

A Biomimicry Primer Innovation Inspired By Nature

IPCC Report on sources, capture, transport, and storage of CO₂, for researchers, policy-makers and engineers.

In a collection of short, witty, poignant, even humorous essays, Ausubel tracks the big ideas, emerging trends, and game-changing developments of our time. He guides us through our watershed moment, showing how it's possible to emerge from a world where corporations are citizens, the gap between rich and poor is cavernous, and biodiversity and the climate are under assault and create a world where we take our cues from nature and focus on justice, equity, diversity, democracy, and peace.

From simple cases such as hook and latch attachments found in Velcro to articulated-wing flying vehicles, biology often has been used to inspire many creative design ideas. The scientific challenge now is to transform the paradigm into a repeatable and scalable methodology. *Biologically Inspired Design* explores computational techniques and tools that can help integrate the method into design practice. With an inspiring foreword from Janine Benyus, *Biologically Inspired Design* contains a dozen chapters written by some of the leading scholars in the transdisciplinary field of bioinspired design, such as Frank Fish, Julian Vincent and Jeannette Yen from biology, and Amarek Chakrabarti, Satyandra Gupta and Li Shu from engineering. Based in part on discussions at two workshops sponsored by the United States National Science Foundation, this volume introduces and develops several methods and tools for bioinspired design including: Information-processing theories, Natural language techniques, Knowledge-based tools, and Functional approaches and Pedagogical techniques. By exploring these fundamental theories, techniques and tools for supporting biologically inspired design, this volume provides a comprehensive resource for design practitioners wishing to explore the paradigm, an invaluable guide to design educators interested in teaching the method, and a preliminary reading for design researchers wanting to investigate bioinspired design.

This book argues for the need to make design the driving force for propelling innovation, as it provides important impetus for innovation, realizing dreams and obtaining a different focus from cost, technology, or production processes. Design also evokes creativity of a higher order and causes unexpected and inventive cross-fertilization across traditional borders or disciplines. This volume offers the “how-to's” for designing for successful novelty, and discusses issues such as product language and meaning, and connecting with the end-user. It will also serve as a checklist, primer, and handbook, providing the reader-practitioner hands-on, but sometimes provocative advice. *The Design-Inspired Innovation Workbook* is an indispensable handbook and important foundation for facilitating dialog between internal and external product service managers and designers, and aims to cover a vast arena of design-cum-innovation efforts while making the reader discover or invent the exact undertakings by him or herself.

Presenting a novel biomimetic design method for transferring design solutions from nature to technology, this book focuses on structure-function patterns in nature and advanced modeling tools derived from TRIZ, the theory of inventive problem-solving. The book includes an extensive literature review on biomimicry as an engine of both innovation and sustainability, and discusses in detail the biomimetic design process, current biomimetic design methods and tools. The structural biomimetic design method for

innovation and sustainability put forward in this text encompasses (1) the research method and rationale used to develop and validate this new design method; (2) the suggested design algorithm and tools including the Find structure database, structure-function patterns and ideality patterns; and (3) analyses of four case studies describing how to use the proposed method. This book offers an essential resource for designers who wish to use nature as a source of inspiration and knowledge, innovators and sustainability experts, and scientists and researchers, amongst others.

Engineering Design and Mathematical Modelling: Concepts and Applications consists of chapters that span the Engineering design and mathematical modelling domains. Engineering design and mathematical modelling are key tools/techniques in the Science, Technology and Innovation spheres. Whilst engineering design is concerned with the creation of functional innovative products and processes, mathematical modelling seeks to utilize mathematical principles and concepts to describe and control real world phenomena. Both of these can be useful tools for spurring and hastening progress in developing countries. They are also areas where Africa needs to 'skill-up' in order to build a technological base. The chapters in this book cover the relevant research trends in the fields of both engineering design and mathematical modelling. This book was originally published as a special issue of the African Journal of Science, Technology, Innovation and Development.

This book seeks to establish the meaning of design research, its role in the field, and the characteristics that differentiate research in design from research in other fields. The author introduces a model to explain the relationship between the components of the ontological reality of design: the designed object, the designer, and the user. Addressing design research across disciplines, the author establishes a foundational understanding of research, and research paradigms, for the design disciplines. This will be crucial for the emerging field of design research to find its own identity and move forward, building its own knowledge base as it finds its positioning between science and art. The book will be of interest to scholars working in design history, design studies, graphic design, industrial design, interior design, architecture, fashion design, and service design.

The book constitutes the thoroughly refereed post-workshop proceedings of the First Workshop on Bio-Inspired Design of Networks, BLOWIRE 2007, held in Cambridge, UK, in April 2007. The 35 revised full papers presented were carefully reviewed and selected from many high quality submissions. All recent developments in the field of bio-inspired design of networks are addressed, with particular regard to wireless networks and the self-organizing properties of biological networks. The papers are organized in topical sections on biological networks, network epidemics, complex networks, bio-inspired network mode, network protocol in wireless communication, data management, distributed computing, and security.

This book showcases cutting-edge research papers from the 7th International Conference on Research into Design (ICoRD 2019) – the largest in India in this area – written by eminent researchers from across the world on design processes, technologies, methods and tools, and their impact on innovation, for supporting design for a connected world. The theme of ICoRD'19 has been "Design for a Connected World". While Design traditionally focused on developing products that worked on their own, an emerging trend is to have products with a smart layer that makes them context aware and responsive, individually and collectively,

through collaboration with other physical and digital objects with which these are connected. The papers in this volume explore these themes, and their key focus is connectivity: how do products and their development change in a connected world? The volume will be of interest to researchers, professionals and entrepreneurs working in the areas on industrial design, manufacturing, consumer goods, and industrial management who are interested in the use of emerging technologies such as IOT, IIOT, Digital Twins, I4.0 etc. as well as new and emerging methods and tools to design new products, systems and services. Despite the vital importance of the emerging area of biotechnology and its role in defense planning and policymaking, no definitive book has been written on the topic for the defense policymaker, the military student, and the private-sector bioscientist interested in the "emerging opportunities market" of national security. This edited volume is intended to help close this gap and provide the necessary backdrop for thinking strategically about biology in defense planning and policymaking. This volume is about applications of the biological sciences, here called "biologically inspired innovations," to the military. Rather than treating biology as a series of threats to be dealt with, such innovations generally approach the biological sciences as a set of opportunities for the military to gain strategic advantage over adversaries. These opportunities range from looking at everything from genes to brains, from enhancing human performance to creating renewable energy, from sensing the environment around us to harnessing its power.

Holacracy is a revolutionary management system that redefines management and turns everyone into a leader. Holacracy distributes authority and decision-making throughout an organization, and defines people not by hierarchy and titles, but by roles. Holacracy creates organizations that are fast, agile, and that succeed by pursuing their purpose, not following a dated and artificial plan. This isn't anarchy – it's quite the opposite. When you start to follow Holacracy, you learn to create new structures and ways of making decisions that empower the people who know the most about the work you do: your frontline colleagues. Some of the many champions of Holacracy include Tony Hsieh, CEO of Zappos (author of the #1 New York Times bestseller *Delivering Happiness*), Evan Williams (co-founder of Blogger, Twitter, and Medium), and David Allen.

A broadly accessible introduction to robotics that spans the most basic concepts and the most novel applications; for students, teachers, and hobbyists. The Robotics Primer offers a broadly accessible introduction to robotics for students at pre-university and university levels, robot hobbyists, and anyone interested in this burgeoning field. The text takes the reader from the most basic concepts (including perception and movement) to the most novel and sophisticated applications and topics (humanoids, shape-shifting robots, space robotics), with an emphasis on what it takes to create autonomous intelligent robot behavior. The core concepts of robotics are carried through from fundamental definitions to more complex explanations, all presented in an engaging, conversational style that will appeal to readers of different backgrounds. The Robotics Primer covers such topics as the definition of robotics, the history of robotics ("Where do Robots Come From?"), robot components, locomotion, manipulation, sensors, control, control architectures, representation, behavior ("Making Your Robot Behave"), navigation, group robotics, learning, and the future of robotics (and its ethical implications). To encourage further engagement, experimentation, and course and lesson

design, The Robotics Primer is accompanied by a free robot programming exercise workbook that implements many of the ideas on the book on iRobot platforms. The Robotics Primer is unique as a principled, pedagogical treatment of the topic that is accessible to a broad audience; the only prerequisites are curiosity and attention. It can be used effectively in an educational setting or more informally for self-instruction. The Robotics Primer is a springboard for readers of all backgrounds—including students taking robotics as an elective outside the major, graduate students preparing to specialize in robotics, and K-12 teachers who bring robotics into their classrooms.

Discusses the many human inventions that have been inspired by nature, including biodegradable plastics, Velcro, and renewable energy resources, and suggests other natural processes that can be used to benefit modern human civilization.

Nature has always been a source of inspiration for the design of the human environment. The analysis of biological constructions can not only lead to astonishing technical solutions but can also inspire the design of architecture. Bionics is a fascinating border area between pure research and practical application: biologists, chemists, physicists, mineralogists, and paleontologists meet up with material scientists, engineers, and architects and transfer their knowledge to architecture and construction. Using numerous practical examples, this richly illustrated introduction traces the process from the understanding of how something functions, to abstraction—for example in computer models—and the construction of initial prototypes, through to fully functional manufacture and production.

Applying Properties of Animals Skins to Inspire Architectural Envelopes Biology influences design projects in many ways; the related discipline is known as biomimetics or biomimicry. Using the animal kingdom as a source of inspiration, Ilaria Mazzoleni seeks to instill a shift in thinking about the application of biological principles to design and architecture. She focuses on the analysis of how organisms have adapted to different environments and translates the learned principles into the built environment. To illustrate the methodology, Mazzoleni draws inspiration from the diversity of animal coverings, referred to broadly as skin, and applies them to the design of building envelopes through a series of twelve case studies. Skin is a complex organ that performs a multitude of functions; namely, it serves as a link between the body and the environment. Similarly, building envelopes act as interfaces between their inhabitants and external elements. The resulting architectural designs illustrate an integrative methodology that allows architecture to follow nature. "Ilaria Mazzoleni, in collaboration with biologist Shauna Price, has developed a profound methodology for architectural and design incentives that anticipates and proposes novel ways to explore undiscovered biological inspirations for various audiences." —Yoseph Bar-Cohen

Nature is the world's foremost designer. With billions of years of experience and boasting the most extensive laboratory available, it conducts research in every branch of engineering and science. Nature's designs and capabilities have always inspired technology, from the use of tongs and tweezers to genetic algorithms and autonomous legged robots.

Taking a systems perspective rather than focusing narrowly on materials or chemistry aspects, *Biomimetics: Biologically Inspired Technologies* examines the field from every angle. The book contains pioneering approaches to biomimetics including a new perspective on the mechanization of cognition and intelligence, as well as defense and attack strategies in nature, their applications, and potential. It surveys the field from modeling to applications and from nano- to macro-scales, beginning with an introduction to principles of using biology to inspire designs as well as biological mechanisms as models for technology. This innovative guide discusses evolutionary robotics; genetic algorithms; molecular machines; multifunctional, biological-, and nano- materials; nastic structures inspired by plants; and functional surfaces in biology. Looking inward at biological systems, the book covers the topics of biomimetic materials, structures, control, cognition, artificial muscles, biosensors that mimic senses, artificial organs, and interfaces between engineered and biological systems. The final chapter contemplates the future of the field and outlines the challenges ahead. Featuring extensive illustrations, including a 32-page full-color insert, *Biomimetics: Biologically Inspired Technologies* provides unmatched breadth of scope as well as lucid illumination of this promising field.

This book of conference proceedings contains papers presented at the Art and Design International Conference (AnDIC 2016). It examines the impact of Cyberology, also known as Internet Science, on the world of art and design. It looks at how the rapid growth of Cyberology and the creation of various applications and devices have influenced human relationships. The book discusses the impact of Cyberology on the behaviour, attitudes and perceptions of users, including the way they work and communicate. With a strong focus on how the Cyberology world influences and changes the methods and works of artists, this book features topics that are relevant to four key players - artists, intermediaries, policy makers, and the audience - in a cultural system, especially in the world of art and design. It examines the development, problems and issues of traditional cultural values, identity and new trends in contemporary art. Most importantly, the book attempts to discuss the past, present and future of art and design whilst looking at some underlying issues that need to be addressed collectively.

This book provides the connection between the growing body of literature on sustainability and the topics of energy and ICT. It aims to show how stakeholders active in this area need to play their part ensuring that the ICT-sector evolves towards a sector that can lead throughgreening by IT and also shows that it cangreen its own IT as well.

Many organizations have found themselves well advanced in their sustainability strategies and reaching the limits of progress made through eco-efficiency measures and regulatory compliance. Looking for novel approaches and solutions, many managers are turning to bioinspiration and related fields such as biomimicry, nature-inspired innovation, circular economy, and cradle to cradle, as tools for sustainability-oriented innovation. This innovation paradigm has been gaining

popularity across disciplines in recent decades as the world grapples with the challenge of sustainable development. This book offers a succinct guide for managers and sustainability professionals who are interested in exploring various aspects of business inspired by nature. With applicability ranging from technological, organizational, and system-building innovations, there is a broad realm of possibilities that suit a manager's scope of influence regardless of their position within the organization. This book aims to exhibit the applications of business inspired by nature that extend beyond the boundaries of the organization and encourage open innovation with novel partners in unlikely scenarios, with all partners aligned by the principles of natural systems.

The Biomimicry Resource Handbook: A Seed Bank of Best Practices contains over 250 pages of our most current biomimicry thinking, methodology, and tools for naturalizing biomimicry into the culture. We believe there is no better design partner than nature. But biomimicry is more than just looking at the shape of a flower or dragonfly and becoming newly inspired; it's a methodology that's being used by some of the biggest companies and innovative universities in the world. While reading this text you'll be immersed into the world of Biomimicry the "verb", you'll gain a competitive edge, and a fresh perspective on how the world around us can, does, and should work. After reading the text, you'll be well on your way to thinking in systems, designing in context, identifying patterns, and most importantly seeing the millions of organisms around us...differently. The text is directly applicable to designers, biologists, engineers, entrepreneurs and intrapreneurs, but has also proven valuable to students, educators, and a wide variety of other disciplines. Visit biomimicry.net to learn more. A digital version is available at shop.biomimicrygroup.com

BiomimicryInnovation Inspired by Nature Harper Collins

'Sustainable' urban planning, policy and design professes to solve sustainability problems, but often depletes and degrades ever more resources and ecosystems and concentrates wealth and concretize social disparities. Positive Development theory holds that development could create more net ecological and social gains than no construction at all. It explains how existing conceptual, physical and institutional structures are inherently biased against the preservation and expansion of social and natural life-support systems, and proposes explicit reforms to planning, design and decision making that would enable development to increase future options and social and natural life-support systems - in absolute terms. Net-Positive Design and Sustainable Urban Development is aimed at students, academics, professionals and sustainability advocates who wonder why existing approaches have been ineffective. It explains how to reform the anti-ecological biases in our current frameworks of environmental governance, planning, decision making and design - and suggests how to make these changes. Cities can increase both the 'public estate' (reduce social stratification, inequity and other causes of conflict, increase environmental quality, wellbeing and access to basic needs, etc.); and the

'ecological base' (sequester more carbon and produce more energy than used during construction and operation, increase ecological space to support ecological carrying capacity, ecosystem functions and services, restore the bioregions and wilderness, etc.). No small task, this new book provides academic theory and professional tools for saving the planet, including a free computer app for net-positive design.

Throughout the 38 chapters, this must-have volume outlines essential information about the implementation of emerging technologies, from building information modeling and 3D printing, to life cycle assessment and information technology in construction and engineering projects. It covers practical case studies to demonstrate the implementation of emerging technologies in a compact style, ensuring that practitioners can adopt these methods to realize immediate benefits in productivity, safety and performance improvement.

From the Introduction: This volume is designed as an overview of the many applications of biology to the military and national security writ large (with the exception of bioweapons and biomedicine). Policy issues are covered, and original research is presented. The diversity of the authors' backgrounds reflects the breadth of applications and opportunities of biology to modern problems. The reader should walk away enlightened as to the many possible ways in which biology is influencing and will continue to influence national security. Authors were asked to provide foresight on trends and indicators in their areas of interest (but not forecasts, which would describe a single future state) in order to better understand their implications for the next 20 years or so.

This book shares a collection of novel ways to re-conceptualize and envision the moral imperatives of consumption, thereby providing invigorating insights for future dialogue and intellectual and social action. It privileges a consumer moral leadership imperative, which augments the conventional management imperatives of sustainability, ethics, simplicity and environmental integrity.

The blueprint for an inspiring regenerative economy that avoids collapse and works for people and the planet. Humanity is in a race with catastrophe. Is the future one of global warming, 65 million migrants fleeing failed states, soaring inequality, and grid-locked politics? Or one of empowered entrepreneurs and innovators building a world that works for everyone? While the specter of collapse looms large, *A Finer Future* demonstrates that humanity has a chance - just - to thread the needle of sustainability and build a regenerative economy through a powerful combination of enlightened entrepreneurialism, technology, and innovative policy. The authors - world leaders in business, economics, and sustainability - gather the evidence, outline the principles of a regenerative economy, and detail a policy roadmap to achieving it, including: Transforming finance and corporations Reimagining energy, agriculture, and the nature of how we work Enhancing human well-being Delivering a world that respects ecosystems and human community. Charting the

course to a regenerative economy is the most important work facing humanity and A Finer Future provides the essential blueprint for business leaders, entrepreneurs, environmentalists, politicians, policymakers, and others working to create a world that works for people and the planet.

The Journal of Global Business and Management Research (GBMR) strives to comply with highest research standards and scientific/research/practice journals' qualities. Being international and inter-disciplinary in scope, GBMR seeks to provide a platform for debate among diverse academic and practitioner communities who address a broad area of business and management issues across the globe.

From the Publishers Weekly review: "Two experts from Yale tackle the business wake-up-call du jour-environmental responsibility-from every angle in this thorough, earnest guidebook: pragmatically, passionately, financially and historically. Though "no company the authors know of is on a truly long-term sustainable course," Esty and Winston label the forward-thinking, green-friendly (or at least green-acquainted) companies WaveMakers and set out to assess honestly their path toward environmental responsibility, and its impact on a company's bottom line, customers, suppliers and reputation. Following the evolution of business attitudes toward environmental concerns, Esty and Winston offer a series of fascinating plays by corporations such as Wal-Mart, GE and Chiquita (Banana), the bad guys who made good, and the good guys-watchdogs and industry associations, mostly-working behind the scenes. A vast number of topics huddle beneath the umbrella of threats to the earth, and many get a thorough analysis here: from global warming to electronic waste "take-back" legislation to subsidizing sustainable seafood. For the responsible business leader, this volume provides plenty of (organic) food for thought. "

There are no more respected voices in the environmental movement than these authors, true counselors on the direction of twenty-first-century business. With hundreds of thousands of books sold worldwide, they have set the agenda for rational, ecologically sound industrial development. In this inspiring book they define a superior & sustainable form of capitalism based on a system that radically raises the productivity of nature's dwindling resources. Natural Capitalism shows how cutting-edge businesses are increasing their earnings, boosting growth, reducing costs, enhancing competitiveness, & restoring the earth by harnessing a new design mentality. The authors offer dozens of examples of businesses that are making fourfold or even tenfold gains in efficiency, from self-heating & self-cooling buildings to 200-miles-per-gallon cars, while ensuring that workers aren't downsized out of their jobs. This practical blueprint shows how making resources more productive will create the next industrial revolution

World-renowned economist Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, explains that we have an opportunity to shape the fourth industrial revolution, which will fundamentally alter how we live and work. Schwab argues that this revolution is different in scale, scope and complexity from any that have come before. Characterized by a range of new technologies that are fusing the physical, digital and biological worlds, the developments are affecting all disciplines, economies, industries and governments, and even challenging ideas about what it means to be human. Artificial intelligence is already all around us, from supercomputers, drones and virtual

assistants to 3D printing, DNA sequencing, smart thermostats, wearable sensors and microchips smaller than a grain of sand. But this is just the beginning: nanomaterials 200 times stronger than steel and a million times thinner than a strand of hair and the first transplant of a 3D printed liver are already in development. Imagine "smart factories" in which global systems of manufacturing are coordinated virtually, or implantable mobile phones made of biosynthetic materials. The fourth industrial revolution, says Schwab, is more significant, and its ramifications more profound, than in any prior period of human history. He outlines the key technologies driving this revolution and discusses the major impacts expected on government, business, civil society and individuals. Schwab also offers bold ideas on how to harness these changes and shape a better future—one in which technology empowers people rather than replaces them; progress serves society rather than disrupts it; and in which innovators respect moral and ethical boundaries rather than cross them. We all have the opportunity to contribute to developing new frameworks that advance progress.

The wave of the future has been around since the beginning of times: it's called Nature. Let inventor and entrepreneur Jay Harman introduce you to stunning solutions to some of the world's thorniest problems. Why does the bumblebee have better aerodynamics than a 747? How can copying a butterfly wing reduce the world's lighting energy bill by 80%? How will fleas' knees and bees' shoulders help scientists formulate a near-perfect rubber? Today an interdisciplinary and international group of scientists, inventors and engineers is turning to nature to innovate and find elegant solutions to human problems. The principle driving this transformation is called biomimicry, and Harman shares a wide range of examples of how we're borrowing from natural models to invent profitable, green solutions to pressing industrial challenges. Aimed at a business audience, aspiring entrepreneurs, environmentalists and general science readers, *The Shark's Paintbrush* reflects a force of change in the new global economy that does more than simply gratify human industrial ambition; it teaches us how to live in harmony with nature and opens bright opportunities for a better future.

An essential and timely collection of wise and compelling essays from one of the longtime leaders of the sustainable agriculture movement in America. Wes Jackson, "a well-known and admired advocate for sustainability especially as it relates to agriculture, has the rare ability to transform his convictions into captivating prose . . . Jackson's thoughts are still as significant and profound as they were nearly 20 years ago" (Publishers Weekly) and can teach us many things about the land, soil, and conservation, but what most resonates is this: The ecosphere is self-regulating, and as often as we attempt to understand it, we are not its builders, and our manuals will often be faulty. The only responsible way to learn the nuances of the land is to study the soil and vegetation in their natural state and pass this knowledge on to future generations. "[A] small book rich in ideas" (The New York Times Book Review), *Nature as Measure* collects Jackson's essays from *Altars of Unhewn Stone* and *Becoming Native to This Place*, presenting ideas of land conservation and education that are written from the point of view of a man who has practiced what he's preached and proven that it is possible to partially restore much of the land that we've ravaged. Wes Jackson lays the foundation for a new farming economy, grounded in nature's principles and located in dying small towns and rural communities. Exploding the tenets of industrial agriculture, Jackson seeks to integrate food production with nature in a way that sustains both. His longtime friend Wendell Berry provides an informative, contextual Introduction. "For those concerned about what will be left and how many billion will be starving in twenty years, this is a must read." —Register of the Kentucky Historical Society "A good introduction to a thinker whose ideas on agriculture are radical both in their technical approach to food production as well as in terms of the economic, social, and cultural context within which it is practiced." —Review of *Radical Political Economics*

Repackaged with a new Afterword, this "valuable and entertaining" (New York Times Book Review) book explores how scientists are

adapting nature's best ideas to solve tough 21st century problems Biomimicry is rapidly transforming life on earth. Biomimics study nature's most successful ideas over the past 3.5 million years, and adapt them for human use. The results are revolutionizing how materials are invented and how we compute, heal ourselves, repair the environment, and feed the world. Janine Benyus takes readers into the lab and in the field with maverick thinkers as they: discover miracle drugs by watching what chimps eat when they're sick; learn how to create by watching spiders weave fibers; harness energy by examining how a leaf converts sunlight into fuel in trillionths of a second; and many more examples. Composed of stories of vision and invention, personalities and pipe dreams, Biomimicry is must reading for anyone interested in the shape of our future.

Biomimicry, the practice of observing then mimicking nature's strategies to solve business challenges, offers a path to healthy profit while working in partnership, and even reciprocity, with the natural world. Other books have described biomimicry, its uses, and its benefits. This book shows readers how to create their own biomimetic or bioinspired solutions with clear benefits to the bottom line, the environment, and people. Fashioned through storytelling, this book blends snapshots of five successful companies – Nike, Interface, Inc., PAX Scientific, Sharklet Technologies, and Encycle – which decided to partner with nature by deploying biomimicry. The book details how they discovered the practices, introduced them to staff, engaged in the process, and measured outcomes. The book concludes with challenges for readers to determine their own next steps in business and offers practical and useful resources to get there. By revealing the stories of each professional's journey with lessons they learned, then providing resources and issuing a challenge and pathway to do business better, this book serves as a tool for entrepreneurs, seasoned professionals, and students to emulate nature's brilliance, apply it at work, and contribute to a healthier, more prosperous world.

When searching for genuinely sustainable building design and technology - designs that go beyond conventional sustainability to be truly restorative - we often find that nature got there first. Over 3.5 billion years of natural history have evolved innumerable examples of forms, systems, and processes that can be applied to modern green design. For architects, urban designers and product designers, this new edition of Biomimicry in Architecture looks to the natural world to achieve radical increases in resource efficiency. Packed with case studies predicting future trends, this edition also contains updated and expanded chapters on structures, materials, waste, water, thermal control and energy, as well as an all-new chapter on light. An amazing sourcebook of extraordinary design solutions, Biomimicry in Architecture is a must-read for anyone preparing for the challenges of building a sustainable and restorative future.

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