

Consciousness And Quantum Information Processing

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Index Medicus - 2004

Information and Its Role in Nature - Juan G. Roederer
2005-12-28

Presents an in-depth interdisciplinary discussion of the concept of information and its role in the control of natural processes. Reviews briefly classical and quantum information theory. Addresses numerous questions, including: Is information reducible to the laws of physics and chemistry? Does the Universe, in its evolution, constantly generate new information? Or are information and information-processing exclusive attributes of living systems, related to the very definition of life? If so, what is the role of information in classical and quantum physics? In what ways does information-processing in the human brain bring about self-consciousness? Accessible to graduate students and professionals from all scientific disciplines, this stimulating book will help to shed light on many controversial issues at the heart of modern science.

Computational Mind: A Complex Dynamics Perspective - Vladimir G. Ivancevic 2007-06-12

This is a graduate-level monographic textbook in the field of Computational Intelligence. It presents a modern dynamical theory of the computational mind, combining cognitive psychology, artificial and computational intelligence, and chaos theory with quantum consciousness and computation. The book introduces to human and computational mind, comparing and contrasting main themes of cognitive psychology, artificial and computational intelligence.

The Emerging Physics of Consciousness - Jack A. Tuszynski 2006-09-05

Seeks answers to these questions using the underlying assumption that consciousness can be understood using the intellectual potential of modern physics and other sciences. There are a number of theories of consciousness, some based on classical physics while others require the use of quantum concepts. The latter ones have drawn criticism from the parts of the scientific establishment while simultaneously claiming that classical approaches are doomed to failure. The contributing authors presents a spectrum of opinions from both sides of this on-going scientific debate, allowing readers to decide for themselves which of the approaches are most likely to succeed.

Biophysics of Consciousness - Roman R Poznanski
2016-08-23

The problem of how the brain produces consciousness, subjectivity and "something it is like to be" remains one of the greatest challenges to a complete science of the natural world. While various scientists and philosophers approach the problem from their own unique perspectives and in the terms of their own respective fields, *Biophysics of Consciousness: A Foundational Approach* attempts a consilience across disparate disciplines to explain how it is possible that an objective brain produces subjective experience. This

volume unites the crème de la crème of physicists, neuroscientists, and psychiatrists in the attempt to understand consciousness through a foundational approach encompassing ontological, evolutionary, neurobiological, and Freudian interpretations with the focus on conscious phenomena occurring in the brain. By integrating the perspectives of these diverse disciplines with the latest research and theories on the biophysics of the brain, the book tries to explain how consciousness can be an adaptive and causal element in the natural world.

The Neurobiology of Orthodontics - Margaritis Z. Pimenidis 2009-07-24

This book presents the neurobiology of orthodontics according to the most recently acquired knowledge on the interaction of the brain activity with the senses. In particular, it highlights the ability of orofacial sensory input to modulate and change the brain activity underlying functions of the stomatognathic system, such as chewing, biting, speech, and occlusal feedback. The approach adopted thereby represents a significant departure from traditional orthodontics, in which malocclusions of the teeth have been interpreted as deriving from DNA coding errors. The described new conceptualization of the etiology and diagnosis of malocclusions has profound implications for orthodontic therapy, as is clearly explained. Orthodontic therapy in turn has significant effects on the brain, which are documented in a chapter devoted to neuroimaging methods. By opening up new and creative pathways in the world of orthodontics, this book will hopefully both educate and excite the practitioner. It is recommended reading for all orthodontists.

The Palgrave Handbook of Quantum Models in Social Science - Emmanuel Haven 2017-02-06

It is not intuitive to accept that there exists a link between quantum physical systems and cognitive systems. However, recent research has shown that cognitive systems and collective (social) systems, including biology, exhibit uncertainty which can be successfully modelled with quantum probability. The use of such probability allows for the modelling of situations which typically violate the laws of classical probability. The *Palgrave Handbook of Quantum Models in Social Science* is a unique volume that brings together contributions from leading experts on key topics in this new and emerging field. Completely self-contained, it begins with an introductory section which gathers all the fundamental notions required to be able to understand later chapters. The handbook then moves on to address some of the latest research and applications for quantum methods in social science disciplines, including economics, politics and psychology. It begins with the issue of how the quantum mechanical framework can be applied to economics. Chapters devoted to this topic range from how Fisher information can be argued to play a role in economics, to the foundations and application of quantum game theory. The handbook then progresses in considering how belief states can be updated with the theory of quantum measurements (and also with more

general methods). The practical use of the Hilbert space (and Fock space) in decision theory is then introduced, and open quantum systems are also considered. The handbook also treats a model of neural oscillators that reproduces some of the features of quantum cognition. Other contributions delve into causal reasoning using quantum Bayes nets and the role of quantum probability in modelling so called affective evaluation. The handbook is rounded off with two chapters which discuss the grand challenges which lie ahead of us. How can the quantum formalism be justified in social science and is the traditional quantum formalism too restrictive? Finally, a question is posed: whether there is a necessary role for quantum mathematical models to go beyond physics. This book will bring the latest and most cutting edge research on quantum theory to social science disciplines. Students and researchers across the discipline, as well as those in the fields of physics and mathematics will welcome this important addition to the literature.

Consciousness Becomes You - Angie Aristone 2016-12-09
Imagine for a moment that your consciousness could leave your brain. What could you learn and discover? What could you accomplish if your mind could travel wherever you focused it, to understand anything you desire, directly, from the inside out? How would your relationships improve? What would the world look like if we could all understand one another on such an intimate level? What if you were told that that your consciousness not only can leave your brain, but that it already does, and that we are all immersed in a telepathic experience of the world, though few of us realize it? In *Consciousness Becomes You*, the authors share personal stories, grounded conversation, and scientific research to explain that part of our minds, the connected mind, is connected to everyone and everything. Beginning with how we already experience this connection in life, the book explores how this connection functions, its uses, and the myriad of ways we all already receive and share telepathic information.
Quantum Information and Consciousness - Danko D. Georgiev 2017-12-06

"I loved the book! This book is not just interesting, it is exciting. I have probably read every significant book in the field, and this is the strongest and most convincing one yet. It is also one of the most comprehensive in its explanations. I shall most certainly recommend the book to colleagues." –Richard G. Petty, MD "a very good introduction to the basic theory of quantum systems.... Dr. Georgiev's book aptly prepares the reader to confront whatever might be in store later." –from the Foreword by Prof. James F. Glazebrook, Eastern Illinois University This book addresses the fascinating cross-disciplinary field of quantum information theory applied to the study of brain function. It offers a self-study guide to probe the problems of consciousness, including a concise but rigorous introduction to classical and quantum information theory, theoretical neuroscience, and philosophy of the mind. It aims to address long-standing problems related to consciousness within the framework of modern theoretical physics in a comprehensible manner that elucidates the nature of the mind-body relationship. The reader also gains an overview of methods for constructing and testing quantum informational theories of consciousness.

Pointless - RW Boyer 2020-10-29
This book examines how major interpretations of quantum theory are progressing toward a more unified understanding and experience of nature. It offers subtle insights to address core issues of wave-particle duality, the measurement problem, the mind/body problem, determinism/indeterminism/free will, and the nature of consciousness. It draws from physics, consciousness studies, and 'ancient Vedic science' to outline a new

holistic interpretation of quantum theory. Accessible and thought-provoking, it will be profoundly integrating for scholars and researchers in science and technology, in philosophy, and also in South Asian studies.

Exploring Frontiers of the Mind-Brain Relationship - Alexander Moreira-Almeida 2011-11-25
The conscious mind defines human existence. Many consider the brain as a computer, and they attempt to explain consciousness as emerging at a critical, but unspecified, threshold level of complex computation among neurons. The brain-as-computer model, however, fails to account for phenomenal experience and portrays consciousness as an impotent, after-the-fact epiphenomenon lacking causal power. And the brain-as-computer concept precludes even the remotest possibility of spirituality. As described throughout the history of humankind, seemingly spiritual mental phenomena including transcendent states, near-death and out-of-body experiences, and past-life memories have in recent years been well documented and treated scientifically. In addition, the brain-as-computer approach has been challenged by advocates of quantum brain biology, who are possibly able to explain, scientifically, nonlocal, seemingly spiritual mental states. *Exploring Frontiers of the Mind-Brain Relationship* argues against the purely physical analysis of consciousness and for a balanced psychobiological approach. This thought-provoking volume bridges philosophy of mind with science of mind to look empirically at transcendent phenomena, such as mystic states, near-death experiences and past-life memories, that have confounded scientists for decades. Representing disciplines ranging from philosophy and history to neuroimaging and physics, and boasting a panel of expert scientists and physicians, including Andrew Newberg, Peter Fenwick, Stuart Hameroff, Mario Beauregard, Deepak Chopra, and Chris Clarke the book rigorously follows several lines of inquiry into mind-brain controversies, challenging readers to form their own conclusions—or reconsider previous ones. Key coverage includes: Objections to reductionistic materialism from the philosophical and the scientific tradition. Phenomena and the mind-brain problem. The neurobiological correlates of meditation and mindfulness. The quantum soul, a view from physics. Clinical implications of end-of-life experiences. Mediumistic experience and the mind-brain relationship. *Exploring Frontiers of the Mind-Brain Relationship* is essential reading for researchers and clinicians across many disciplines, including cognitive psychology, personality and social psychology, the neurosciences, neuropsychiatry, palliative care, philosophy, and quantum physics. "This book ... brings together some precious observations about the fundamental mystery of the nature of consciousness ... It raises many questions that serve to invite each of us to be more aware of the uncertainty of our preconceptions about consciousness ... This book on the frontiers of mind-body relationships is a scholarly embodiment of creative and open-minded science." C. Robert Cloninger, MD Wallace Renard Professor of Psychiatry, Genetics, and Psychology, Washington University School of Medicine St. Louis MO
Scale in Conscious Experience - Joseph King 1995
First Published in 1995. Routledge is an imprint of Taylor & Francis, an informa company.
Quantum Consciousness - Peter Smith 2018-08-08
Increase Your Conscious Awareness and Discover Alternate Realities Using Quantum Physics Deepen your understanding of quantum physics and expanded states of awareness with *Quantum Consciousness*, an enlightening guide that helps you pull science and spirituality closer together. This fascinating book invites you to tour alternate realities, parallel lives, interdimensional consciousness, the eternal state, and even the very fabric of the universe. Specially

emphasized are four aspects of quantum consciousness: the creator effect, entanglement, everywhere-ness, and holographic healing. You'll also find a detailed exploration of the various realms of consciousness, including stored consciousness, alternate consciousness, parallel consciousness, and interdimensional consciousness. Peter Smith, former president of the Newton Institute, guides you on a journey of life-changing discoveries, encouraging you to tap into the human form's amazing potential. With Quantum Consciousness, you can move past your current mindset's limitations and awaken to a greater purpose for yourself and for all humanity. Praise: "Smith's book heralds this time as an era of awakening for humanity...He paints a dizzyingly beautiful picture of what the world might look like once it has evolved to its full potential."—ForeWord Reviews

Shadows of the Mind - Roger Penrose 1994

Presents the author's thesis that consciousness, in its manifestation in the human quality of understanding, is doing something that mere computation cannot; and attempts to understand how such non-computational action might arise within scientifically comprehensive physical laws.

The Physical Nature of Consciousness - Philip R. Van Loocke 2001-01-01

The Physical Nature of Consciousness contains twelve chapters that discuss recent and new perspectives on the relation between modern physics and consciousness. Stuart Hameroff opens with an extended and updated exposition of the Penrose/Hameroff Orch-OR model, and subsequently addresses recent criticisms of quantum approaches to the brain. Evan Walker presents his view on consciousness from the perspective of a new approach to the integration of quantum theory and relativity. Friedrich Beck elaborates on the Beck/Eccles quantum approach to consciousness. Karl Pribram puts the holographic view on consciousness in perspective of his life long work. Peter Marcer and Edgar Mitchell explain the relevance of quantum holography for consciousness. Gordon Globus discusses the relation between postmodern philosophical theories and quantum consciousness. Chris Clarke develops a theory in terms of a specific type of formal logic to reconcile the phenomenology of consciousness with the physical world. Ilya Prigogine summarizes his view on complexity, and on the future of quantum theory, which goes beyond the present formalism, and goes on to comment on the problem of consciousness. Matti Pitkanen identifies the place for consciousness in a unifying topological geometro-dynamics theory. Colin McGinn argues against classical materialism. Dick Bierman gives an overview of anomalous phenomena. He identifies a decline effect, and discusses different possible interpretations. Philip Van Loocke closes the volume with a discussion on how deep teleology in cellular systems may relate to consciousness. (Series A)

Physics in Mind - Werner Loewenstein 2013-01-29

Eminent biophysicist Loewenstein seeks an answer in the mechanisms of physics. Bringing information theory--the idea that all information can be quantified and encoded in bits--to bear on recent advances in the neurosciences, he reveals a web of immense computational power inside the brain.

Biological and Quantum Computing for Human Vision: Holonomic Models and Applications - Peru?, Mitja 2010-11-30

Many-body interactions have been successfully described through models based on classical or quantum physics. More recently, some of the models have been related to cognitive science by researchers who are interested in describing brain activity through the use of artificial neural networks (ANNs). Biological and Quantum Computing for Human Vision: Holonomic Models and Applications presents an integrated model of human image processing up to conscious visual experience, based mainly on the

Holonomic Brain Theory by Karl Pribram. This work researches possibilities for complementing neural models of early vision with the new preliminary quantum models of consciousness in order to construct a model of human image processing.

New Horizons in the Neuroscience of Consciousness - Elaine K. Perry 2010

A fascinating cornucopia of new ideas, based on fundamentals of neurobiology, psychology, psychiatry and therapy, this book extends boundaries of current concepts of consciousness. Its eclectic mix will simulate and challenge not only neuroscientists and psychologists but entice others interested in exploring consciousness. Contributions from top researchers in consciousness and related fields project diverse ideas, focused mainly on conscious nonconscious interactions: 1. Paving the way for new research on basic scientific - physiological, pharmacological or neurochemical - mechanisms underpinning conscious experience (bottom up approach); 2. Providing directions on how psychological processes are involved in consciousness (top down approach); 3. Indicating how including consciousness could lead to new understanding of mental disorders such as schizophrenia, depression, dementia, and addiction; 4. More provocatively, but still based on scientific evidence, exploring consciousness beyond conventional boundaries, indicating the potential for radical new thinking or quantum leaps in neuroscientific theories of consciousness. (Series B)"

Research Anthology on Advancements in Quantum Technology - Management Association, Information Resources 2021-03-19

Quantum technology has arrived as one of the most important new topics of research, as it is the newest way to create computing power, harness secure communications, and use sensitive measurement methods that surpass the capabilities of modern supercomputers. If successfully developed, quantum computers and technology will be able to perform algorithms at impressively quick rates and solve problems that were previously deemed impossible. This technology will disrupt what is already known about computing and will be able to reach new heights, speeds, and problem-solving capabilities not yet seen. Beyond its inherent benefits comes the fact that quantum technology will create improvements in many everyday gadgets as well, spanning many industries. The Research Anthology on Advancements in Quantum Technology presents the latest discoveries in quantum technology itself along with providing its essential uses, applications, and technologies that will impact computing in modern times and far into the future. Along with this overview comes a look at quantum technology in many different fields such as healthcare, communications, aviation, automotive, forecasting, and more. These industries will be looked at from the perspective of data analytics, pattern matching, cryptography, algorithms, and more. This book is essential for computer scientists, engineers, professionals, researchers, students, and practitioners interested in the latest information on quantum technology.

Consciousness in Humanoid Robots - Antonio Chella 2019-06-05

Building a conscious robot is a scientific and technological challenge. Debates about the possibility of conscious robots and the related positive outcomes and hazards for human beings are today no longer confined to philosophical circles. Robot consciousness is a research field aimed at a two-part goal: on the one hand, scholars working in robot consciousness take inspiration from biological consciousness to build robots that present forms of experiential and functional consciousness. On the other hand, scholars employ robots as tools to better understand biological consciousness. Thus, part one of the goal concerns the replication of

aspects of biological consciousness in robots, by unifying a variety of approaches from AI and robotics, cognitive robotics, epigenetic and affective robotics, situated and embodied robotics, developmental robotics, anticipatory systems, and biomimetic robotics. Part two of the goal is pursued by employing robots to advance and mark progress in the study of consciousness in humans and animals. Notably, neuroscientists involved in the study of consciousness do not exclude the possibility that robots may be conscious. This eBook comprises a collection of thirteen manuscripts and an Editorial published by Frontiers in Robotics and Artificial Intelligence, under the section Humanoid Robotics, and Frontiers in Neurorobotics, on the topic "Consciousness in Humanoid Robots." This compendium aims at collating the most recent theoretical studies, models, and case studies of machine consciousness that take the humanoid robot as a frame of reference. The content in the articles may be applied to many different kinds of robots, and to software agents as well.

A Contemporary Nursing Process - Dr. Rozzano C. Locsin, RN, PhD, FAAN 2009-04-10

"[This book] speaks against thinking [that] we can only understand nursing from a traditional, logical, empirical approach, suggesting we need a contemporary process for exploring nursing. I can't agree more." -- Journal of Christian Nursing "Nurse scholars from across the globe contribute essays to this unique philosophical exploration of today's nursing. This book presents an emerging view that requires nursing to look at its work through a broader and less structured lens. Challenging the structure of the traditional nursing process, the book considers nursing as reflective and thoughtful." -- Doody's A Contemporary Nursing Process re-envision the practice of nursing by configuring caring in terms of the person the nurse cares for. Locsin and Purnell stress the importance of knowing the patient, and differentiating the person from the disease. This text addresses this highly relevant issue, and provides a wealth of insight on how to care for the patient on a personal level, while still professionally administering clinical treatment. Chapters discuss: How to appreciate persons as participants in their care, rather than as objects of care The ideal of care versus the practical demands of care Technological advancements shaping human life and nursing The consequences of "not knowing" the patient on a personal level

Quantum Leap - Vladimir G. Ivancevic 2008

This is a unique 21st-century monograph that reveals a basic, yet deep understanding of the universe, as well as the human mind and body ?? all from the perspective of quantum mechanics and quantum field theory. This book starts with both non-mathematical and mathematical preliminaries. It presents the basics of both non-relativistic and relativistic quantum mechanics, and introduces Feynman path integrals and their application to quantum fields and string theory, as well as some non-quantum applications. It then describes the quantum universe in the form of loop quantum gravity and quantum cosmology. Lastly, the book turns to the human body and mind, applying quantum theory to electro-muscular stimulation and consciousness. It can be used as a graduate (or advanced undergraduate) textbook for a two-semester course in quantum physics and its modern applications. Some parts of the book can also be used by engineers, biologists, psychologists and computer scientists, as well as applied mathematicians, both in industry and academia.

The Grand Designer: Discovering the Quantum Mind Matrix of the Universe - graham smetham 2010-10-31

A thorough investigation of the implications of quantum theory for the Philosophy of Religion. This book shows that Stephen Hawking is incorrect when he says that modern physics disproves God. In fact his own book - The Grand Design - requires the existence of an infinite

Cosmic Mind - The Grand Designer.

Topics on Quantum Information Science - Sergio Curilef 2021-12-08

This book is devoted to current research topics in quantum information science. Chapters address issues related to the implementation of new quantum information technologies and discuss developments involving the application of information-theoretical ideas to the analysis of fundamental problems at the frontiers of contemporary physics.

Brain, Mind and Consciousness - Petr Bob 2011-09-25
Neuropsychological research on the neural basis of behavior generally asserts that brain mechanisms ultimately suffice to explain all psychologically described phenomena. This assumption stems from the idea that the brain consists entirely of material particles and fields, and that all causal mechanisms relevant to neuroscience can be formulated solely in terms of properties of these elements. Contemporary basic physical theory differs from classic physics on the important matter of how consciousness of human agents enters into the structure of empirical phenomena. The new principles contradict the older idea that local mechanical processes alone account for the structure of all empirical data. Contemporary physical theory brings directly into the overall causal structure certain psychologically described choices made by human agents about how they will act. This key development in basic physical theory is applicable to neuroscience. This book explores this new framework.

Quantum Information and Consciousness - Danko D. Georgiev 2017-12-06

"I loved the book! This book is not just interesting, it is exciting. I have probably read every significant book in the field, and this is the strongest and most convincing one yet. It is also one of the most comprehensive in its explanations. I shall most certainly recommend the book to colleagues." --Richard G. Petty, MD "a very good introduction to the basic theory of quantum systems.... Dr. Georgiev's book aptly prepares the reader to confront whatever might be in store later." --from the Foreword by Prof. James F. Glazebrook, Eastern Illinois University This book addresses the fascinating cross-disciplinary field of quantum information theory applied to the study of brain function. It offers a self-study guide to probe the problems of consciousness, including a concise but rigorous introduction to classical and quantum information theory, theoretical neuroscience, and philosophy of the mind. It aims to address long-standing problems related to consciousness within the framework of modern theoretical physics in a comprehensible manner that elucidates the nature of the mind-body relationship. The reader also gains an overview of methods for constructing and testing quantum informational theories of consciousness.

Consciousness - Jeffrey Alan Gray 2004

How does conscious experience arise out of the functioning of the human brain? How is it related to the behaviour that it accompanies? How does the perceived world relate to the real world? Between them, these three questions constitute what is commonly known as the Hard Problem of consciousness. Despite vast knowledge of the relationship between brain and behaviour, and rapid advances in our knowledge of how brain activity correlates with conscious experience, the answers to all three questions remain controversial, even mysterious. This important new book analyses these core issues and reviews the evidence from both introspection and experiment. To many its conclusions will be surprising and even unsettling: · The entire perceived world is constructed by the brain. The relationship between the world we perceive and the underlying physical reality is not as close as we might think. · Much of our behaviour is accomplished with little or no participation from

conscious experience. · Our conscious experience of our behaviour lags the behaviour itself by around a fifth of a second - we become aware of what we do only after we have done it. · The lag in conscious experience applies also to the decision to act - we only become aware of our decisions after they have been formed. · The self is as much a creation of the brain as is the rest of the perceived world. Written by a leading scientist, this analysis of how conscious experience relates to brain and behaviour is accessible and compelling. It will have major implications for our understanding of human nature.

Information and Its Role in Nature - Juan Roederer
2009-09-02

Presents an in-depth interdisciplinary discussion of the concept of information and its role in the control of natural processes. Reviews briefly classical and quantum information theory. Addresses numerous questions, including: Is information reducible to the laws of physics and chemistry? Does the Universe, in its evolution, constantly generate new information? Or are information and information-processing exclusive attributes of living systems, related to the very definition of life? If so, what is the role of information in classical and quantum physics? In what ways does information-processing in the human brain bring about self-consciousness? Accessible to graduate students and professionals from all scientific disciplines, this stimulating book will help to shed light on many controversial issues at the heart of modern science.

Information Theory and Quantum Physics - Herbert S. Green 2012-12-06

In this highly readable book, H.S. Green, a former student of Max Born and well known as an author in physics and in the philosophy of science, presents a timely analysis of theoretical physics and related fundamental problems.

Process Approaches to Consciousness in Psychology, Neuroscience, and Philosophy of Mind - Michel Weber
2009-11-18

Opens a dialogue between process philosophy and contemporary consciousness studies.

Quantum Consciousness - Klaus-Dieter Sedlacek 2015-08-05

Usually, the term „consciousness“ is associated with higher, cognitive performance. However, in the course of this dialogue the authors referred to by their chosen syntax and semantics, consciousness was assigned to in accordance with information-processing, as a principle of quantum physics. Everything, that exists in this world, that is all quantum objects, are in principle integrated into this process. Information, fluctuation and decoherence, entanglement and evolution included, have congruently been regarded as elementary. With these ingredients it is possible to produce a matter-containing reality in a 4-dimensional world.

Consciousness is associated with something alive, imminently sensed by someone's life-experience. There is however evidence in the geological history of our Earth that inorganic matter existed earlier than living matter. A metric-free vacuum as a non-local physical field (not belonging to the space-time) contains nothing except the information that is equivalent to energy or matter. If, from a quantum-theoretical point of view, a kind of spiritual interaction of all quantum objects with the metric-free vacuum is possible, then the question compulsorily arises, whether not non-organic matter must have consciousness, too.

Consciousness - Christof Koch 2017-03-03

In which a scientist searches for an empirical explanation for phenomenal experience, spurred by his instinctual belief that life is meaningful. What links conscious experience of pain, joy, color, and smell to bioelectrical activity in the brain? How can anything physical give rise to nonphysical, subjective, conscious

states? Christof Koch has devoted much of his career to bridging the seemingly unbridgeable gap between the physics of the brain and phenomenal experience. This engaging book—part scientific overview, part memoir, part futurist speculation—describes Koch's search for an empirical explanation for consciousness. Koch recounts not only the birth of the modern science of consciousness but also the subterranean motivation for his quest—his instinctual (if "romantic") belief that life is meaningful. Koch describes his own groundbreaking work with Francis Crick in the 1990s and 2000s and the gradual emergence of consciousness (once considered a "fringy" subject) as a legitimate topic for scientific investigation. Present at this paradigm shift were Koch and a handful of colleagues, including Ned Block, David Chalmers, Stanislas Dehaene, Giulio Tononi, Wolf Singer, and others. Aiding and abetting it were new techniques to listen in on the activity of individual nerve cells, clinical studies, and brain-imaging technologies that allowed safe and noninvasive study of the human brain in action. Koch gives us stories from the front lines of modern research into the neurobiology of consciousness as well as his own reflections on a variety of topics, including the distinction between attention and awareness, the unconscious, how neurons respond to Homer Simpson, the physics and biology of free will, dogs, Der Ring des Nibelungen, sentient machines, the loss of his belief in a personal God, and sadness. All of them are signposts in the pursuit of his life's work—to uncover the roots of consciousness.

Social Laser - Andrei Khrennikov 2020-11-12

The recent years have been characterized by stormy social protests throughout the world. These protests have some commonalities, but at the same time, their sociopolitical, psychological, and economic contexts differ essentially. An important class of such protests is known as color revolutions. The analysis of these events in social and political literature is characterized by huge diversity of opinions. We remark that the sociopolitical perturbations under consideration are characterized by the cascade dynamics leading to the exponential amplification of coherent social actions. In quantum physics, such exponential and coherent amplification is the basic feature of laser's functioning. ("Laser" is acronym for light amplification by stimulated emission of radiation). In this book we explore the theory of laser to model aforementioned waves of social protests, from color revolutions to Brexit and Trump's election. We call such social processes Stimulated Amplification of Social Actions (SASA), but to keep closer to the analogy with physics we merely operate with the term "social laser."

Consciousness and Quantum Mechanics - Shan Gao
2022-09-24

Consciousness and quantum mechanics are two great mysteries of our time--and recently scholars have postulated a deeper connection between them. Exploring this possible connection can be fruitful: an analysis of the conscious mind and psychophysical connection can be indispensable in understanding quantum mechanics and solving the notorious measurement problem, and there is also likely some kind of intimate connection between quantum mechanics--the most fundamental theory of the physical world--and our efforts to explain, naturalistically, the phenomenon of consciousness. The seventeen newly written chapters in this volume are divided into three sections: Consciousness and the Wave Function Collapse, Consciousness in Quantum Theories, and Quantum Approaches to Consciousness. This is the first volume to provide a comprehensive review and thorough analysis of intriguing conjectures about the connection between consciousness and quantum mechanics. Written by leading experts in physics, philosophy, and cognitive science, Consciousness and Quantum Mechanics will be of value to students and researchers working on

the foundations of quantum mechanics and the philosophy of mind.

Toward Human-Level Artificial Intelligence - Philip C. Jackson 2019-12-11

Dr. Jackson discusses how an AI system using a language of thought based on the unconstrained syntax of a natural language could achieve "higher-level mentalities" of human intelligence, with advanced forms of learning and reasoning, imagination, and more. 2019 edition.

Consciousness - Prem Saran Satsangi 2016-01-01

This unique volume brings together eastern and western perspectives on consciousness with essays from philosophers and scientists which emphasize different aspects of the integration. The overarching aim of this book is to provide direction toward integrating Eastern philosophical and religious practice with philosophies and science of Western culture, an aim that could be pivotal in understanding consciousness and its place in nature. A unifying approach is adopted to the study of consciousness, integrating the wisdom of the sages of the east, and the scientists of the west and the stupendous east-west integration that has been achieved is indeed a milestone. The book will appeal to the rapidly growing mass of scientists and students in this upcoming field, both in the east and west, as well as the general inquisitive reader. Courses in consciousness studies are being promoted in leading Universities all over the world. It will also interest the followers and adherents of Eastern Philosophy of Saints and Radhasoami Faith numbering in a few millions around the globe.

Neural Basis of Consciousness - Naoyuki Osaka 2003

Recent advances in cognitive neuroscience make possible an understanding of the neural events that are associated with different forms of consciousness. To fully understand and unveil the mystery of consciousness inside the brain we require examination of the concept of neural basis of conscious mind. This book provides a systematic exploration of consciousness and gives an overview of neural and quantum basis of conscious mind through careful explanation of proposed models and extends these theories challenging some generalised views on consciousness. Each chapter provides a review of the findings and theoretical accounts related to neural basis of consciousness and the mechanisms of the different varieties of consciousness. Professor Naoyuki Osaka (Kyoto University) has been active in experimental research on consciousness and attention for more than 15 years. (Series B)

Neuronal Bases and Psychological Aspects of Consciousness - C Taddei-Ferretti 1999-05-14

For a few decades, the puzzle of consciousness, which for centuries was analysed by philosophers, has been finding a wide interest in the scientific field, where previously it was not entitled to be a member. It has become one of the most-debated problems in the cognitive sciences. The anatomical bases, neurophysiological correlates and elementary mechanisms underlying complex processes arising with consciousness have been compared with the psychological (perceptive, cognitive, volitive, emotional) aspects of conscious expressions, in normal and pathological conditions. Various theories, which attempt to fit systematically and coherently neural and psychological data, have been debated, proving the emergence of the phenomenon of consciousness.

Contents: Introductory Lecture: Consciousness Studies: An Overview (S Hameroff) Neuronal Bases of Consciousness: Neuroanatomy of Memory (H J Markowitsch &

P Calabrese) Attentional Resolution: The Grain and Locus of Visual Awareness (P Cavanagh et al.) Perceptive, Cognitive, Volitive and Emotional Aspects of Consciousness: Visual Search: Preattentive Processing and the Guidance of Visual Attention (J M Wolfe) A Possible Neuropsychology Underlying Aberrations of Conscious Experience in Schizophrenia (J A Gray) Consciousness and Theories of Mind: What's Wrong with Claims for the Neurobiology of Consciousness? (S P R Rose) Understanding Consciousness: Beyond Dualism and Reductionism (M Velmans) Special Topic: Who Gets to Explain Consciousness? And Who Might in the Future? (H Rose) and other papers

Readership: Postdoctoral students and researchers in biocybernetics, neurosciences, cognitive sciences and psychology. Keywords: Biophysics; Biocybernetics; Neuronal Bases; Psychology; Consciousness; Cognition

Scale in Conscious Experience - Joseph S. King 2013-04-15

This volume is the result of the third Appalachian Conference on Behavioral Neurodynamics which focused on the problem of scale in conscious experience. Set against the philosophical view of "eliminative materialism," the purpose of this conference was to facilitate communication among investigators who approach the study of consciousness and conscious phenomena from a variety of analytical levels. One speculative outcome of the conference is that the columnar arrangement within primary sensory cortices may provide the local isolation necessary for nonlocal interactions to occur. In addition, the relationship between unit activity and field potentials within a circumscribed region of cortex may provide the other enigmatic aspect of neurophysiological nonlocality, namely, the common context in the macro scale. So instead of a problem looking for a solution, scale becomes a solution to a problem. Only further research will determine the utility of the ideas expressed here.

Brain, Mind and Consciousness in the History of Neuroscience - C.U.M. Smith 2014-04-23

This volume of essays examines the problem of mind, looking at how the problem has appeared to neuroscientists (in the widest sense) from classical antiquity through to contemporary times. Beginning with a look at ventricular neuropsychology in antiquity, this book goes on to look at Spinozan ideas on the links between mind and body, Thomas Willis and the foundation of Neurology, Hooke's mechanical model of the mind and Joseph Priestley's approach to the mind-body problem. The volume offers a chapter on the 19th century Ottoman perspective on western thinking. Further chapters trace the work of nineteenth century scholars including George Henry Lewes, Herbert Spencer and Emil du Bois-Reymond. The book covers significant work from the twentieth century, including an examination of Alfred North Whitehead and the history of consciousness, and particular attention is given to the development of quantum consciousness. Chapters on slavery and the self and the development of an understanding of Dualism bring this examination up to date on the latest 21st century work in the field. At the heart of this book is the matter of how we define the problem of consciousness itself: has there been any progress in our understanding of the working of mind and brain? This work at the interface between science and the humanities will appeal to experts from across many fields who wish to develop their understanding of the problem of consciousness, including scholars of Neuroscience, Behavioural Science and the History of Science.