

Principles Of Cognitive Neuroscience Dale Purves

This e-book brings together scholars in both the neurosciences and organizational sciences who have adopted various approaches to study the cognitive mechanisms mediating the social behavior that we see within organizations. Such an approach has been termed by ourselves, and others, as 'organisational cognitive neuroscience'. In recent years there has been a veritable increase in studies that have explored the cognitive mechanisms driving such behaviors, and much progress has been made in understanding the neural underpinnings of processes such as financial exchange, risk awareness and even leadership. However, while these studies are informative and add to our understanding of human cognition they fall short of providing evidence-based recommendations for practice. Specifically, we address the broader issue of how the neuroscientific study of such core social behaviors can be used to improve the very way that we work. To address these gaps in our understanding the chapters in this book serve as a platform that allows scholars in both the neurosciences and the organizational sciences to highlight the work that spans across these two fields. The consolidation of these two fields also serves to highlight the utility of a singular organizational cognitive neuroscience. This is a fundamentally important outcome of the book as the application of neuroscience to address economically relevant behaviors has seen a variety of fields evolve in their own right, such as neuromarketing, neuroeconomics and so forth. The use of neuro-scientific technologies, in particular fMRI, has indeed led to a bewildering (and somewhat suffocating) proliferation of new approaches, however, the speed of such developments demands that we must proceed carefully with such ventures or risk some fundamental mistakes. The book that you now hold will consolidate these new neuroscience based approaches and in doing so highlight the importance of this approach in helping us to understand human social behavior in general. Taken together the chapters provide a framework for scholars within the neurosciences who wish to explore the further the opportunities that the study of organisational behavior may provide.

Many of us take for granted that what we perceive is a completely accurate representation of the world around us. Yet we have all had the experience of suddenly realizing that the keys or glasses that we had been looking for in vain were right in front of us the whole time. The capacity of our sense organs far exceeds our mental capabilities, and as such, looking at something does not guarantee that we will notice it. Our minds constantly prioritize and organize the information we take in, bringing certain things to the foreground, while letting others - that which we deem irrelevant - recede into the background. What ultimately determines what we perceive, and what we do not? In this fascinating book, noted sociologist Eviatar Zerubavel argues that we perceive things not just as human beings but as social beings. Drawing on fascinating examples from science, the art world, optical illusions, and all walks of life, he shows that what we notice or ignore varies across cultures and throughout history, and illustrates how our environment and our social lives - everything from our lifestyles to our professions to our nationalities - play a role in determining how we actually use our senses to access the world. A subtle yet powerful examination of one of the central features of our conscious life, this book offers a way to think about all that might otherwise remain hidden in plain sight.

Language and communication problems have long figured prominently in the definition of mental retardation. Volume 27 of the International Review of Research in Mental Retardation focuses exclusively on these language and communication issues. The pace of research on language learning and use in mental retardation has increased in recent years and taken new direction. This revitalization has been fueled by three factors: 1) advances in genetic technologies allowing investigation of the behavioral phenotypes of well-defined syndromes, 2) an increased emphasis on maximizing abilities of individuals with mental retardation to live and succeed in a broader range of contexts and settings, and 3) theoretical debates concerning the mechanisms of language development and the nature of the human mind. Contents in Language and Communication in Mental Retardation include syndromes (e.g., Down syndrome, Williams syndrome), domains of language skill (e.g., reading), and intervention strategies. Contains the most current research on genetic syndromes, including Williams syndrome, Down syndrome, and fragile X syndrome Outlines the most current research on language and communication intervention for persons with mental retardation Authors consider the implications of the research reviewed for both theory and clinical practice Authors bring state-of-the-art knowledge of cognitive science, developmental science, linguistic, and behavioral genetics to bear on important questions about language and mental retardation Includes new research on long-studied conditions (e.g., Down syndrome) and disorders that are of only recent interest to child language researchers (e.g., fetal alcohol syndrome) Includes a consideration of nonverbal, as well as verbal, communication

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When his beloved donkey becomes ill, a young Italian boy is determined to take her to the crypt of St. Francis in Assisi in hopes of making her well.

Brains as Engines of Association tackles a fundamental question in neuroscience: what is the operating principle of the human brain? While a similar question has been asked and answered for virtually every other human organ during the last few centuries, how the brain operates has remained a central challenge in biology. Based on evidence derived from vision, audition, speech and music--much of it based on the author's own work over the last twenty years--Brains as Engines of Association argues that brains operate wholly on the basis of trial and error experience, encoded in neural circuitry over evolutionary and individual time. This concept of neural function runs counter to current concepts

that view the brain as a computing machine, and research programs based on the idea that the only way to answer such questions is by reconstructing the connectivity of brains in their entirety. This view also implies that the best way to understand the details of brain function is to recapitulate their history using artificial neural networks. While this viewpoint has received support in the last few years from work showing that computers can win complex games, the brain plays a much more complex game--the "game" of biological survival--which Purves concludes is based on trial-and-error experience.

Principles of Learning and Memory presents state-of-the-art reviews that cover the experimental analysis of behavior, as well as the biological basis of learning and memory, and that overcome traditional borders separating disciplines. The resulting chapters present and evaluate core findings of human learning and memory that are obtained in different fields of research and on different levels of analysis. The reader will acquire a broad and integrated perspective of human learning and memory based on current approaches in this domain.

In the last decade, there has been a tremendous surge of research on the mechanisms of human action. This volume brings together this new knowledge in a single, concise source, covering most if not all of the basic questions regarding human action: What are the mechanisms by which action plans are acquired (learned), mentally represented, activated, selected, and expressed? The chapters provide up-to-date summaries of the published research on this question, with an emphasis on underlying mechanisms. This 'bible' of action research brings together the current thinking of eminent researchers in the domains of motor control, behavioral and cognitive neuroscience, psycholinguistics, biology, as well as cognitive, developmental, social, and motivational psychology. It represents a determined multidisciplinary effort, spanning across various areas of science as well as national boundaries.

The present volume aims at presenting a selection of new methods and techniques that may have value for clinical neuropsychology. There is an increasing interest among clinical neuropsychologists regarding new developments in cognitive neuroscience and experimental psychology. This book presents an updated view of recent methodological developments in experimental psychology and clinical neuroscience.

A proposal for merging a science of human consciousness with neuroscience and psychology. The study of consciousness has advanced rapidly over the last two decades. And yet there is no clear path to creating models for a direct science of human experience or for integrating its insights with those of neuroscience, psychology, and philosophy. In *Inner Experience and Neuroscience*, Donald Price and James Barrell show how a science of human experience can be developed through a strategy that integrates experiential paradigms with methods from the natural sciences. They argue that the accuracy and results of both psychology and neuroscience would benefit from an experiential perspective and methods. Price and Barrell describe phenomenologically based methods for scientific research on human experience, as well as their philosophical underpinnings, and relate these to empirical results associated with such phenomena as pain and suffering, emotions, and volition. They argue that the methods of psychophysics are critical for integrating experiential and natural sciences, describe how qualitative and quantitative methods can be merged, and then apply this approach to the phenomena of pain, placebo responses, and background states of consciousness. In the course of their argument, they draw on empirical results that include qualitative studies, quantitative studies, and neuroimaging studies. Finally, they propose that the integration of experiential and natural science can extend efforts to understand such difficult issues as free will and complex negative emotions including jealousy and greed.

The second edition of an essential resource to the evolving field of developmental cognitive neuroscience, completely revised, with expanded emphasis on social neuroscience, clinical disorders, and imaging genomics. The publication of the second edition of this handbook testifies to the rapid evolution of developmental cognitive neuroscience as a distinct field. Brain imaging and recording technologies, along with well-defined behavioral tasks—the essential methodological tools of cognitive neuroscience—are now being used to study development. Technological advances have yielded methods that can be safely used to study structure-function relations and their development in children's brains. These new techniques combined with more refined cognitive models account for the progress and heightened activity in developmental cognitive neuroscience research. The Handbook covers basic aspects of neural development, sensory and sensorimotor systems, language, cognition, emotion, and the implications of lifelong neural plasticity for brain and behavioral development. The second edition reflects the dramatic expansion of the field in the seven years since the publication of the first edition. This new Handbook has grown from forty-one chapters to fifty-four, all original to this edition. It places greater emphasis on affective and social neuroscience—an offshoot of cognitive neuroscience that is now influencing the developmental literature. The second edition also places a greater emphasis on clinical disorders, primarily because such research is inherently translational in nature. Finally, the book's new discussions of recent breakthroughs in imaging genomics include one entire chapter devoted to the subject. The intersection of brain, behavior, and genetics represents an exciting new area of inquiry, and the second edition of this essential reference work will be a valuable resource for researchers interested in the development of brain-behavior relations in the context of both typical and atypical development.

Fully updated throughout, this new edition provides a comprehensive exploration of how children acquire a first language effectively.

Principles of Cognitive Neuroscience Sinauer Associates, Incorporated

"You are about to start on a great adventure. You are going to transition from reading about science to becoming a scientist." -From the Preface Using engaging, disarming prose, author Mary Harrington shows neuroscience students how to go about selecting a topic, designing an experiment, analyzing the results, and publishing a paper. This text effectively illustrates basic research methods and design principles by uniquely using relevant examples from neuroscience such as the principles of design of fMRI studies, the use of transgenic mice, and conditional gene knockouts. The author also addresses basic professional ethics, fundamental statistics and data analysis tools, the range of possible experimental designs (from simple descriptive studies to multifactorial designs), and ways to control unwanted variables and avoid common pitfalls. This text is intended as either a core or supplemental text for both undergraduates and graduate students studying research methods in Neuroscience, Neuroanatomy, Neurophysiology, Neurochemistry, or Biological Psychology.

Now available in paperback. This revised and updated edition of the definitive resource for experimental psychology offers comprehensive coverage of the latest findings in the field, as well as the explosion of research in neuroscience. Volume Four: Methodology in Experimental Psychology, organized by topic, focuses on the comparative research methods used to measure psychological, social, behavioral, and cognitive processes in human development.

Bringing together leading investigators, this comprehensive handbook is a one-stop reference for anyone planning or conducting research on personality. It provides up-to-date analyses of the rich array of methodological tools available today, giving particular attention to real-world theoretical and logistical challenges and how to overcome them. In chapters filled with detailed, practical examples, readers are

shown step by step how to formulate a suitable research design, select and use high-quality measures, and manage the complexities of data analysis and interpretation. Coverage ranges from classic methods like self-report inventories and observational procedures to such recent innovations as neuroimaging and genetic analyses.

This twenty-third ICMI Study addresses for the first time mathematics teaching and learning in the primary school (and pre-school) setting, while also taking international perspectives, socio-cultural diversity and institutional constraints into account. One of the main challenges of designing the first ICMI primary school study of this kind is the complex nature of mathematics at the early level. Accordingly, a focus area that is central to the discussion was chosen, together with a number of related questions. The broad area of Whole Number Arithmetic (WNA), including operations and relations and arithmetic word problems, forms the core content of all primary mathematics curricula. The study of this core content area is often regarded as foundational for later mathematics learning. However, the principles and main goals of instruction on the foundational concepts and skills in WNA are far from universally agreed upon, and practice varies substantially from country to country. As such, this study presents a meta-level analysis and synthesis of what is currently known about WNA, providing a useful base from which to gauge gaps and shortcomings, as well as an opportunity to learn from the practices of different countries and contexts.

Foundations of Human Memory provides an introduction to the scientific study of human memory with an emphasis on both the major theories of memory and the laboratory studies that have been used to test those theories and inspire their further development. Written with the undergraduate student in mind, the text assumes no specific background in the subject, but a general familiarity with scientific method and quantitative approaches to the treatment of data. Foundations of human memory is organized around the major empirical paradigms used to study memory in the laboratory and the theories used to explain data obtained using those paradigms. The text begins with a focus on memory for individual items, building up to memory for associations between items, and finally to memory for entire sequences of items and the problem of memory search. Several major theories of memory are considered in detail, including strength theory, summed-similarity theory, neural network based theories, retrieved-context theory, and theories based on the division of memory into separate short-term and long-term storage systems. The text emphasizes basic research over applied problems, but brings in real-world examples and neuroscientific evidence as appropriate.

Fundamental Neuroscience, 3rd Edition introduces graduate and upper-level undergraduate students to the full range of contemporary neuroscience. Addressing instructor and student feedback on the previous edition, all of the chapters are rewritten to make this book more concise and student-friendly than ever before. Each chapter is once again heavily illustrated and provides clinical boxes describing experiments, disorders, and methodological approaches and concepts. A companion web site contains test questions, and an imagebank of the figures for ready use in presentations, slides, and handouts. Capturing the promise and excitement of this fast-moving field, Fundamental Neuroscience, 3rd Edition is the text that students will be able to reference throughout their neuroscience careers! New to this edition: * 30% new material including new chapters on Dendritic Development and Spine Morphogenesis, Chemical Senses, Cerebellum, Eye Movements, Circadian Timing, Sleep and Dreaming, and Consciousness * Companion website with figures, web links to additional material, and test questions * Additional text boxes describing key experiments, disorders, methods, and concepts * Multiple model system coverage beyond rats, mice, and monkeys * Extensively expanded index for easier referencing

Neuroscience, Second Edition offers a host of new features: Sylvius 2.0, an interactive CD-ROM atlas of the human nervous system (included with every copy); new chapters on Intracellular Signal Transduction and The Visceral Motor System; expanded coverage of non-human neurobiology; several new boxes (e.g., Multiple Sclerosis, Diseases that Affect the Presynaptic Terminal, Phylogenetic Memory); and a thoroughly revised full-color art program by S. Mark Williams.

Examines the interplay between metamemory and memory. This handbook discusses cutting-edge theory and research that, in some way, showcases the symbiotic relationship between metamemory and memory. It supports a central thesis that a complete understanding of either metamemory or memory is not possible without investigating their mutual influence.

Current research increasingly highlights the role of early literacy in young children's development--and informs practices and policies that promote success among diverse learners. The Handbook of Early Literacy Research presents cutting-edge knowledge on all aspects of literacy learning in the early years. Volume 2 provides additional perspectives on important topics covered in Volume 1 and addresses critical new topics: the transition to school, the teacher-child relationship, sociodramatic play, vocabulary development, neuroimaging work, Vygotskian theory, findings from international studies, and more.

It has become accepted in the neuroscience community that perception and performance are quintessentially multisensory by nature. Using the full palette of modern brain imaging and neuroscience methods, The Neural Bases of Multisensory Processes details current understanding in the neural bases for these phenomena as studied across species, stages of development, and clinical statuses. Organized thematically into nine sub-sections, the book is a collection of contributions by leading scientists in the field. Chapters build generally from basic to applied, allowing readers to ascertain how fundamental science informs the clinical and applied sciences. Topics discussed include: Anatomy, essential for understanding the neural substrates of multisensory processing Neurophysiological bases and how multisensory stimuli can dramatically change the encoding processes for sensory information Combinatorial principles and modeling, focusing on efforts to gain a better mechanistic handle on multisensory operations and their network dynamics Development and plasticity Clinical manifestations and how perception and action are affected by altered sensory experience Attention and spatial representations The last sections of the book focus on naturalistic multisensory processes in three separate contexts: motion signals, multisensory contributions to the perception and generation of communication signals, and how the perception of flavor is generated. The text provides a solid introduction for newcomers and a strong overview of the current state of the field for experts.

While laboratory research is the backbone of collecting experimental data in cognitive science, a rapidly increasing amount of research is now capitalizing on large-scale and real-world digital data. Each piece of data is a trace of human behavior and offers us a potential clue to understanding basic cognitive principles. However, we have to be able to put the pieces together in a reasonable way, which necessitates both advances in our theoretical models and development of new methodological techniques. The primary goal of this volume is to present cutting-edge examples of mining large-scale and naturalistic data to discover important principles of cognition and evaluate theories that would not be possible without such a scale. This book also has a

mission to stimulate cognitive scientists to consider new ways to harness big data in order to enhance our understanding of fundamental cognitive processes. Finally, this book aims to warn of the potential pitfalls of using, or being over-reliant on, big data and to show how big data can work alongside traditional, rigorously gathered experimental data rather than simply supersede it. In sum, this groundbreaking volume presents cognitive scientists and those in related fields with an exciting, detailed, stimulating, and realistic introduction to big data – and to show how it may greatly advance our understanding of the principles of human memory, perception, categorization, decision-making, language, problem-solving, and representation.

For over 25 years, Purves Neuroscience has been the most comprehensive and clearly written neuroscience textbook on the market. This level of excellence continues in the 6th Edition, with a balance of animal, human, and clinical studies that discuss the dynamic field of neuroscience from cellular signaling to cognitive function.

In this special issue, the most recent advances in the domain of numerical cognition will be presented. During the last decades, our understanding of how numbers are processed increased dramatically with the arrival of different imaging techniques and neurophysiological experiments in humans and monkeys. We are now starting to build up a clearer picture of how numbers are represented in the brain, how this representation develops in the course of a lifetime, how numbers are embedded in other cognitive features like attention, spatial memory, etc., and how this eventually leads to our capability to perform complex mathematics. Ultimately, this accumulation of knowledge might provide us with an understanding of why numbers are problematic for some people. This special issue deals with all aspects of numerical cognition: findings on the basic neural responses to magnitudes, the link between numbers, space, time, attention, action, etc., mathematical processing, numerical development, in healthy and clinical populations. This special issue solicits contributions from the field of neurobiology, neuropsychology, and behavioral and computational neuroscience that will increase our understanding of the neural mechanisms underlying numerical cognition

How does your mind work? How does your brain give rise to your mind? These are questions that all of us have wondered about at some point in our lives, if only because everything that we know is experienced in our minds. They are also very hard questions to answer. After all, how can a mind understand itself? How can you understand something as complex as the tool that is being used to understand it? This book provides an introductory and self-contained description of some of the exciting answers to these questions that modern theories of mind and brain have recently proposed. Stephen Grossberg is broadly acknowledged to be the most important pioneer and current research leader who has, for the past 50 years, modelled how brains give rise to minds, notably how neural circuits in multiple brain regions interact together to generate psychological functions. This research has led to a unified understanding of how, where, and why our brains can consciously see, hear, feel, and know about the world, and effectively plan and act within it. The work embodies revolutionary Principia of Mind that clarify how autonomous adaptive intelligence is achieved. It provides mechanistic explanations of multiple mental disorders, including symptoms of Alzheimer's disease, autism, amnesia, and sleep disorders; biological bases of morality and religion, including why our brains are biased towards the good so that values are not purely relative; perplexing aspects of the human condition, including why many decisions are irrational and self-defeating despite evolution's selection of adaptive behaviors; and solutions to large-scale problems in machine learning, technology, and Artificial Intelligence that provide a blueprint for autonomously intelligent algorithms and robots. Because brains embody a universal developmental code, unifying insights also emerge about shared laws that are found in all living cellular tissues, from the most primitive to the most advanced, notably how the laws governing networks of interacting cells support developmental and learning processes in all species. The fundamental brain design principles of complementarity, uncertainty, and resonance that Grossberg has discovered also reflect laws of the physical world with which our brains ceaselessly interact, and which enable our brains to incrementally learn to understand those laws, thereby enabling humans to understand the world scientifically. Accessibly written, and lavishly illustrated, Conscious Mind/Resonant Brain is the magnum opus of one of the most influential scientists of the past 50 years, and will appeal to a broad readership across the sciences and humanities.

A revealing insider's account of the power—and limitations—of functional MRI The ability to read minds has long been a fascination of science fiction, but revolutionary new brain-imaging methods are bringing it closer to scientific reality. The New Mind Readers looks at the origins, development, and future of these extraordinary tools, revealing how they are increasingly being used to decode our thoughts and experiences—and how this raises sometimes troubling questions about their application in domains such as marketing, politics, and the law. Written by one of the world's leading pioneers in cognitive neuroscience, this book offers needed perspective on what these emerging methods can and cannot do, and demonstrates how they can provide answers to age-old questions about the nature of consciousness and what it means to be human.

Empirical and theoretical foundations of a cognitive neuroscience of consciousness.

This title informs readers at all levels about the growing canon of cognitive neuroscience, and makes clear the challenges that remain to be solved by the next generation.

Reflecting recent changes in the way cognition and the brain are studied, this thoroughly updated third edition of the best-selling textbook provides a comprehensive and student-friendly guide to cognitive neuroscience. Jamie Ward provides an easy-to-follow introduction to neural structure and function, as well as all the key methods and procedures of cognitive neuroscience, with a view to helping students understand how they can be used to shed light on the neural basis of cognition. The book presents an up-to-date overview of the latest theories and findings in all the key topics in cognitive neuroscience, including vision, memory, speech and language, hearing, numeracy, executive function, social and emotional behaviour and developmental neuroscience, as well as a new chapter on attention. Throughout, case studies, newspaper reports and everyday examples are used to help students understand the more challenging ideas that underpin the subject. In addition each chapter includes: Summaries of key terms and points Example essay

questions Recommended further reading Feature boxes exploring interesting and popular questions and their implications for the subject. Written in an engaging style by a leading researcher in the field, and presented in full-color including numerous illustrative materials, this book will be invaluable as a core text for undergraduate modules in cognitive neuroscience. It can also be used as a key text on courses in cognition, cognitive neuropsychology, biopsychology or brain and behavior. Those embarking on research will find it an invaluable starting point and reference. The Student's Guide to Cognitive Neuroscience, 3rd Edition is supported by a companion website, featuring helpful resources for both students and instructors.

Cognitive Neuroscience: A Reader provides the first definitive collection of readings in this burgeoning area of study.

This book addresses eye movements and gestures as markers of language comprehension and production in interpreting as the "visible embodiment" of cognitive processing in simultaneous and consecutive interpreting. It discusses conference interpreting as a complex, multimodal activity where language processing is not restricted to auditory perception and oral production, highlighting the complexity of interpreting and exploring possible strategies that can be used by professional interpreters and students to make their work easier and more accurate.

A leading neuroscientist and New York Times-bestselling author of *Mozart's Brain and the Fighter Pilot* distills the research on the brain and serves up practical, surprising, and illuminating recommendations for warding off neurological decline, cognitive function, and encouraging smarter thinking day to day. In *Think Smart*, the renowned neuropsychiatrist and bestselling author Dr. Richard Restak details how each of us can improve and tone our body's most powerful organ: the brain. As a renowned expert on the brain, Restak knows that in the last five years there have been exciting new scientific discoveries about the brain and its performance. So he's asked his colleagues—many of them the world's leading brain scientists and researchers—one important question: What can I do to help my brain work more efficiently? Their surprising—and remarkably feasible—answers are at the heart of *Think Smart*. Restak combines advice culled from cutting-edge research with brain-tuning exercises to show how individuals of any age can make their brain work more effectively. In the same accessible prose that made *Mozart's Brain and the Fighter Pilot* a New York Times bestseller, Restak presents a wide array of practical recommendations about a variety of topics, including the crucial role sleep plays in boosting creativity, the importance of honing sensory memory, and the neuron-firing benefits of certain foods. In *Think Smart*, the "wise, witty, and ethical Restak" (says the Smithsonian Institution) offers readers helpful suggestions for fighting neurological decline that will put every reader on the path to building a healthier, more limber brain.

The sixth edition of the foundational reference on cognitive neuroscience, with entirely new material that covers the latest research, experimental approaches, and measurement methodologies. Each edition of this classic reference has proved to be a benchmark in the developing field of cognitive neuroscience. The sixth edition of *The Cognitive Neurosciences* continues to chart new directions in the study of the biological underpinnings of complex cognition—the relationship between the structural and physiological mechanisms of the nervous system and the psychological reality of the mind. It offers entirely new material, reflecting recent advances in the field, covering the latest research, experimental approaches, and measurement methodologies. This sixth edition treats such foundational topics as memory, attention, and language, as well as other areas, including computational models of cognition, reward and decision making, social neuroscience, scientific ethics, and methods advances. Over the last twenty-five years, the cognitive neurosciences have seen the development of sophisticated tools and methods, including computational approaches that generate enormous data sets. This volume deploys these exciting new instruments but also emphasizes the value of theory, behavior, observation, and other time-tested scientific habits. Section editors Sarah-Jayne Blakemore and Ulman Lindenberger, Kalanit Grill-Spector and Maria Chait, Tomás Ryan and Charan Ranganath, Sabine Kastner and Steven Luck, Stanislas Dehaene and Josh McDermott, Rich Ivry and John Krakauer, Daphna Shohamy and Wolfram Schultz, Danielle Bassett and Nikolaus Kriegeskorte, Marina Bedny and Alfonso Caramazza, Liina Pylkkänen and Karen Emmorey, Mauricio Delgado and Elizabeth Phelps, Anjan Chatterjee and Adina Roskies

Providing up-to-date and authoritative coverage of key topics in the new discipline of cognitive neuroscience, this book will be essential reading in cognitive psychology, neuropsychology and neurophysiology. Striking a balance between theoretical and empirical approaches to the question of how cognition is supported by the brain, it presents the major experimental methods employed by cognitive neuroscientists and covers a representative range of the subjects currently exciting interest in the field. The nine chapters of the book have been written by leading authorities in their fields. The individual chapters provide "state-of-the-art" reviews of their respective attempts to build bridges between domains of enquiry that, until quite recently, were largely independent of one another. The chapters include two describing the different methods that are now available for non-invasive measurement of human brain activity; another two that discuss various current theoretical approaches to the problem of how information is coded in the nervous system; and single contributions dealing with the neural mechanisms of long-term memory and of movement, the functional and neural architecture of working memory, the organization of language in the brain, and the relationship between perception and consciousness. *Cognitive Neuroscience* will appeal to advanced undergraduate and graduate students interested in the relationship between the brain and higher mental functions, as well as to established researchers in cognitive neuroscience and related fields.

Perceptual organization comprises a wide range of processes such as perceptual grouping, figure-ground organization, filling-in, completion, perceptual switching, etc. Such processes are most notable in the context of shape perception but they also play a role in texture perception, lightness perception, color perception, motion perception, depth perception, etc. Perceptual organization deals with a variety of perceptual phenomena of central interest, studied from many different perspectives, including psychophysics, experimental psychology, neuropsychology, neuroimaging, neurophysiology, and computational modeling. Given its central importance in phenomenal experience, perceptual organization has also figured prominently in classic Gestalt writings on the topic, touching upon deep philosophical issues regarding mind-brain relationships and consciousness. In addition, it attracts a great deal of interest from people working in applied areas like visual art, design, architecture, music, and so forth. The *Oxford Handbook of Perceptual Organization* provides a broad and extensive review of the current literature, written in an accessible form for scholars and students. With chapter written by leading researchers in the field, this is the state-of-the-art reference work on this topic, and will be so for many years to come.

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