Mental Images In Human Cognition

"Questioning Consciousness" brings together neuroscientific, psychological and phenomenological research, combining in a readable format recent developments in image research and neurology. It reassesses the mind-body relation and research on 'mental models', abstract concept formation, and acquisition of logical and apparently 'imageless' inference skills. It is argued that to be conscious of an object is essentially to imagine in a habituated way what would happen if we were to perform certain actions in relation to the object: and that mental images fit together to build up abstract concepts. This analysis shows why conscious information processing is so structurally different from yet interrelated with non-conscious processing, and how mind and body interrelate as a process to its substratum in the way that a sound wave relates to the medium through which it passes. (Series A)

What were the circumstances that led to the development of our cognitive abilities from a primitive hominid to an essentially modern human? The answer to this question is of profound importance to understanding our present nature. Since the steep path of our cognitive development is the attribute that most distinguishes humans from other mammals, this is also a quest to determine human origins. This collection of outstanding scientific problems and the revelation of the many ways they can be addressed indicates the scope of the field to be explored and reveals some avenues along which research is advancing. Distinguished scientists and researchers who have advanced the discussion of the mind and brain contribute state-of-the-art presentations of their field of expertise. Chapters offer speculative and provocative views on topics such as body, culture, evolution, feelings, genetics, history, humor, knowledge, language, machines, neuroanatomy, pathology, and perception. This book will appeal to researchers and students in cognitive neuroscience, experimental psychology, cognitive science, and philosophy. Includes a contribution by Noam Chomsky, one of the most cited authors of our time

Human factors play a critical role in the design and interpretation of remotely sensed imagery for all Earth sciences. Remote Sensing and Cognition: Human Factors in Image Interpretation brings together current topics widely recognized and addressed regarding human cognition in geographic imagery, especially remote sensing imagery with complex data. It addresses themes around expertise including methods for knowledge elicitation and modeling of expertise, the effects of different aspects of realism on the interpretation of the environment, spatial learning using imagery, the effect of visual perspective on interpretation, and a variety of technologies and methods for utilizing knowledge in the analysis of remote sensing imagery. Written by leaders in the field, this book provides answers to the host of questions raised at the nexus of psychology and remote sensing. Academics and researchers with an interest in these issues surrounding the use of remote sensing data will find this book to be an invaluable resource. The topics covered in this book are useful for both the scientific analysis of remote sensing imagery as well as the design and display of remote sensing imagery to facilitate a variety of other tasks including education and wayfinding. Features Brings together remote sensing, environmental, and computer scientists discussing their work from a psychological or human factors perspective Answers questions related to aesthetics of scientific visualization and mathematical analysis of perceptible objects Explains the perception and interpretation of realistic representations Provides illustrative real-world examples Shows how the features of display symbols, elements, and patterns have clear effects on processes of perception and visual search

This work integrates a 20-year research programme on the nature of high-level vision and mental imagery. The author develops a general theory of visual mental imagery, its relation to visual perception, and its implementation in the human brain.

Includes the association's conference proceedings and addresses.

In the not so distant future, we can expect a world where humans and robots coexist and interact with each other. For this to occur, we need to understand human traits, such as seeing, hearing, thinking, speaking, etc., and institute these traits in robots. The most essential feature necessary for robots to achieve is that of integrative multimedia understanding (IMU) which occurs naturally in humans. It allows us to assimilate pieces of information expressed through different modes such as speech, pictures, gestures, etc. The book describes how robots acquire traits like natural language understanding (NLU) as the central part of IMU. Mental image directed semantic theory (MIDST) is its core, and is based on the hypothesis that NLU is essentially the processing of mental image associated with natural language expressions, namely, mental-image based understanding (MBU). MIDST is intended to model omnisensory mental image in human and to afford a knowledge representation system in order for integrative management of knowledge subjective to cognitive mechanisms of intelligent entities such as humans and robots based on a mental image model visualized as 'Loci in Attribute Spaces' and its description language Lmd (mental image description language) to be employed for predicate logic with a systematic scheme for symbol-grounding. This language works as an interlingua among various kinds of information media, and has been applied to several versions of the intelligent system interlingual understanding model aiming at general system (IMAGES). Its latest version, i.e. conversation management system (CMS) simulates MBU and comprehends the user's intention through dialogue to find and solve problems, and finally, provides a response in text or animation. The book is aimed at researchers and students interested in artificial intelligence, robotics, and cognitive science. Based on philosophical considerations, the methodology will also have an appeal in linguistics, psychology, ontology, geography, and cartography. Key Features: Describes the methodology to provide robots with human-like capability of natural language understanding (NLU) as the central part of IMU Uses methodology that also relates to linguistics, psychology, ontology, geography, and cartography Examines current trends in machine translation

A variety of scientific disciplines have set as their task explaining mental activities, recognizing that in some way these activities depend upon our brain. But, until recently, the opportunities to conduct experiments directly on our brains were limited. As a result, research efforts were split between disciplines such as cognitive psychology, linguistics, and artificial intelligence that investigated behavior, while disciplines such as neuroanatomy, neurophysiology, and genetics experimented on the brains of non-human animals. In recent decades these disciplines integrated, and with the advent of techniques for imaging activity in human brains, the term cognitive neuroscience has been applied to the integrated investigations of mind and brain. This book is a philosophical examination of how these disciplines continue in the mission of explaining our mental capacities.

Since the beginning of the 1970's the psychological study of imagery has shown a renewal of scientific interest reflected in a diverse body of theory, research paradigms, and data, which, with difficulty, can be managed by a reader interested in imagery. Further, mental illagery appears to be an important construct in fields such as perception, memory, learning, thinking, motor behavior, cognitive development, and so on. With the diversity of theoretical and empirical work on imagery, cognition, and performance, it is increasingly difficult to find a single source that provides contemporary overviews in each field. Our purpose in organizing this book was to attempt all IIp-Lodate presentation of imagery research and theory. It is ollr hope that the volume will help serve as a starting point for the progress that will surely appear in the 1990's. This book hi:\: its roots in the Second Workshop on Imagery and Cognition held at the University of Padova, Padova, Italy from September 21 to September 23,1988. An impressive array of research was presented at the workshop, and as the workshop unfolded several salient point s ellerged. Though the research was diverse, it was even more so convergent on several main themes (e. g., relations between imagery and perception, imaginal coding in working memory, the role of imagery in v(;rbal memory and in memory for action events, imagery and problem solving).

This second volume in the Counterpoints Series focuses on alternative models of visual-spatial processing in human cognition. The editors provide a historical and theoretical introduction and offer ideas about directions and new research designs.

The study of human cognitive processes provides insight into why we act or react and can help us predict future behaviors. In Cognition, authors Thomas Farmer and Margaret Matlin present an engaging and highly relatable examination of how these processes work, and how they are responsible for the way we perceive and interpret the world around us. Broad in scope without sacrificing depth of detail, this text emphasizes the link between conceptual cognitive psychology and real-world experience; case studies, current trends, and historical perspectives merge to provide a comprehensive understanding of core principles and theories. This new Tenth Edition has been updated to reflect the latest research, technology, and thinking, with more in-depth coverage of topics rising to prominence in the field's current knowledge base. Expanded explanations balance classical and contemporary approaches to specific topics, while additional experiments and an emphasis on methodology and experimental design are included to facilitate a greater appreciation of the field's rigorous research.

Autobiographical memory plays a key role in psychological well-being, and the field has been investigated from multiple perspectives for over thirty years. One large body of research has examined the basic mechanisms and characteristics of autobiographical memory during general cognition, and another body has studied what happens to it during psychological disorders, and how psychological therapies targeting memory disturbances can improve psychological well-being. This edited collection reviews and integrates current theories on autobiographical memory when viewed in a clinical perspective. It presents an overview of basic applied and clinical approaches to autobiographical memory, covering memory specificity, traumatic memories, involuntary and intrusive memories, and the role of self-identity. The book discusses a wide range of psychological disorders, including depression, post-traumatic stress disorder (PTSD), borderline personality disorder and autism, and how they affect autobiographical memory. It will be of interest to students of psychology, clinicians and therapists alike.

In cognitive science, mental representations of spatial knowledge are metaphorically referred to as cognitive maps. However, investigations in cognitive psychology reveal that the cognitive map metaphor is inadequate and that more suitable conceptions of human spatial knowledge processing are needed. This book addresses mental processing of knowledge about geographic space from an AI point of view by presenting an experimental computational modeling approach. Results about human memory and visual mental imagery from cognitive psychology are combined with AI techniques of spatial and diagrammatic knowledge processing. The author develops the diagrammatic reasoning architecture MIRAGE as a comprehensive conception of human geographic knowledge processing.

This 2006 book explores how people's subjective, felt experiences of their bodies in action provide part of the fundamental grounding for human cognition and language. Cognition is what occurs when the body engages the physical and cultural world and must be studied in terms of the dynamical interactions between people and the environment. Human language and thought emerge from recurring patterns of embodied activity that constrain ongoing intelligent behavior. We must not assume cognition to be purely internal, symbolic, computational, and disembodied, but seek out the gross and detailed ways that language and thought are inextricably shaped by embodied action. Embodiment and Cognitive Science describes the abundance of empirical evidence from many disciplines, including work on perception, concepts, imagery and reasoning, language and communication, cognitive development, and emotions and consciousness, that support the idea that the mind is embodied.

The locus of concreteness effects in memory for verbal materials has been described here in terms of the processing of shared and distinctive information. This theoretical view is consistent with a variety of findings previously taken as support for dual coding, insofar as both verbal and perceptual information may be involved in comprehending high-imagery sentences and in learning lists of concrete words. But going beyond previous accounts of imagery, this view also can provide explanations for several findings that appear contradictory to the thesis that concrete and abstract materials differ in the form of their storage in long-term memory. Although this does not rule out a role for imagery in list learning or text comprehension, it is clear that the complex processes involved in comprehension and memory for language go beyond mechanisms supplied by a theory based on the availability of modality-specific mental representations. The task now is to determine the viability of the theory in other domains. Several domains of imagery research presented at EWIC provided fertile ground for evaluating my theoretical viewpoint. Although not all provide a basis for distinguishing representational theories of imagery from the imagery as process view, there are data in several areas that are more consistent with the latter than the former. In other cases, there are at least potential sources of evidence that would allow such a distinction.

Many topics have inspired significant amounts of neuroimaging research in recent years, and the study of mental imagery was one of the earliest to receive a thorough empirical investigation. Twenty years later, the goal of understanding this pervasive but elusive phenomenon continues to motivate a number of sustained research programs on the part of cognitive psychologists and neuroscientists. The issues at stake are easy to formulate, even if the answers sometimes may be difficult to obtain: Which parts of the human brain are active when a person generates a memory image of an absent object? To what extent does mental imagery activate cortical structures known to subserve perceptual visual experience? If imagery and like-modality perception produce similar patterns of brain activation, what sorts of theories should cognitive scientists develop about the underlying mechanisms? How can we best understand why people differ in their imagery abilities? These are questions to which the contributors to the special issue "Neuroimaging of Mental Imagery" offer answers, through seven original studies based on the use of modern neuroimaging techniques, primarily positron emission tomography (PET) and functional magnetic resonance imaging (fMRI). These techniques are used in the context of a variety of cognitive tasks involving memory, problem solving, and other processes. Unlike most research in psychology, much of the work reported here explicitly addresses individual differences, which must be considered carefully in order to provide comprehensive accounts of the results of imagery experiments. Although these investigations were planned and carried out independently, we find a remarkable convergence among them. And this may be the surest sign that a field is indeed moving forward.

An eminent psychologist offers a major new theory of human cognition: movement, not language, is the foundation of thought When we try to think about how we think, we can't help but think of words. Indeed, some have called language the stuff of thought. But pictures are remembered far better than words, and describing faces, scenes, and events defies words. Anytime you take a shortcut or play chess or basketball or rearrange your furniture in your mind, you've done something remarkable: abstract thinking without words. In Mind in Motion, psychologist Barbara Tversky shows that spatial cognition isn't just a peripheral aspect of thought, but its very foundation, enabling us to draw meaning from our bodies and their actions in the world. Our actions in real space get turned into mental actions on thought, often spouting spontaneously from our bodies as gestures. Spatial thinking underlies creating and using maps, assembling furniture, devising football strategies, designing airports, understanding the flow of people, traffic, water, and ideas. Spatial thinking even underlies the structure and meaning of language: why we say we push ideas forward or tear them apart, why we're feeling up or have grown far apart. Like Thinking, Fast and Slow before it, Mind in Motion gives us a new way to think about how--and where--thinking takes place.

Denis explores the role of imagery in reasoning, in resolving problems and in planning human action, and more generally, in human thought. The text is designed for the upper-level undergraduate or postgraduate in cognitive psychology or neuroscience.

This book introduces the essential and enduring contrasts that cognitive scientists study and reflects the state of the field through its own distinct point of view. Readers will gain an appreciation of the manner in which cognitive scientists resolve controversies while advancing what we know about human "mental life". Covering every major topic in cognition with over 1300 references to recently published research and emerging ideas, each chapter opens with a contrast between two perspectives and is organized around a discussion of the contrast and its implications. Much of the cited research has ecological validity that relates the ideas, controversies, and theories to everyday life. It presents individual physiological-, cultural-, and gender-based differences in cognition. It also emphasizes the Darwinian adaptability of cognitive processes. And, finally, it presents the growing consensus that the human mind does not function like a digital computer, but rather is multifaceted.

How we see and how we visualize: why the scientific account differs from our experience.

Representation of the spatial and spatial properties of our environment is a pivotal requirement of everyday cognition. We can mentally represent the visual form of objects. We can extract information from several of the senses as to the location of objects in relation to ourselves and to other objects nearby. For some of those objects we can reach out and manipulate them. We can also imagine ourselves manipulating objects in advance of doing so, or even when it would be impossible to do so physically. The problem posed to science is how these cognitive operations are accomplished, and proffered accounts lie in two essentially parallel research endeavours, working memory and imagery. Working memory is thought to pervade everyday cognition, to provide on-line processing and temporary storage, and to update, moment to moment, our representation of the current state of our environment and our interactions with that environment. There is now a strong case for the claims of working memory in the area of phonological and articulatory functions, all of which appear to contribute to everyday activities such as counting, arithmetic, vocabulary acquisition, and some aspects of reading and language comprehension. The claims for visual and spatial working memory functions are less convincing. Most notable has been the assumption that visual and spatial working memory are intimately involved in the generation, retention and manipulations of visual images. There has until recently been little hard evidence to justify that assumption, and the research on visual and spatial working memory has focused on a relatively restricted range of imagery tasks and phenomena. In a more or less independent development, the literature on visual imagery has now amassed a voluminous corpus of data and theory about a wide range of imagery phenomena. Despite this, few books on imagery refer to the concept of working memory in any detail, or specify the nature of the working memory system that might be involved in mental imagery. This essay follows a line of reconciliation and positive critiquing in exploring the possible overlap between mental imagery and working

memory. Theoretical development in the book draws on data from both cognitive psychology and cognitive neuropsychology. The aim is to stimulate debate, to address directly a number of assumptions that hitherto have been implicit, and to assess the contribution of the concept of working memory to our understanding of these intriguing core aspects of human cognition.

The human imagination manifests in countless different forms. We imagine the possible and the impossible. How do we do this so effortlessly? Why did the capacity for imagination evolve and manifest with undeniably manifold complexity uniquely in human beings? This handbook reflects on such questions by collecting perspectives on imagination from leading experts. It showcases a rich and detailed analysis on how the imagination is understood across several disciplines of study, including anthropology, archaeology, medicine, neuroscience, psychology, philosophy, and the arts. An integrated theoretical-empirical-applied picture of the field is presented, which stands to inform researchers, students, and practitioners about the issues of relevance across the board when considering the imagination. With each chapter, the nature of human imagination is examined - what it entails, how it evolved, and why it singularly defines us as a species.

Brain imaging has revolutionised the field of Psychology - once more concerned with IQ tests, reaction times and questionnaires. Most Psychology departments now have access to an MRI scanner - some have even renamed themselves as departments of cognitive neuroscience. Yet brain imaging can be a minefield, whichever discipline you approach it from. If you are a psychologist, you will have been taught how to do behavioural experiments, but may know little neuroanatomy or neurophysiology. If you are a neurologist or psychiatrist, then you may know the neuroanatomy and neurophysiology, but not know how to carry out experiments on mental phenomena. This is a practical guide to brain imaging, showing how it can advance a true neuroscience of human cognition. It is accessible to those starting out in imaging, whilst also informative for those who have already acquired some expertise. At the heart of the book are 6 main chapters, focusing on - the signal, experimental methods, anatomy, functional specialisation, functional systems, and other methods. For students and researchers in psychology and neuroscience, this is the essential companion when embarking on brain imaging studies.

Stone tools are the most durable and common type of archaeological remain and one of the most important sources of information about behaviors of early hominins. Stone Tools and the Evolution of Human Cognition develops methods for examining questions of cognition, demonstrating the progression of mental capabilities from early hominins to modern humans through the archaeological record. Dating as far back as 2.5-2.7 million years ago, stone tools were used in cutting up animals, woodworking, and preparing vegetable matter. Today, lithic remains give archaeologists insight into the forethought, planning, and enhanced working memory of our early ancestors. Contributors focus on multiple ways in which archaeologists can investigate the relationship between tools and the evolving human mind-including joint attention, pattern recognition, memory usage, and the emergence of language. Offering a wide range of approaches and diversity of place and time, the chapters address issues such as skill, social learning, technique, language, and cognition based on lithic technology. Stone Tools and the Evolution of Human Cognition will be of interest to Paleolithic archaeologists and paleoanthropologists interested in stone tool technology and cognitive evolution.

An updated, systematic introduction to the theoretical and experimental foundations of higher mental processes. The book constructs a coherent picture of human cognition, relating neural functions to mental processes, perception to abstraction, representation to meaning, and knowledge to skill.

This book represents the research efforts of individuals whose scientific expertise lies in reflection on what Sartre described as reflective acts. Theory in the cognitive psychology of mental imagery, endeavors not only being able to describe the contents and nature of mental imagery, but also being able to understand the underlying functional cognition. Psychologists need not solely rely on the techniques of introspection, and the last two decades have seen highly creative developments in techniques for eliciting behavioural data to be complemented by introspective reports. This level of sophistication has provided singular insights into the relationship between imagery and other consequential and universal aspects of human cognition: perception, memory, verbal processes and problem solving. The recognition that imagery, despite its ubiquitous nature, differs between individuals both in prevalence and in kind, and the dramatic rise in cognitive science has provided the additional potential for integrating our understanding of cognitive function with our understanding of neuroanatomy and of computer science. All of these relationships, developments and issues are dealt with in detail in this book, by some of the most distinguished authors in imagery research, working at present in both Europe and the USA.

"Cognitive psychology," "cognitive neuroscience," and "philosophy of mind" are names for three very different scientific fields, but they label aspects of the same scientific goal: to understand the nature of mental phenomena. Today, the three disciplines strongly overlap under the roof of the cognitive sciences. The book's purpose is to present views from the different disciplines on one of the central theories in cognitive science: the theory of mental models. Cognitive psychologists report their research on the representation and processing of mental models in human memory. Cognitive neuroscientists demonstrate how the brain processes visual and spatial mental models and which neural processes underlie visual and spatial thinking. Philosophers report their ideas about the role of mental models in relation to perception, emotion, representation, and intentionality. The single articles have different and mutually complementing goals: to introduce new empirical methods and approaches, to report new experimental results, and to locate competing approaches for their interpretation in the cross-disciplinary debate. The book is strongly interdisciplinary in character. It is especially addressed to researchers in any field related to mental models theory as both a reference book and an overview of present research on the topic in other disciplines. However, it is also an ideal reader for a specialized graduate course. Examines the theory of mental models from the perspectives of cognitive psychology, cognitive neuroscience and philosophy of the mind Introduces new empirical methods, experimental results, and interdisciplinary yet complementary approaches Serves as a reference book and an overview of current research

The relationships between perception and imagery, imagery and spatial processes, memory and action: These are the main themes of this text The interest of experimental psychology and cognitive neuroscience on imagery and spatial cognition is remarkably increased in the last decades. Different areas of research contribute to the clarification of the multiple cognitive processes subserving spatial perception and exploration, and to the definition of the neurophysiological mechanisms underpinning these cognitive functions. The aim of this book is to provide the reader (post-graduate students as well as experts) with a complete overview of this field of research. It illustrates the way how brain, behaviour and cognition interact in normal and pathological subjects in perceiving, representing and exploring space. (Series B).

When we try to remember whether we left a window open or closed, do we actually see the window in our mind? If we do, does this mental image play a role in how we think? For almost a century, scientists have debated whether mental images play a functional role in cognition. In The Case for Mental Imagery, Stephen Kosslyn, William Thompson, and Giorgio Ganis present a complete and unified argument that mental images do depict information, and that these depictions do play a functional role in human cognition. They outline a specific theory of how depictive representations are used in information processing, and show how these representations arise from neural processes. To support this theory, they seamlessly weave together conceptual analyses and the many varied empirical findings from cognitive psychology and neuroscience. In doing so, they present the conceptual grounds for positing this type of internal representation and summarize and refute arguments to the contrary. Their argument also serves as a historical review of the imagery debate from its earliest inception to its most recent phases, and provides ample evidence that significant progress has been made in our understanding of mental imagery. In illustrating how scientists think about one of the most difficult problems in psychology and neuroscience, this book goes beyond the debate to explore the nature of cognition and to draw out implications for the study of consciousness. Student and professional researchers in vision science, cognitive psychology, philosophy, and neuroscience will find The Case for Mental Imagery to be an invaluable resource for understanding not only the imagery debate, but also and more broadly, the nature of thought, and how theory and research shape the evolution of scientific debates.

Beginning in October 2017, the National Academies of Sciences, Engineering, and Medicine organized a set of workshops designed to gather information for the Decadal Survey of Social and Behavioral Sciences for Applications to National Security. The fourth workshop focused on the science of cognition and perception, and this publication summarizes the presentations and discussions from this workshop.

Demystify the core concepts of cognitive psychology Written specifically for psychology students – and not other academics - Cognitive Psychology For Dummies is an accessible and entertaining introduction to the field. Unlike the dense and jargon-laden content found in most psychology textbooks, this practical guide provides readers with easy-to-understand explanations of the fundamental elements of cognitive psychology so that they are able obtain a firm grasp of the material. Cognitive Psychology For Dummies follows the structure of a typical university course, which makes it the perfect supplement for students in need of a clear and enjoyable overview of the topic. The complexities of a field that explores internal mental processes – including the study of how people perceive, remember, think, speak, and solve problems – can be overwhelming for first-year psychology students. This practical resource cuts through the academic-speak to provide a clear understanding of the most important elements of cognitive psychology. Obtain a practical understanding of the core concepts of cognitive psychology Supplement required course reading with clear and easy-to-understand overviews Gain confidence in your ability to apply your knowledge of cognitive psychology Prepare for upcoming exams or topic discussions Cognitive Psychology For Dummies is the perfect resource for psychology students who need a clear and readable overview of the core concepts of cognitive psychology.

Human Memory: Structures and Images offers students a comprehensive overview of research in human memory. Providing a theoretical background for the research, author Mary B. Howes uses a clear and accessible format to cover three major areas—mainstream experimental research; naturalistic research; and work in the domains of the amnesias, malfunctions of memory, and neuroscience.

Our ability to be conscious of the world around us is often discussed as one of the most amazing yet enigmatic processes under scientific investigation today. However, our ability to imagine the world around us in the absence of stimulation from that world is perhaps even more amazing. This capacity to experience objects or scenarios through imagination, that do not necessarily exist in the world, is perhaps one of the fundamental abilities that allows us successfully to think about, plan, run a dress rehearsal of future events, re-analyze past events and even simulate or fantasize abstract events that may never happen. Empirical research into mental imagery has seen a recent surge, due partly to the development of new neuroscientifc methods and their clever application, but also due to the increasing discovery and application of more objective methods to investigate this inherently internal and private process. As the topic is cross hosted in Frontiers in Perception Science and Frontiers in Human Neuroscience, we invite researchers from different fields to submit opinionated but balanced reviews, new empirical, theoretical, philosophical or technical papers covering any aspect of mental imagery. In particular, we encourage submissions focusing on different sensory modalities, such as olfaction, audition somatosensory etc. Similarly, we support submissions focusing on the relationship between mental imagery and other neural and cognitive functions or disorders such as visual working memory, visual search or disorders of anxiety. Together, we hope that collecting a group of papers on this research topic will help to unify theory while providing an overview of the state of the field, where it is heading, and how mental imagery relates to other cognitive and sensory functions.

Michael Tye untangles the complex web of empirical and conceptual issues of the newlyrevived imagery debate in psychology between those that liken mental images to pictures and thosethat liken them to linguistic descriptions. He also takes into account longstanding philosophicalissues, to arrive at a comprehensive, up-to-date view and an original theory that provides answersto questions raised in both psychology and philosophy.Drawing on the insights of Stephen Kosslyn andthe work on vision of David Mart, Tye develops a new theory of mental imagery that includes anaccount of imagistic representation and also tackles questions about the phenomenal qualities ofmental images, image indeterminacy, the neurophysiological basis of imagery, and the causal relevanceof image content to behavior.Tye introduces the history of philosophical views on the nature ofmental imagery from Aristotle to Kant. He examines the reasons for the decline of picture theoriesof imagery and the use of alternative theories, the reemergence of the picture theory (with specialreference to the work of Stephen Kosslyn), and the contrasting view that mental images are innerlinguistic descriptions rather than pictorial representations. He then proposes his own theory ofimages interpreted as symbol-filled arrays in part like pictures and in part like linguisticdescriptions, addresses the issue of vagueness in some features of mental images, and argues thatimages need not have qualia to account for their phenomenological character. Tye concludes bydiscussing the questions of how images are physically realized in the brain and how the contents ofimages can be causally related to behavior.Michael Tye holds appointments in Philosophy at bothTemple University and Kings College, London.

Examining the current state of the research in perception stressing contributions in visual information processing, this volume provides an original and timely account of recent results obtained in this and other related areas of cognitive psychology. The scope of the book is intended to be broad, featuring state-of-the-art contributions from a number of outstanding researchers from different parts of the world -- the United States, Europe, and Australia. The intention is to update areas of considerable theoretical implications and active experimental investigation in this broad field called the "psychology of perception." This volume's main purpose is to highlight, from a cognitive position, a selected number of important theoretical and empirical topics which deal with critical issues in perception and other high level, related cognitive processes such as attention, mental representation, memory, word naming and semantic categorization. The studies reported were designed to answer many far-reaching questions including: * Is the global precedence effect due to low or high level processing? * Can veridical and illusory perception be explained by the same theory? * What is the relationship between attention and perception? * Is perception "direct" or an inferential process? * What mechanisms are involved in picture and word naming and categorization? * How can word and picture processing be modeled? The answers to these questions seek to unite theoretical perspectives on very important areas of cognitive psychology such as attention, perception, representation of visual objects and words, and human memory.

Are images an important means of recalling information from memory and solving problems? Or are images just display lights on the mind's computer? In Image and Mind, Stephen Kosslyn makes an impressive case for the view that images are critically involved in the life of the mind. In a series of ingenious experiments, he provides hard evidence that people can construct elaborate mental images, search them for specific information, and perform such other internal operations as mental rotation. Kosslyn demonstrates that these results are best explained by a two-tiered model in which images are stored in abstract form in long-term memory and then assembled for internal display in much the way that images on a TV screen can be created from files in a computer memory. Kosslyn shows how this model can be used to solve many of the persistent questions which have traditionally plagued theories of imagery that attempted to install imagery as the exclusive medium of mental representation. Unlike any other work on imagery, Image and Mind provides an integrated account of most of the modern empirical results from imagery research within the framework of a coherent theory. The book also introduces a host of new experimental techniques and major hypotheses to guide future research. The result is a landmark book and a major event in the study of the mind.

Cognitive sciences have been involved under numerous accounts to explain how humans interact with technology, as well as to design technological instruments tailored to human needs. As technological advancements in fields like wearable and ubiquitous computing, virtual reality, robotics and artificial intelligence are presenting novel modalities for interacting with technology, there are opportunities for deepening, exploring, and even rethinking the theoretical foundations of human technology use. This volume entitled "Cognition and Interaction: From Computers to Smart Objects and Autonomous Agents" is a collection of articles on the impacts that novel 3 September Frontiers in Psychology 2019 | Cognition and Interaction interactive technologies are producing on individuals. It puts together 17 works, spanning from research on social cognition in human-robot interaction to studies on neural changes triggered by Internet use, that tackle relevant technological and theoretical issues in human-computer interaction, encouraging us to rethink how we conceptualize technology, its use and development. The volume addresses fundamental issues at different levels. The first part revolves around the biological impacts that technologies are producing on our bodies and brains. The second part focuses on the psychological level, exploring how our psychological characteristics may affect the way we use, understand and perceive technology, as well as how technology is changing our cognition. The third part addresses relevant theoretical problems, presenting reflections that aim to reframe how we conceptualize ourselves, technology and interaction itself. Finally, the last part of the volume pays attention to the factors involved in the design of technological artifacts, providing suggestions on how we can develop novel technologies closer to human needs. Overall, it appears that human-computer interaction will have to face a variety of challenges to account for the rapid changes we are witnessing in the current technology landscape.

Outlines a strategy for "compassionate communication" in order to forge bonds for more effective conversation and productivity, explaining how to use strategic steps to overcome conflicts and to promote more collaborative environments.

Readings in Cognitive Science: A Perspective from Psychology and Artificial Intelligence brings together important studies that fall in the intersection between artificial intelligence and cognitive psychology. This book is composed of six chapters, and begins with the complex anatomy and physiology of the human brain. The next chapters deal with the components of cognitive science, such as the semantic memory, similarity and analogy, and learning. These chapters also consider the application of mental models, which represent the domain-specific knowledge needed to understand a dynamic system or natural physical phenomena. The remaining chapters discuss the concept of reasoning, problem solving, planning, vision, and imagery. This book is of value to psychologists, psychiatrists, neurologists, and researchers who are interested in cognition.