others. Neff and Nafus consider what's at stake: who wants our data and why; the practices of serious self-tracking enthusiasts; the design of commercial self-tracking technology; and how self-tracking can fill gaps in the healthcare system. Today, no one can lead an entirely untracked life. Neff and Nafus show us how to use data in a way that empowers and educates.

The cultural impact of new information and communication technologies has been a constant topic of debate, but questions of race and ethnicity remain a critical absence. TechniColor fills this gap by exploring the relationship between race and technology. From Indian H-1B Workers and Detroit techno music to karaoke and the Chicano internet, TechniColor's specific case studies document the ways in which people of color actually use technology. The results rupture such racial stereotypes as Asian whiz-kids and Black and Latino techno-phobes, while fundamentally challenging many widely-held theoretical and political assumptions. Incorporating a broader definition of technology and technological practices--to include not only those technologies thought to create "revolutions" (computer hardware and software) but also cars, cellular phones, and other everyday technologies--TechniColor reflects the larger history of technology use by people of color. Contributors: Vivek Bald, Ben Chappell, Beth Coleman, McLean Greaves, Logan Hill, Alicia Headlam Hines, Karen Hossfeld, Amitava Kumar, Casey Man Kong Lum, Alondra Nelson, Mimi Nguyen, Guillermo Gómez-Peña, Tricia Rose, Andrew Ross, Thuy Linh Nguyen Tu, and Ben Williams.

Once Upon an Algorithm

The World that AI Made

Ghost Work

AI Ethics

Genius Makers

A Citizen's Guide to a Better Information Future

We Are Data

Understand the current and future research into technologies that underpin the increasing capabilities of automation technologies and their impact on the working world of the future. Rapid advances in automation and robotics technologies are often reported in the trade and general media, often relying on scary headlines such as “Jobs Lost to Robots.” It is certainly true that work will change with the advent of smarter and faster automated workers; however, the scope and scale of the changes is still unknown. Automation may seem to be here already, but we are only at the early stages. Automation and Collaborative Robotics explores the output of current research projects that are improving the building blocks of an automated world. Research into collaborative robotics (cobotics) is merging digital, audio, and visual data to generate a commonly held view between cobots and their human collaborators. Low-power machine learning at the edge of the network can deliver decision making on cobots or to their manipulations. Topics covered in this book include: Robotic process automation, chatbots, and their impact in the near future The hype of automation and headlines leading to concerns over the future of work Component technologies that are still in the research labs Foundational technologies and collaboration that will enable many tasks to be automated with human workers being re-skilled and displaced rather than replaced What You Will Learn Be aware of the technologies currently being researched to improve or deliver automation Understand the impact of robotics, other automation technologies, and the impact of AI on automation Get an idea of how far we are from implementation of an automated future Know what work will look like in the future with the deployment of these technologies Who This Book Is For Technical and business managers interested in the future of automation and robotics, and the impact it will have on their organizations, customers, and the business world in general

How Britain lost its early dominance in computing by systematically discriminating against its most qualified workers: women. In 1944, Britain led the world in electronic computing. By 1974, the British computer industry was all but extinct. What happened in the intervening thirty years holds lessons for all postindustrial superpowers. As Britain struggled to use technology to retain its global power, the nation's inability to manage its technical labor force hobbled its transition into the information age. In Programmed Inequality, Mar Hicks explores the story of labor feminization and gendered technocracy that undercut British efforts to computerize. That failure sprang from the government's systematic neglect of its largest trained technical workforce simply because they were women. Women were a hidden engine of growth in high technology from World War II to the 1960s. As computing experienced a gender flip, becoming male-identified in the 1960s and 1970s, labor problems grew into structural ones and gender discrimination caused the nation's largest computer user—the

civil service and sprawling public sector—to make decisions that were disastrous for the British computer industry and the nation as a whole. Drawing on recently opened government files, personal interviews, and the archives of major British computer companies, Programmed Inequality takes aim at the fiction of technological meritocracy. Hicks explains why, even today, possessing technical skill is not enough to ensure that women will rise to the top in science and technology fields. Programmed Inequality shows how the disappearance of women from the field had grave macroeconomic consequences for Britain, and why the United States risks repeating those errors in the twenty-first century.

As the impact of data science continues to grow on society there is an increased need to discuss how data is appropriately used and how to address misuse. Yet, ethical principles for working with data have been available for decades. The real issue today is how to put those principles into action. With this report, authors Mike Loukides, Hilary Mason, and DJ Patil examine practical ways for making ethical data standards part of your work every day. To help you consider all of possible ramifications of your work on data projects, this report includes: A sample checklist that you can adapt for your own procedures Five framing guidelines (the Five C's) for building data products: consent, clarity, consistency, control, and consequences Suggestions for building ethics into your data-driven culture Now is the time to invest in a deliberate practice of data ethics, for better products, better teams, and better outcomes. Get a copy of this report and learn what it takes to do good data science today.

An argument that—despite dramatic advances in the field—artificial intelligence is nowhere near developing systems that are genuinely intelligent. In this provocative book, Brian Cantwell Smith argues that artificial intelligence is nowhere near developing systems that are genuinely intelligent. Second wave AI, machine learning, even visions of third-wave AI: none will lead to human-level intelligence and judgment, which have been honed over millennia. Recent advances in AI may be of epochal significance, but human intelligence is of a different order than even the most powerful calculative ability enabled by new computational capacities. Smith calls this AI ability “reckoning,” and argues that it does not lead to full human judgment—dispassionate, deliberative thought grounded in ethical commitment and responsible action. Taking judgment as the ultimate goal of intelligence, Smith examines the history of AI from its first-wave origins (“good old-fashioned AI,” or GOFAI) to such celebrated second-wave approaches as machine learning, paying particular attention to recent advances that have led to excitement, anxiety, and debate. He considers each AI technology's underlying assumptions, the conceptions of intelligence targeted at each stage, and the successes achieved so far. Smith

unpacks the notion of intelligence itself—what sort humans have, and what sort AI aims at. Smith worries that, impressed by AI's reckoning prowess, we will shift our expectations of human intelligence. What we should do, he argues, is learn to use AI for the reckoning tasks at which it excels while we strengthen our commitment to judgment, ethics, and the world.

How to Stop Silicon Valley from Building a New Global Underclass

Building Artificial Intelligence We Can Trust

The Promise of Artificial Intelligence

Weapons of Math Destruction

Artificial Intelligence: A Very Short Introduction

The Ethical Algorithm

How to Put the Artificial Intelligence Revolution to Work

'One of the best books yet written on data and algorithms. . .deserves a place on the bestseller charts.' (The Times) You are accused of a crime. Who would you rather determined your fate - a human or an algorithm? An algorithm is more consistent and less prone to error of judgement. Yet a human can look you in the eye before passing sentence. Welcome to the age of the algorithm, the story of a not-too-distant future where machines rule supreme, making important decisions - in healthcare, transport, finance, security, what we watch, where we go even who we send to prison. So how much should we rely on them? What kind of future do we want? Hannah Fry takes us on a tour of the good, the bad and the downright ugly of the algorithms that surround us. In Hello World she lifts the lid on their inner workings, demonstrates their power, exposes their limitations, and examines whether they really are an improvement on the humans they are replacing. A BBC RADIO 4- BOOK OF THE WEEK SHORTLISTED FOR THE 2018 BAILLIE GIFFORD PRIZE AND 2018 ROYAL SOCIETY SCIENCE BOOK PRIZE

This edited book inserts postfeminism (PF) as a critical concept into understandings of work and organization. While the notion of PF has been extensively investigated in cultural and media studies, it has yet to emerge within organization studies - remaining marginal to understandings of work based experiences and subjectivities. Understanding PF as a discursive cultural context not only draws on an established epistemological

orientation to organizations as discursively constructed and reproduced but allows us to highlight how PF may underpin and be underpinned by other discursive regimes This book, as the first in the field, draws on key international authors to explore: the contextual 'backdrop' of PF and its links with neo-liberalism, transnational feminism and other hegemonic discourses; the different ways in which this backdrop has infiltrated organizational values and practice through the primacy attached to choice, merit and individual agency as well as through the widespread perception that gender disadvantage has been 'solved'; and the implications for organizational subjectivity and for how inequality is experienced and perceived. This book introduces postfeminism as a critical concept with contemporary importance for the study of organizations, arguing for its explanatory potential when: Exploring women's and men's experience of managing and organizing; Investigating the gendered aspects of organizational life; Analysing the contemporary validation of the feminine and the associated feminization of management/leadership and organizations; Tracing the emergence of new femininities and masculinities within organizational contexts. The book is ideal reading for researchers working in the area of Gender and Organization Studies but is also of interest to researchers in the areas of Cultural Studies, Media Studies, Women's Studies and Sociology.

Financial Times Best Books of the Year 2018 TechRepublic Top Books Every Techie Should Read Book Description How will AI evolve and what major innovations are on the horizon? What will its impact be on the job market, economy, and society? What is the path toward human-level machine intelligence? What should we be concerned about as artificial intelligence advances? Architects of Intelligence contains a series of in-depth, one-to-one interviews where New York Times bestselling author, Martin Ford, uncovers the truth behind these questions from some of the brightest minds in the Artificial Intelligence community. Martin has wide-ranging conversations with twenty-three of the world's foremost researchers and entrepreneurs working in AI and robotics: Demis Hassabis (DeepMind), Ray Kurzweil (Google), Geoffrey Hinton (Univ. of Toronto and Google), Rodney Brooks (Rethink Robotics), Yann LeCun (Facebook) , Fei-Fei Li (Stanford and Google),

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Yoshua Bengio (Univ. of Montreal), Andrew Ng (AI Fund), Daphne Koller (Stanford), Stuart Russell (UC Berkeley), Nick Bostrom (Univ. of Oxford), Barbara Grosz (Harvard), David Ferrucci (Elemental Cognition), James Manyika (McKinsey), Judea Pearl (UCLA), Josh Tenenbaum (MIT), Rana el Kaliouby (Affectiva), Daniela Rus (MIT), Jeff Dean (Google), Cynthia Breazeal (MIT), Oren Etzioni (Allen Institute for AI), Gary Marcus (NYU), and Bryan Johnson (Kernel). Martin Ford is a prominent futurist, and author of Financial Times Business Book of the Year, *Rise of the Robots*. He speaks at conferences and companies around the world on what AI and automation might mean for the future. Meet the minds behind the AI superpowers as they discuss the science, business and ethics of modern artificial intelligence. Read James Manyika's thoughts on AI analytics, Geoffrey Hinton's breakthroughs in AI programming and development, and Rana el Kaliouby's insights into AI marketing. This AI book collects the opinions of the luminaries of the AI business, such as Stuart Russell (coauthor of the leading AI textbook), Rodney Brooks (a leader in AI robotics), Demis Hassabis (chess prodigy and mind behind AlphaGo), and Yoshua Bengio (leader in deep learning) to complete your AI education and give you an AI advantage in 2019 and the future.

Our gadgets, appliances, and cars are sleeker and more elegant than they've ever been; in our free time, we trawl the internet for pictures of flawless minimalist interiors; and even the great industrialist of our time—Steve Jobs—is admired more for his visual savvy than his technological inventiveness. And yet with Instagram and Pinterest at our fingers and great design more available—and more affordable—than ever, we've had no guidebook to this ever-fascinating field. Though it's an inescapable part of our lives, there has been no single book that could, in one fell swoop, tell us everything we need to know about design. Enter *Hello World*. The design critic for the International Herald Tribune, Alice Rawsthorn has spent many years reckoning with the history of design and with its place in contemporary life, and *Hello World* is the extraordinary summation of her research and reporting. Rawsthorn takes us on a trip through design that ranges across continents and centuries, and wherever she goes, she discovers inspiring, thrilling examples of resourcefulness, inventiveness, and sheer vision. From the macabre symbol with which

eighteenth-century pirates terrorized their victims into surrender, to one woman's quest for the best prosthetic legs, to the evolution of the World Cup soccer ball, Hello World describes how warlords, scientists, farmers, hackers, activists, and professional designers have used the complex, often elusive process of design to different ends throughout history. Hailed as a "rapid-fire and illuminating ode to contemporary design" (Telegraph) and "an extremely readable tour of the subject" (Financial Times), Hello World is a major work that radically broadens our understanding of what design can mean, and explains how we can use it to make sense of our ever-changing universe.

Algorithms and the Making of Our Digital Selves

The truth about AI from the people building it

A History of Imaginative Thinking about Intelligent Machines

A Citizen's Guide to Artificial Intelligence

Automating the News

Living in Data

How High-Tech Tools Profile, Police, and Punish the Poor

Most of the high-profile cases of real or perceived unethical activity in data science aren't matters of bad intent. Rather, they occur because the ethics simply aren't thought through well enough. Being ethical takes constant diligence, and in many situations identifying the right choice can be difficult. In this in-depth book, contributors from top companies in technology, finance, and other industries share experiences and lessons learned from collecting, managing, and analyzing data ethically. Data science professionals, managers, and tech leaders will gain a better understanding of ethics through powerful, real-world best practices. Articles include: Ethics Is Not a Binary Concept—Tim Wilson How to Approach Ethical Transparency—Rado Kotorov Unbiased ? Fair—Doug Hague Rules and Rationality—Christof Wolf Brenner The Truth About AI Bias—Cassie Kozyrkov Cautionary Ethics Tales—Sherrill Hayes Fairness in the Age of Algorithms—Anna Jacobson The Ethical Data Storyteller—Brent Dykes Introducing Ethicize™, the Fully AI-Driven Cloud-Based Ethics Solution!—Brian O'Neill Be Careful with "Decisions of the Heart"—Hugh Watson Understanding Passive Versus Proactive Ethics—Bill Schmarzo

Computers have dramatically altered life in the late twentieth century. Today we can draw on worldwide computer links, speeding up communications by radio, newspapers, and television. Ideas fly back and forth and circle the globe at the speed of electricity. And just around the corner lurks full-blown virtual reality, in which we will be able to immerse ourselves in a computer simulation not only of the actual physical world, but of any imagined world. As we begin to move in and out of a computer-generated world, Michael Heim asks, how will the way we perceive our world change? In *The Metaphysics of Virtual Reality*, Heim considers this and other philosophical issues of the Information Age. With an eye for the dark as well as the bright side of computer technology, he explores the logical and historical origins of our computer-generated world and speculates about the future direction of our computerized lives. He discusses such topics as the effect of word-

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processing on the English language (while word-processors have led to increased productivity, they have also led to physical hazards such as repetitive motion syndrome, which causes inflamed hand and arm tendons). Heim looks into the new kind of literacy promised by Hypertext (technology which allows the user to link audio and video elements, the disadvantages including disorientation and cognitive overload). And he also probes the notion of virtual reality, "cyberspace"--the computer-simulated environments that have captured the popular imagination and may ultimately change the way we define reality itself. Just as the definition of interface itself has evolved from the actual adapter plug used to connect electronic circuits into human entry into a self-contained cyberspace, so too will the notion of reality change with the current technological drive. Like the introduction of the automobile, the advent of virtual reality will change the whole context in which our knowledge and awareness of life are rooted. And along the way, Heim covers such intriguing topics as how computers have altered our thought habits, how we will be able to distinguish virtual from real reality, and the appearance of virtual reality in popular culture (as in Star Trek's holodeck, William Gibson's Neuromancer, and Stephen King's Lawnmower Man). Vividly and entertainingly written, *The Metaphysics of Virtual Reality* opens a window on a fascinating world that promises--or threatens--to become an integral part of everyday life in the 21st century. As Heim writes, not only do we face a breakthrough in the technology of computer interface, but we face the challenge of knowing ourselves and determining how the technology should develop and ultimately affect the society in which it grows.

A guide to understanding the inner workings and outer limits of technology and why we should never assume that computers always get it right. In *Artificial Unintelligence*, Meredith Broussard argues that our collective enthusiasm for applying computer technology to every aspect of life has resulted in a tremendous amount of poorly designed systems. We are so eager to do everything digitally—hiring, driving, paying bills, even choosing romantic partners—that we have stopped demanding that our technology actually work. Broussard, a software developer and journalist, reminds us that there are fundamental limits to what we can (and should) do with technology. With this book, she offers a guide to understanding the inner workings and outer limits of technology—and issues a warning that we should never assume that computers always get things right. Making a case against technochauvinism—the belief that technology is always the solution—Broussard argues that it's just not true that social problems would inevitably retreat before a digitally enabled Utopia. To prove her point, she undertakes a series of adventures in computer programming. She goes for an alarming ride in a driverless car, concluding “the cyborg future is not coming any time soon”; uses artificial intelligence to investigate why students can't pass standardized tests; deploys machine learning to predict which passengers survived the Titanic disaster; and attempts to repair the U.S. campaign finance system by building AI software. If we understand the limits of what we can do with technology, Broussard tells us, we can make better choices about what we should do with it to make the world better for everyone.

As heard on NPR's "Science Friday," discover the book recommended by Malcolm Gladwell, Susan Cain, Daniel Pink, and Adam Grant: an "accessible, informative, and hilarious" introduction to the weird and wonderful world of artificial intelligence (Ryan North). "You look like a thing and I love you" is one of the best pickup lines ever . . . according to an artificial intelligence trained by scientist Janelle Shane, creator of the popular blog AI Weirdness. She creates silly AIs that learn how to name paint colors, create the best recipes, and even flirt (badly) with humans—all to understand the technology that governs so much of our daily lives. We rely on AI every day for recommendations, for translations, and to put cat ears on our selfie videos. We also trust AI with matters of life and death, on the road and in our hospitals. But how smart is AI really... and how does it solve problems, understand humans, and even drive self-driving cars? Shane delivers the answers to every AI question you've ever asked, and some you definitely haven't. Like, how can a computer design the perfect sandwich? What does

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robot-generated Harry Potter fan-fiction look like? And is the world's best Halloween costume really "Vampire Hog Bride"? In this smart, often hilarious introduction to the most interesting science of our time, Shane shows how these programs learn, fail, and adapt—and how they reflect the best and worst of humanity. *You Look Like a Thing and I Love You* is the perfect book for anyone curious about what the robots in our lives are thinking. "I can't think of a better way to learn about artificial intelligence, and I've never had so much fun along the way." —Adam Grant, New York Times bestselling author of *Originals*

Postfeminism and Organization

The Message is Murder

The Atlas of AI

Automating Inequality

Silicon Valley and the Remaking of America

How Search Engines Reinforce Racism

A leading artificial intelligence researcher lays out a new approach to AI that will enable people to coexist successfully with increasingly intelligent machines.

How Hansel and Gretel, Sherlock Holmes, the movie *Groundhog Day*, Harry Potter, and other familiar stories illustrate the concepts of computing. Picture a computer scientist, staring at a screen and clicking away frantically on a keyboard, hacking into a system, or perhaps developing an app. Now delete that picture. In *Once Upon an Algorithm*, Martin Erwig explains computation as something that takes place beyond electronic computers, and computer science as the study of systematic problem solving. Erwig points out that many daily activities involve problem solving. Getting up in the morning, for example: You get up, take a shower, get dressed, eat breakfast. This simple daily routine solves a recurring problem through a series of well-defined steps. In computer science, such a routine is called an algorithm. Erwig illustrates a series of concepts in computing with examples from daily life and familiar stories. Hansel and Gretel, for example, execute an algorithm to get home from the forest. The movie *Groundhog Day* illustrates the problem of unsolvability; Sherlock Holmes manipulates data structures when solving a crime; the magic in Harry Potter's world is understood through types and abstraction; and Indiana Jones demonstrates the complexity of searching. Along the way, Erwig also discusses representations and different ways to organize data; “intractable” problems; language, syntax, and ambiguity; control structures, loops, and the halting problem; different forms of recursion; and rules for finding errors in algorithms. This engaging book explains computation accessibly and shows its relevance to daily life. Something to think about next time we execute the algorithm of getting up in the morning.

An accessible synthesis of ethical issues raised by artificial intelligence that moves beyond hype and nightmare scenarios to address concrete questions. Artificial intelligence powers Google's search engine, enables Facebook to target advertising, and allows Alexa and Siri to do their jobs. AI is also behind self-driving cars, predictive policing, and autonomous weapons that can kill without human intervention. These and other AI applications raise complex ethical issues that are the subject of ongoing debate. This volume in the MIT Press Essential Knowledge series offers an accessible synthesis of these issues. Written by a philosopher of technology, *AI Ethics* goes beyond the usual hype and nightmare scenarios to address concrete questions. Mark Coeckelbergh describes influential AI narratives, ranging from Frankenstein's monster to transhumanism and the technological singularity. He surveys relevant philosophical discussions: questions about the fundamental differences between humans and machines and debates over the moral status of AI. He explains the technology of AI, describing different approaches and focusing on machine learning and data science. He offers an overview of important ethical issues,

including privacy concerns, responsibility and the delegation of decision making, transparency, and bias as it arises at all stages of data science processes. He also considers the future of work in an AI economy. Finally, he analyzes a range of policy proposals and discusses challenges for policymakers. He argues for ethical practices that embed values in design, translate democratic values into practices and include a vision of the good life and the good society. Cutting through the hype, a practical guide to using artificial intelligence for business benefits and competitive advantage. In *The AI Advantage*, Thomas Davenport offers a guide to using artificial intelligence in business. He describes what technologies are available and how companies can use them for business benefits and competitive advantage. He cuts through the hype of the AI craze—remember when it seemed plausible that IBM's Watson could cure cancer?—to explain how businesses can put artificial intelligence to work now, in the real world. His key recommendation: don't go for the “moonshot” (curing cancer, or synthesizing all investment knowledge); look for the “low-hanging fruit” to make your company more efficient. Davenport explains that the business value AI offers is solid rather than sexy or splashy. AI will improve products and processes and make decisions better informed—important but largely invisible tasks. AI technologies won't replace human workers but augment their capabilities, with smart machines to work alongside smart people. AI can automate structured and repetitive work; provide extensive analysis of data through machine learning (“analytics on steroids”), and engage with customers and employees via chatbots and intelligent agents. Companies should experiment with these technologies and develop their own expertise. Davenport describes the major AI technologies and explains how they are being used, reports on the AI work done by large commercial enterprises like Amazon and Google, and outlines strategies and steps to becoming a cognitive corporation. This book provides an invaluable guide to the real-world future of business AI. A book in the *Management on the Cutting Edge* series, published in cooperation with MIT Sloan Management Review.

A Guide to the Future of Work

Ethics and Data Science

Architects of Intelligence

Race, Technology, and Everyday Life

Automation and Collaborative Robotics

The Code