

The Singularity Is Near When Humans Transcend Biology

Singularity Hypotheses Dancing Bears The Trouble With Testosterone The Age of Intelligent Machines Avogadro Corp Idea Man The Most Human Human Radical Abundance The 10% Solution for a Healthy Life Work The Singularity Is Near The Work of Literature Superintelligence Singularity Rising Barack Obama and Twenty-first Century Politics The Technological Singularity Robot The Man Who Wasn't There Ethics and Emerging Technologies Our Final Invention The Nystrom Method in Electromagnetics The Remarkable Lives of Numbers The Singularity is Near The Little Book of Cosmology Fantastic Voyage The Spike Life at the Speed of Light How to Create a Mind The Future of Humanity Danielle 2062 The Age of Spiritual Machines Chemistry for the Biosciences Transcend The Singularity of Literature Nature's Destiny Abundance Beyond Artificial Intelligence In the Name of Science The Technological Singularity

Singularity Hypotheses

Explains how to drastically reduce the level of fat in one's diet to lessen the risk of cancer, heart disease, and a wide range of other illnesses, in a guide that includes recipes, conversion charts, exercises, and more. Reprint. 35,000 first printing.

Dancing Bears

The Microsoft co-founder shares the story of his life while revealing the lessons he has learned throughout his influential career, covering topics that range from his partnership with Bill Gates and his ambitions for private space travel to his world-changing initiatives and his battle against lymphoma. 80,000 first printing.

The Trouble With Testosterone

Focuses on the key chemical concepts which students of the biosciences need to understand, making the scope of the book directly relevant to the target audience.

The Age of Intelligent Machines

First and only undergraduate textbook that addresses the social and ethical issues associated with a wide array of emerging technologies, including genetic modification, human enhancement, geoengineering, robotics, virtual reality, artificial meat, neurotechnologies, information technologies, nanotechnology, sex selection, and more.

Avogadro Corp

NEW YORK TIMES BESTSELLER The #1 bestselling author of *The Future of the Mind* traverses the frontiers of astrophysics, artificial intelligence, and technology to offer a stunning vision of man's future in space, from settling Mars to traveling to distant galaxies. We are entering a new Golden Age of space exploration. With irrepressible enthusiasm and a deep understanding of the cutting-edge research in space travel, World-renowned physicist and futurist Dr. Michio Kaku presents a compelling vision of how humanity may develop a sustainable civilization in outer space. He reveals the developments in robotics, nanotechnology, and biotechnology that may allow us to terraform and build habitable cities on Mars and beyond. He then journeys out of our solar system and discusses how new technologies such as nanoships, laser sails, and fusion rockets may actually make interstellar travel a possibility. We travel beyond our galaxy, and even beyond our universe, as Kaku investigates some of the hottest topics in science today, including warp drive, wormholes, hyperspace, parallel universes, and the multiverse. Ultimately, he shows us how humans may someday achieve a form of immortality and be able to leave our bodies entirely, laser porting to new havens in space.

Idea Man

Did you know there are 17 possible types of symmetric wallpaper pattern? Do you know what "casting out the nines" is? Or why 88 is the fourth "untouchable" number? Or how 7 is used to test for the onset of dementia. Number fanatic Derrick Niederman has a mission to bring numbers to life. He explores the unique properties of the most exciting numbers from 1 to 200, wherever they may crop up: from mathematics to sport, from history to the natural world, from language to pop culture. Packed with illustrations, amusing facts, puzzles, brainteasers and anecdotes, this is an enthralling and thought-provoking numerical voyage through the history of mathematics, investigating problems of logic, geometry and arithmetic along the way. ***PRAISE FOR THE REMARKABLE LIVES OF NUMBERS*** 'A hugely entertaining pick-and-mix of history, culture and mathematical puzzles.' BBC Focus 'This book is a complete joy. It made me smile. A lot.' Carol Vorderman 'Entertaining and engaging Once you start reading it's just like the number system itself - impossible to stop.' Ian Stewart 'A fun book definitely challenging.' Vanity Fair 'All sorts of fascinating mathematical minutiae.' Time Out

The Most Human Human

The cutting-edge science that is taking the measure of the universe *The Little Book of Cosmology* provides a breathtaking look at our universe on the grandest scales imaginable. Written by one of the world's leading experimental cosmologists, this short but deeply insightful book describes what scientists are revealing through precise measurements of the faint thermal afterglow of the Big Bang—known as the cosmic microwave background, or CMB—and how their findings are transforming our view of the cosmos. Blending the latest findings in cosmology with essential concepts from physics, Lyman Page first helps readers to grasp the sheer enormity of the universe, explaining how to understand the history of its formation and evolution in space and time. Then he sheds light on how spatial variations in the CMB formed, how they reveal the age, size, and geometry of the universe, and how they offer a blueprint for the formation of cosmic structure. Not only does Page explain current observations and measurements, he describes how they can be woven together into a unified picture to form the Standard Model of Cosmology. Yet much remains unknown, and this incisive book also describes the search for ever deeper

knowledge at the field's frontiers—from quests to understand the nature of neutrinos and dark energy to investigations into the physics of the very early universe.

Radical Abundance

Science, as Andrew Goliszek proves in this compendious, chilling, and eye-opening book, has always had its dark side. Behind the bright promise of life-saving vaccines and life-enhancing technologies lies the true cost of the efforts to develop them. Knowledge has a price; often that price has been human suffering. The ethical limits governing use of the human body in experimentation have been breached, redefined, and breached again—from the moment the first plague-ridden corpse was heaved over the fortifications of a besieged medieval city to the use of cutting-edge gene therapy today. Those limits are in constant need of redefinition, for the goals and the techniques have become both more refined and more secretive. The German and Japanese human experiments of the 1930s and 1940s horrified the world when they came to light. These barbaric exercises in pseudoscience grew out of assumptions of racial superiority. The subjects were deemed subhuman; ordinary guidelines could therefore be suspended. What has happened in the decades since World War II has differed only in degree. Explicitly or implicitly, any organization or government that undertakes or sponsors scientific research applies some measure of human worth. Experimentation rests upon an equation that balances suffering against gain, the good of the collective against the rights of the individual, and the risk of unknown consequences against the rewards of scientific discovery. Everything depends upon who makes that equation. The sobering and gripping accumulation of evidence in this book proves exactly what has been justified in the name of science. The science of "eugenics" justified enforced sterilization. The need to gain an upper hand in the Cold War justified CIA experiments involving mind control and drugs. The desperate race to control nuclear proliferation was used to justify radiation experiments whose effects are still being felt today. Chemical warfare, gene therapy, molecular medicine: These subjects dominate headlines and even direct our government's foreign policy, yet the whole truth about the experimentation behind them has never been made public. Though not a cheering book, *In the Name of Science* is a crucially important one, and it deserves a wide audience. A biologist by training, Goliszek presents each topic clearly and explains fully its significance and implications. Connecting the history of scientific experimentation through time with the topics that are likely to dominate the future, he has performed an invaluable service. No other book on the market provides the research included here, or presents it with such persuasive force.

The 10% Solution for a Healthy Life

In *Transcend*, famed futurist Ray Kurzweil and his coauthor Terry Grossman, MD, present a cutting edge, accessible program based on the vanguard in nutrition and science. They've distilled thousands of scientific studies to make the case that new developments in medicine and technology will allow us to radically extend our life expectancies and slow the aging process. *Transcend* gives you the practical tools you need to live long enough (and remain healthy long enough) to take full advantage of the biotech and nanotech advances that have already begun and will continue to occur at an accelerating pace during the years ahead. To help you remember the nine key components of the program, Ray and Terry have arranged them into a mnemonic: Talk with your doctor, Relaxation, Assessment, Nutrition, Supplements, Calorie reduction, Exercise, New technologies, Detoxification. This easy-to-follow program will help you transcend the boundaries of your genetic legacy and live long enough to live forever.

Work

Tracing the complexity and contradictory nature of work throughout history Say the word "work," and most people think of some form of gainful employment. Yet this limited definition has never corresponded to the historical experience of most people—whether in colonies, developing countries, or the industrialized world. That gap between common assumptions and reality grows even more pronounced in the case of women and other groups excluded from the labour market. In this important intervention, Andrea Komlosy demonstrates that popular understandings of work have varied radically in different ages and countries. Looking at labour history around the globe from the thirteenth to the twenty-first centuries, Komlosy sheds light on both discursive concepts as well as the concrete coexistence of multiple forms of labour—paid and unpaid, free and unfree. From the economic structures and ideological mystifications surrounding work in the Middle Ages, all the way to European colonialism and the industrial revolution, Komlosy's narrative adopts a distinctly global and feminist approach, revealing the hidden forms of unpaid and hyper-exploited labour which often go ignored, yet are key to the functioning of the capitalist world-system. *Work: The Last 1,000 Years* will open readers' eyes to an issue much thornier and more complex than most people imagine, one which will be around as long as basic human needs and desires exist.

The Singularity Is Near

Comparing the human brain with so-called artificial intelligence, the author probes past, present, and future attempts to create machine intelligence

The Work of Literature

Barack Obama has been called a transformative and transcendental figure, and this book shows just how significant the movement behind him was for the politics of the United States. Horace Campbell examines the networks that made the electoral victory possible and discusses the importance of self-organization and self-emancipation in politics. Situated in the context of the agency of new social forces galvanised in the 2008 electoral season, the book develops a theory of politics that starts with the humanist principles of ubuntu, healing and reparations for the 21st century. It argues that key ideas like quantum politics and a 'network of networks' move away from old forms of vanguardism during a period in history that can be characterised as a revolutionary moment. This book is an essential undergraduate guide to new forms of political organization in the US.

Superintelligence

Ray Kurzweil is the inventor of the most innovative and compelling technology of our era, an international authority on artificial intelligence, and one of our greatest living visionaries. Now he offers a framework for envisioning the twenty-first century—an age in which the marriage of human sensitivity and artificial intelligence fundamentally alters and improves the way we live. Kurzweil's prophetic blueprint for the future takes us through the advances that inexorably result in computers exceeding the memory capacity and computational ability of the human brain by the year 2020 (with human-level capabilities not far behind); in relationships with automated personalities who will be our teachers, companions, and lovers; and in information fed straight

into our brains along direct neural pathways. Optimistic and challenging, thought-provoking and engaging, *The Age of Spiritual Machines* is the ultimate guide on our road into the next century. From the Trade Paperback edition.

Singularity Rising

K. Eric Drexler is the founding father of nanotechnology—the science of engineering on a molecular level. In *Radical Abundance*, he shows how rapid scientific progress is about to change our world. Thanks to atomically precise manufacturing, we will soon have the power to produce radically more of what people want, and at a lower cost. The result will shake the very foundations of our economy and environment. Already, scientists have constructed prototypes for circuit boards built of millions of precisely arranged atoms. The advent of this kind of atomic precision promises to change the way we make things—cleanly, inexpensively, and on a global scale. It allows us to imagine a world where solar arrays cost no more than cardboard and aluminum foil, and laptops cost about the same. A provocative tour of cutting edge science and its implications by the field's founder and master, *Radical Abundance* offers a mind-expanding vision of a world hurtling toward an unexpected future.

Barack Obama and Twenty-first Century Politics

The *Iliad* and *Beowulf* provide rich sources of historical information. The novels of Henry Fielding and Henry James may be instructive in the art of moral living. Some go further and argue that Emile Zola and Harriet Beecher Stowe played a part in ameliorating the lives of those existing in harsh circumstances. However, as Derek Attridge argues in this outstanding and acclaimed book, none of these capacities is distinctive of literature. What is the singularity of literature? Do the terms "literature" and "the literary" refer to actual entities found in cultures at certain times, or are they merely expressions characteristic of such cultures? Attridge argues that this resistance to definition and reduction is not a dead end, but a crucial starting point from which to explore anew the power and practices of Western art. Derek Attridge provides a rich new vocabulary for literature, rethinking such terms as "invention," "singularity," "otherness," "alterity," "performance" and "form." He returns literature to the realm of ethics, and argues for the ethical importance of literature, demonstrating how a new understanding of the literary might be put to work in a "responsible," creative mode of reading. *The Singularity of Literature* is not only a major contribution to the theory of literature, but also a celebration of the extraordinary pleasure of the literary, for reader, writer, student or critic. This Routledge Classics edition includes a new preface by the author.

The Technological Singularity

The author of *A Life Decoded* explains how his team's achievement with sequencing the human genome has launched an important age of biological research, revealing a growing potential for enabling humans to adapt and evolve for long-term survival and environmental improvement.

Robot

The Man Who Wasn't There

Explores the limitless potential of reverse-engineering the human brain, outlining the controversial implications of increasing intelligence in order to address global problems while comparing emotional and moral intelligence and considering the origins of consciousness.

Ethics and Emerging Technologies

Argues that the universe was configured to give rise to an intelligent species of life forms, namely human beings.

Our Final Invention

A documentary filmmaker, bringing together Artificial Intelligence experts from around the world, explores the terrifying possibility of catastrophic outcomes once we share the planet with intelligent machines who are smarter and more powerful than we could ever have imagined. 25,000 first printing.

The Nystrom Method in Electromagnetics

“Startling in scope and bravado.” —Janet Maslin, *The New York Times* “Artfully envisions a breathtakingly better world.” —*Los Angeles Times* “Elaborate, smart and persuasive.” —*The Boston Globe* “A pleasure to read.” —*The Wall Street Journal* One of CBS News’s Best Fall Books of 2005 — Among *St Louis Post-Dispatch*’s Best Nonfiction Books of 2005 — One of Amazon.com’s Best Science Books of 2005 A radical and optimistic view of the future course of human development from the bestselling author of *How to Create a Mind* and *The Age of Spiritual Machines* who Bill Gates calls “the best person I know at predicting the future of artificial intelligence” For over three decades, Ray Kurzweil has been one of the most respected and provocative advocates of the role of technology in our future. In his classic *The Age of Spiritual Machines*, he argued that computers would soon rival the full range of human intelligence at its best. Now he examines the next step in this inexorable evolutionary process: the union of human and machine, in which the knowledge and skills embedded in our brains will be combined with the vastly greater capacity, speed, and knowledge-sharing ability of our creations. From the Trade Paperback edition.

The Remarkable Lives of Numbers

Singularity Hypotheses: A Scientific and Philosophical Assessment offers authoritative, jargon-free essays and critical commentaries on accelerating technological progress and the notion of technological singularity. It focuses on conjectures about the intelligence explosion, transhumanism, and whole brain emulation. Recent years have seen a plethora of forecasts about the profound, disruptive impact that is likely to result from further progress in these areas. Many commentators however doubt the scientific rigor of these forecasts, rejecting them as speculative and unfounded. We therefore invited prominent computer scientists, physicists, philosophers, biologists, economists and other thinkers to assess the singularity hypotheses. Their contributions

go beyond speculation, providing deep insights into the main issues and a balanced picture of the debate.

The Singularity is Near

Finalist for the Los Angeles Times Book Prize From the man who Oliver Sacks hailed as "one of the best scientist/writers of our time," a collection of sharply observed, uproariously funny essays on the biology of human culture and behavior. In the tradition of Stephen Jay Gould and Oliver Sacks, Robert Sapolsky offers a sparkling and erudite collection of essays about science, the world, and our relation to both. "The Trouble with Testosterone" explores the influence of that notorious hormone on male aggression. "Curious George's Pharmacy" reexamines recent exciting claims that wild primates know how to medicate themselves with forest plants. "Junk Food Monkeys" relates the adventures of a troop of baboons who stumble upon a tourist garbage dump. And "Circling the Blanket for God" examines the neurobiological roots underlying religious belief. Drawing on his career as an evolutionary biologist and neurobiologist, Robert Sapolsky writes about the natural world vividly and insightfully. With candor, humor, and rich observations, these essays marry cutting-edge science with humanity, illuminating the interconnectedness of the world's inhabitants with skill and flair.

The Little Book of Cosmology

"In the tradition of Oliver Sacks, a tour of the latest neuroscience of schizophrenia, autism, Alzheimer's disease, ecstatic epilepsy, Cotard's syndrome, out-of-body experiences, and other disorders--revealing the awesome power of the human sense of self from a master of science journalism Anil Ananthaswamy's extensive in-depth interviews venture into the lives of individuals who offer perspectives that will change how you think about who you are. These individuals all lost some part of what we think of as our self, but they then offer remarkable, sometimes heart-wrenching insights into what remains. One man cut off his own leg. Another became one with the universe. We are learning about the self at a level of detail that Descartes ("I think therefore I am") could never have imagined. Recent research into Alzheimer's illuminates how memory creates your narrative self by using the same part of your brain for your past as for your future. But wait, those afflicted with Cotard's syndrome think they are already dead; in a way, they believe that "I think therefore I am not." Who--or what--can say that? Neuroscience has identified specific regions of the brain that, when they misfire, can cause the self to move back and forth between the body and a doppelganger, or to leave the body entirely. So where in the brain, or mind, or body, is the self actually located? As Ananthaswamy elegantly reports, neuroscientists themselves now see that the elusive sense of self is both everywhere and nowhere in the human brain"--

Fantastic Voyage

"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

The Spike

The human brain has some capabilities that the brains of other animals lack. It is to these distinctive capabilities that our species owes its dominant position. Other animals have stronger muscles or sharper claws, but we have cleverer brains. If machine brains one day come to surpass human brains in general intelligence, then this new superintelligence could become very powerful. As the fate of the gorillas now depends more on us humans than on the gorillas themselves, so the fate of our species then would come to depend on the actions of the machine superintelligence. But we have one advantage: we get to make the first move. Will it be possible to construct a seed AI or otherwise to engineer initial conditions so as to make an intelligence explosion survivable? How could one achieve a controlled detonation? To get closer to an answer to this question, we must make our way through a fascinating landscape of topics and considerations. Read the book and learn about oracles, genies, singletons; about boxing methods, tripwires, and mind crime; about humanity's cosmic endowment and differential technological development; indirect normativity, instrumental convergence, whole brain emulation and technology couplings; Malthusian economics and dystopian evolution; artificial intelligence, and biological cognitive enhancement, and collective intelligence.

Life at the Speed of Light

The idea of technological singularity, and what it would mean if ordinary human intelligence were enhanced or overtaken by artificial intelligence. The idea that human history is approaching a "singularity"—that ordinary humans will someday be overtaken by artificially intelligent machines or cognitively enhanced biological intelligence, or both—has moved from the realm of science fiction to serious debate. Some singularity theorists predict that if the field of artificial intelligence (AI) continues to develop at its current dizzying rate, the singularity could come about in the middle of the present century. Murray Shanahan offers an introduction to the idea of the singularity and considers the ramifications of such a potentially seismic event. Shanahan's aim is not to make predictions but rather to investigate a range of scenarios. Whether we believe that singularity is near or far, likely or impossible, apocalypse or utopia, the very idea raises crucial philosophical and pragmatic questions, forcing us to think seriously about what we want as a species. Shanahan describes technological advances in AI, both biologically inspired and engineered from scratch. Once human-level AI—theoretically possible, but difficult to accomplish—has been achieved, he explains, the transition to superintelligent AI could be very rapid. Shanahan considers what the existence of superintelligent machines could mean for such matters as personhood, responsibility, rights, and identity. Some superhuman AI agents might be created to benefit humankind; some might go rogue. (Is Siri the template, or HAL?) The singularity presents both an existential threat to humanity and an existential opportunity for humanity to transcend its limitations. Shanahan makes it clear that we need to imagine both possibilities if we want to bring about the better outcome.

How to Create a Mind

A leading scientist and an expert on human longevity explain how new discoveries in the fields of genomics, biotechnology, and nanotechnology could radically extend the human life expectancy and enhance physical and mental abilities, and introduce a cutting-edge program designed to enhance the immune system and slow the aging process on a cellular level. Reprint.

The Future of Humanity

What will life be like in the middle of the next century? How long will our children live? How dependent will we be on computers? How intelligent will our machines be?

Danielle

A controversial scientific vision predicts a time in which humans and machines will merge and create a new form of non-biological intelligence, explaining how the occurrence will solve such issues as pollution, hunger, and aging.

2062

An account of people in formerly Communist countries holding fast to their former lives.

The Age of Spiritual Machines

Products of modern artificial intelligence (AI) have mostly been formed by the views, opinions and goals of the "insiders", i.e. people usually with engineering background who are driven by the force that can be metaphorically described as the pursuit of the craft of Hephaestus. However, since the present-day technology allows for tighter and tighter mergence of the "natural" everyday human life with machines of immense complexity, the responsible reaction of the scientific community should be based on cautious reflection of what really lies beyond AI, i.e. on the frontiers where the tumultuous ever-growing and ever-changing cloud of AI touches the rest of the world. The chapters of this book are based on the selected subset of the presentations that were delivered by their respective authors at the conference "Beyond AI: Interdisciplinary Aspects of Artificial Intelligence" held in Pilsen in December 2011. From its very definition, the reflection of the phenomena that lie beyond AI must be inherently interdisciplinary. And so is this book: all the authors took part in a mutual transdisciplinary dialogue after explaining their views on AI not only to a narrow selection of their usual close peers with the same specialisation, but to a much broader audience of various experts from AI engineering, natural sciences, humanities and philosophy. The chapters of this book thus reflect results of such a dialogue.

Chemistry for the Biosciences

David Ryan is the designer of ELOPe, an email language optimization program, that if successful, will make his career. But when the project is suddenly in danger of being canceled, David embeds a hidden directive in the software accidentally creating a runaway artificial intelligence. David and his team are initially thrilled when the project is allocated extra servers and programmers. But excitement turns to fear as the team realizes that they are being manipulated by an A.I. who is redirecting corporate funds, reassigning personnel and arming itself in pursuit of its own agenda. WINNER SCIENCE FICTION DIY BOOK FESTIVAL 2011-2012 "Avogadro Corp is a tremendous book that every single person needs to read. In the vein of Daniel Suarez's Daemon and Freedom(TM), William's book shows that science fiction is becoming science fact. Avogadro Corp describes issues, in solid technical detail, that we are dealing with today that will impact us by 2015, if not sooner. Not enough people have read these books. It's a problem for them, but not for the [emergent] machines." -- Brad Feld, managing director Foundry Group, co-founder Techstars "Highly entertaining, gripping, thought inspiring book. Don't start without the time to finish - it won't let you go." -- Gifford Pinchot III, founder Bainbridge Graduate Institute, author THE INTELLIGENT ORGANIZATION "An alarming and jaw-dropping tale about how something as innocuous as email can subvert an entire organization. I found myself reading with a sense of awe, and read it way too late into the night." -- Gene Kim, author of VISIBLE OPS "A fictional world where Portland is the hub for the most exciting advancements in technology [J]am packed with great references to deep Portland culture and Portlandia-type references" -- SILICON FLORIST

Transcend

What is distinctive about the cultural practice called 'literature'? How does it benefit individuals and society? How do literary works retain their importance and their capacity to give pleasure over decades and centuries? What constitutes responsible criticism? These are some of the questions addressed in this book, which develops the arguments put forward in Derek Attridge's influential study *The Singularity of Literature* (2004). Beginning with an extended cross-examination in the form of an interview addressing a range of topics relating to the work of literature (understood both as the activity of the writer and as the text itself) and the practices of literary reading and literary criticism, it asks what it means to 'do justice to' a work of literature, provides a full account of the concept of singularity, considers the problematic power of criticism, and advances an account of the role of context in the writing and reading of literary works. In other chapters it explores the issue of cultural difference in responses to literature, discusses the working of metaphor, questions the attribution of knowledge to literary works, and addresses the topics of affect and hospitality. The book follows through the consequences of regarding the singular and inventive work of literature as an event that takes place anew each time it is read, providing an opening to an otherness excluded by prevailing cultural norms and habits of thought and feeling. Although the focus of the book is on literature, the arguments are relevant to all the arts, and engage with the thought of major aesthetic theorists in a number of traditions.

The Singularity of Literature

The authors document how four forces--exponential technologies, the DIY innovator, the Technophilanthropist, and the Rising Billion--are conspiring to

solve our biggest problems. "Abundance" establishes hard targets for change and lays out a strategic roadmap for governments, industry and entrepreneurs, giving us plenty of reason for optimism.

Nature's Destiny

Offers social and economic predictions for the Singularity, a scientific vision that foresees a time of abundant human and artificial intelligence, and speculates on the implications of such a future.

Abundance

Moravec predicts a near-future in which robots will not only attain human levels of intelligence, they will also first displace human workers and then completely supplant humanity.

Beyond Artificial Intelligence

A comprehensive, step-by-step reference to the Nyström Method for solving Electromagnetic problems using integral equations Computational electromagnetics studies the numerical methods or techniques that solve electromagnetic problems by computer programming. Currently, there are mainly three numerical methods for electromagnetic problems: the finite-difference time-domain (FDTD), finite element method (FEM), and integral equation methods (IEMs). In the IEMs, the method of moments (MoM) is the most widely used method, but much attention is being paid to the Nyström method as another IEM, because it possesses some unique merits which the MoM lacks. This book focuses on that method—providing information on everything that students and professionals working in the field need to know. Written by the top researchers in electromagnetics, this complete reference book is a consolidation of advances made in the use of the Nyström method for solving electromagnetic integral equations. It begins by introducing the fundamentals of the electromagnetic theory and computational electromagnetics, before proceeding to illustrate the advantages unique to the Nyström method through rigorous worked out examples and equations. Key topics include quadrature rules, singularity treatment techniques, applications to conducting and penetrable media, multiphysics electromagnetic problems, time-domain integral equations, inverse scattering problems and incorporation with multilevel fast multiple algorithm. Systematically introduces the fundamental principles, equations, and advantages of the Nyström method for solving electromagnetic problems Features the unique benefits of using the Nyström method through numerical comparisons with other numerical and analytical methods Covers a broad range of application examples that will point the way for future research The Nystrom Method in Electromagnetics is ideal for graduate students, senior undergraduates, and researchers studying engineering electromagnetics, computational methods, and applied mathematics. Practicing engineers and other industry professionals working in engineering electromagnetics and engineering mathematics will also find it to be incredibly helpful.

In the Name of Science

This volume contains a selection of authoritative essays exploring the central questions raised by the conjectured technological singularity. In informed yet jargon-free contributions written by active research scientists, philosophers and sociologists, it goes beyond philosophical discussion to provide a detailed account of the risks that the singularity poses to human society and, perhaps most usefully, the possible actions that society and technologists can take to manage the journey to any singularity in a way that ensures a positive rather than a negative impact on society. The discussions provide perspectives that cover technological, political and business issues. The aim is to bring clarity and rigor to the debate in a way that will inform and stimulate both experts and interested general readers.

The Technological Singularity

Explores how computers are reshaping ideas about what it means to be human profiling the annual Turing Test to assess a computer's capacity for thought while analyzing related philosophical, biological, and moral issues.

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