Working Minds A Practitioners Guide To Cognitive Task Analysis

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Sources of Power, 20th Anniversary Edition - Gary A. Klein 2017-09-15
A modern classic about how people really make decisions: drawing on prior experience, using a combination of intuition and analysis. Since its publication twenty years ago, Sources of Power has been enormously influential. The book has sold more than 50,000 copies, has been translated into six languages, has been cited in professional journals that range from Journal of Marketing Research to Journal of Nursing, and is mentioned by Malcolm Gladwell in Blink. Author Gary

Klein has collaborated with Nobel laureate Daniel Kahneman and served on a team that redesigned the White House Situation Room to support more effective decision making. The model of decision making Klein proposes in the book has been adopted in fields including law enforcement training and petrochemical plant operation. What is the groundbreaking new way to approach decision making described in this modern classic? We have all seen images of firefighters rescuing people from burning buildings and paramedics treating bombing victims. How do these individuals make the split-second decisions that save lives? Most studies of decision making, based on artificial tasks assigned in laboratory settings, view people as biased and unskilled. Klein proposes a naturalistic approach to decision making, which views people as gaining experience that enables them to use a combination of intuition and analysis to make decisions. To illustrate this approach, Klein tells stories of people—from pilots to chess masters—acting under such real-life constraints as time pressure, high stakes, personal responsibility, and shifting conditions.

Working Minds - Beth Crandall 2006-07-07

How to collect data about cognitive processes and events, how to analyze CTA findings, and how to communicate them effectively: a handbook for managers, trainers, systems analysts, market researchers, health professionals, and others. Cognitive Task Analysis (CTA) helps researchers understand how cognitive skills and strategies make it possible for people to act effectively and get things done. CTA can yield information people need—employers faced with personnel issues, market researchers who want to understand the thought processes of consumers, trainers and others who design instructional systems, health care professionals who want to apply lessons learned from errors and accidents, systems analysts developing user

specifications, and many other professionals. CTA can show what makes the workplace work—and what keeps it from working as well as it might. Working Minds is a true handbook, offering a set of tools for doing CTA: methods for collecting data about cognitive processes and events, analyzing them, and communicating them effectively. It covers both the "why" and the "how" of CTA methods, providing examples, guidance, and stories from the authors' own experiences as CTA practitioners. Because effective use of CTA depends on some conceptual grounding in cognitive theory and research—on knowing what a cognitive perspective can offer—the book also offers an overview of current research on cognition. The book provides detailed guidance for planning and carrying out CTA, with chapters on capturing knowledge and capturing the way people reason. It discusses studying cognition in real-world settings and the challenges of rapidly changing technology. And it describes key issues in applying CTA findings in a variety of fields. Working Minds makes the methodology of CTA accessible and the skills involved attainable.

Cognitive Engineering and Safety Organization in Air Traffic Management - Tom Kontogiannis 2017-10-17

This book covers the Air Traffic Management (ATM) environment and the controller-crew interactions. The International Civil Aviation Organization (ICAO) regulations and organizational procedures are also presented in a succinct manner so that novel and experienced aviation practitioners appreciate how safety organization affects their cognitive performance. The book distills theoretical knowledge about human cognition and presents real examples and case studies to help readers understand how air traffic controllers make sense of difficult situations, make decisions under time pressure, detect and correct their errors, and adapt their

performance to complex situations.

Sources of Power, 20th Anniversary Edition - Gary A. Klein 2017-09-15

A modern classic about how people really make decisions: drawing on prior experience, using a combination of intuition and analysis. Since its publication twenty years ago, Sources of Power has been enormously influential. The book has sold more than 50,000 copies, has been translated into six languages, has been cited in professional journals that range from Journal of Marketing Research to Journal of Nursing, and is mentioned by Malcolm Gladwell in Blink. Author Gary Klein has collaborated with Nobel laureate Daniel Kahneman and served on a team that redesigned the White House Situation Room to support more effective decision making. The model of decision making Klein proposes in the book has been adopted in fields including law enforcement training and petrochemical plant operation. What is the groundbreaking new way to approach decision making described in this modern classic? We have all seen images of firefighters rescuing people from burning buildings and paramedics treating bombing victims. How do these individuals make the split-second decisions that save lives? Most studies of decision making, based on artificial tasks assigned in laboratory settings, view people as biased and unskilled. Klein proposes a naturalistic approach to decision making, which views people as gaining experience that enables them to use a combination of intuition and analysis to make decisions. To illustrate this approach, Klein tells stories of people—from pilots to chess masters—acting under such real-life constraints as time pressure, high stakes, personal responsibility, and shifting conditions.

Applications of Cognitive Work Analysis - Ann M. Bisantz 2008-10-29

Despite continued interest in Cognitive Work Analysis (CWA) techniques for the analysis and

design of complex, human-technology systems, few published accounts exist that document all of the five recommended phases of CWA in real world applications. Delineating a work-centered conceptual framework that guides the design of technology, Applications of Cognitive Work Analysis provides the understanding necessary to apply these robust techniques to real world, large scale system design problems in a variety of domains. The book provides a complete CWA analysis for a complex, simulated air traffic control environment and a three phase analysis of an actual healthcare system. It includes detailed applications of work domain, control tasks, and strategies analysis for systems including military command and control, transportation, and emergency management. The contributors present discussions and examples of techniques drawn from research and design traditions other than CWA that can be used to complement and enrich CWA analyses in areas of social and organization analysis, and knowledge and skills analysis. They emphasize important theoretical and application oriented advances in CWA related to the integration of CWA within a larger system design. The concluding chapter examines the progress of CWA as a cognitive engineering tool, then outlines its theoretical underpinnings and a path for the future of this approach. The book demonstrates how these methods can be applied in complex, real world design contexts, subject to constraints of cost, time, and information. It shows the how, when, and where CWA techniques can be integrated into the systems engineering design process and provides concrete evidence for the value that the CWA approach provides in every domain.

Human Factors and Ergonomics for the Gulf Cooperation Council - Shatha N. Samman 2018-07-27

Human Factors and Ergonomics (HFE) is introduced to students,

academics, researchers, practitioners, policy makers, and others in the Gulf Cooperation Council (GCC). A holistic approach is taken to emphasize the breadth and depth of HFE by providing both theory and applications in the field. Providing HFE perspectives from expert academics from multidisciplinary and culturally diverse backgrounds, it contains case studies written by industry professionals highlighting their work from Bahrain, Kuwait, Oman, Saudi Arabia, and United Arab Emirates. Features The first HFE book for the GCC region with case studies showcasing the economics of ergonomics Presents easy to read chapters covering principles, methodologies, applications, future trends, and key terms Encompasses both the theory and application of HFE fields discussing processes, technologies, and practices Written for readers with no prior background of HFE

Handbook of Applied Cognition - Francis T. Durso 2007-02-06

Written by a team of leading international researchers under the guidance of Frank Durso, the second edition of the Handbook of Applied Cognition brings together the latest research into this challenging and important field, and is presented across thirty stimulating and accessible chapters. Stewarded by experiences editors from around the globe, the handbook has been fully updated with eleven new chapters covering materials that focus on the topics critical to understanding human mental functions in complex environments. It is an essential single-source reference for researchers, cognitive engineers and applied cognitive psychologists, as well as advanced students in the flourishing field of applied cognition.

Cognitive Systems Engineering in Health Care - Ann M. Bisantz 2014-12-02

Cognitive systems engineering has been widely and successfully applied in the

design of safety critical systems such as nuclear power, aviation, and military command-and-control. More recently, these methods are being applied to the design of health and medical systems in order to improve health care quality, reduce errors and adverse events, and improve efficiencies. Cognitive Systems Engineering in Health Care provides an overview of cognitive systems engineering principles in the context of health care. It contains state-of-the-art examples of cognitive systems applications that can be adapted by health care practitioners interested in systematic engineering approaches to systems improvement. The book highlights current cognitive engineering-oriented research, analyses, and applications in settings such as cardiac surgery, obstetrics, and emergency medicine. It focuses on the impact cognitive engineering analyses can have in supporting communication and coordination with health care teams. The text then demonstrates the use of cognitive engineering methods to inform the design of information technology. It then details the systematic adaptation and application of specific cognitive engineering methods in the medical domain. The book concludes with examples of how in-depth cognitive engineering analyses can lead to demonstrated improvements in health care environments. Through a series of sample studies, the book gives you a deeper understanding of how cognitive engineering approaches might be applied in the health care domain. You'll see common themes that underline the complexity of the health care domain and this insight can build a deep respect for the expertise of the practitioners who work in it. By identifying the abstractions that hold constant in this domain, you can build solutions for that will evolve to handle new applications, challenges, and approaches.

Computing Handbook, Third Edition - Heikki Topi

2014-05-14
Computing Handbook, Third Edition: Information Systems and Information Technology demonstrates the richness and breadth of the IS and IT disciplines. The second volume of this popular handbook explores their close links to the practice of using, managing, and developing IT-based solutions to advance the goals of modern organizational environments. Established leading experts and influential young researchers present introductions to the current status and future directions of research and give in-depth perspectives on the contributions of academic research to the practice of IS and IT development, use, and management Like the first volume, this second volume describes what occurs in research laboratories, educational institutions, and public and private organizations to advance the effective development and use of computers and computing in today's world. Research-level survey articles provide deep insights into the computing discipline, enabling readers to understand the principles and practices that drive computing education, research, and development in the twenty-first century.

Working Memory and Learning - Susan Gathercole 2008-01-09
Dr Tracy Alloway has been awarded the prestigious Joseph Lister Award from the British Science Association. 'The authors have written a guide for practitioners that is both highly practical, and yet based upon sound theoretical principles....This book achieves a successful, yet often elusive, link between theory, research and practice, and deserves to have a high readership. I will have no hesitation in recommending it to a range of readers' - Jane Mott, Support for Learning 'This book fulfils its aim to explain working memory and the limits it places on children's classroom learning. For teachers it gives a very clear guide and fills a gap in understanding that can only lead to more child-centred

approaches to teaching and learning' - Lynn Ambler, Support for Learning 'A clear and accessible account of current theory and research, which is then applied to children's learning in the classroom....The range of strategies...are well grounded in theory derived from research and sit within a coherent conceptual model' - The Psychologist 'An easy to read yet informative book that explains the concepts clearly and offers practitioners ways to support those with poor working memory in the classroom' - SNIP `The topic of working memory nowadays tends to dominate discussions with teachers and parents, and both groups can helpfully be directed to this easy-to-read but serious text ... (it) is likely to prove a turning-point in the management and facilitation of hard-to-teach children. In a situation muddied by ever-multiplying syndromes and disorders, this book delivers a clarifying and reassuring isolation of the major cognitive characteristic that cuts across all the boundaries and leaves the class teacher and SENCO empowered. I think very highly of the book and shall be recommending it steadily' - Martin Turner, Child Center for Evaluation and Teaching, Kuwait Susan Gathercole is winner of the British Psychological Society's President's Award for 2007 A good working memory is crucial to becoming a successful learner, yet there is very little material available in an easy-to-use format that explains the concept and offers practitioners ways to support children with poor working memory in the classroom. This book provides a coherent overview of the role played by working memory in learning during the school years, and uses theory to inform good practice. Topics covered include: - the link between working memory skills and key areas of learning (such as literacy & numeracy) - the relationship between working memory and children with developmental disorders - assessment of children for

working memory deficits - strategies for supporting working memory in under-performing children This accessible guide will help SENCOs, teachers, teaching assistants, speech and language therapists and educational psychologists to understand and address working memory in their setting.

Streetlights and Shadows - Gary A. Klein 2011-09-30

An expert explains how the conventional wisdom about decision making can get us into trouble—and why experience can't be replaced by rules, procedures, or analytical methods. In making decisions, when should we go with our gut and when should we try to analyze every option? When should we use our intuition and when should we rely on logic and statistics? Most of us would probably agree that for important decisions, we should follow certain guidelines—gather as much information as possible, compare the options, pin down the goals before getting started. But in practice we make some of our best decisions by adapting to circumstances rather than blindly following procedures. In Streetlights and Shadows, Gary Klein debunks the conventional wisdom about how to make decisions. He takes ten commonly accepted claims about decision making and shows that they are better suited for the laboratory than for life. The standard advice works well when everything is clear, but the tough decisions involve shadowy conditions of complexity and ambiguity. Gathering masses of information, for example, works if the information is accurate and complete—but that doesn't often happen in the real world. (Think about the careful risk calculations that led to the downfall of the Wall Street investment houses.) Klein offers more realistic ideas about how to make decisions in real-life settings. He provides many examples—ranging from airline pilots and weather forecasters to sports announcers and

Captain Jack Aubrey in Patrick O'Brian's Master and Commander novels—to make his point. All these decision makers saw things that others didn't. They used their expertise to pick up cues and to discern patterns and trends. We can make better decisions, Klein tells us, if we are prepared for complexity and ambiguity and if we will stop expecting the data to tell us everything.

Mind Over Mood, Second Edition - Dennis Greenberger 2015-10-15

"This life changing book helps readers use cognitive-behavioral therapy - one of today's most effective forms of psychotherapy - to conquer depression, anxiety, panic attacks, anger, guilt, shame, low self-esteem, eating disorders, substance abuse, and relationship problems. The second edition contains numerous new features : expanded content on anxiety ; chapters on setting personal goals and maintaining progress ; happiness rating scales ; gratitude journals ; innovative exercises focused on mindfulness, acceptance, and forgiveness; new worksheets ; and much more."--Publisher.

Working Minds - Beth Crandall 2006

Cognitive Task Analysis (CTA) helps researchers understand how cognitive skills andstrategies make it possible for people to act effectively and get things done. CTA can yieldinformation people need -- employers faced with personnel issues, market researchers who want tounderstand the thought processes of consumers, trainers and others who design instructional systems,health care professionals who want to apply lessons learned from errors and accidents, systemsanalysts developing user specifications, and many other professionals. CTA can show what makes theworkplace work -- and what keeps it from working as well as it might. Working Minds is a true handbook, offering a set of tools for doing CTA: methodsfor collecting data about cognitive processes and

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Distributed Cognition and Reality - Katherine L. Plant 2016-11-30

Distributed Cognition and Reality puts theory into practice, as the first book to show how to apply the Perceptual Cycle Model in aviation decision making. Based on case studies, critical incident interviews and live observations in cockpits, the authors develop a new way to understand how pilots and crews make decisions. This book will be useful for practitioners involved in accident and incident investigations and decision-making training, researchers and students within the disciplines of Aviation, Human Factors, Ergonomics, Engineering, Computer Science, and Psychology. Dr Katherine L Plant is a New Frontiers Fellow in Human Factors Engineering at the University of Southampton in the UK. In 2014 she was awarded the Honourable Company of Air Pilots Prize for Aviation Safety Research. Professor Neville A Stanton holds the Chair in Human Factors Engineering at the University of Southampton in

the UK. In 2007 The Royal Aeronautical Society awarded him the Hodgson Medal for his work on flight-deck safety.

Cognitive Therapy Techniques, Second Edition - Robert L. Leahy 2017-03-03

"Subject Areas/Keywords: anger, approval seeking, assumptions, avoidance, basics, CBT, challenging, clinical practice, cognitive distortions, cognitive therapy, cognitive-behavioral therapy, CT, decision making, distortion, eliciting, emotion regulation, emotional processing, emotions, evaluating, examining, forms, homework, interventions, intrusive, logical errors, modifying, practitioners, psychotherapists, psychotherapy, schemas, self-criticism, skills, strategies, techniques, testing, therapists, thoughts, training DESCRIPTION This indispensable book has given many tens of thousands of practitioners a wealth of evidence-based tools for maximizing the power of cognitive therapy and tailoring it to individual clients. Leading authority Robert L. Leahy describes ways to help clients identify and modify problematic thoughts, core beliefs, and patterns of worry, self-criticism, and approval-seeking; evaluate personal schemas; cope with painful emotions; and take action to achieve their goals. Each technique includes vivid case examples and sample dialogues. Featuring 125 reproducible forms, the print book has a large-size format for easy photocopying; purchasers also get access to a Web page where they can download and print the reproducible materials. "--

Sources of Power - Gary A. Klein 1999-02-18

Anyone who watches the television news has seen images of firefighters rescuing people from burning buildings and paramedics treating bombing victims. How do these individuals make the split-second decisions that save lives? Most studies of decision making, based on artificial tasks assigned in laboratory settings, view people as biased

and unskilled. Gary Klein is one of the developers of the naturalistic decision making approach, which views people as inherently skilled and experienced. It documents human strengths and capabilities that so far have been downplayed or ignored. Since 1985, Klein has conducted fieldwork to find out how people tackle challenges in difficult, nonroutine situations. Sources of Power is based on observations of humans acting under such real-life constraints as time pressure, high stakes, personal responsibility, and shifting conditions. The professionals studied include firefighters, critical care nurses, pilots, nuclear power plant operators, battle planners, and chess masters. Each chapter builds on key incidents and examples to make the description of the methodology and phenomena more vivid. In addition to providing information that can be used by professionals in management, psychology, engineering, and other fields, the book presents an overview of the research approach of naturalistic decision making and expands our knowledge of the strengths people bring to difficult tasks.

Emotion Regulation in Psychotherapy - Robert L. Leahy 2011-07-22

Highly practical and accessible, this unique book gives therapists powerful tools for helping patients learn to cope with feared or avoided emotional experiences. The book presents a menu of effective intervention options--including schema modification, stress management, acceptance, mindfulness, self-compassion, cognitive restructuring, and other techniques--and describes how to select the best ones for particular patients or situations. Provided are sample questions to pose to patients, specific interventions to use, suggested homework assignments, illustrative examples and sample dialogues, and troubleshooting tips. In a large-size format for easy photocopying, the volume is packed with over 65

reproducible handouts and forms. Purchasers also get access to a companion website where they can download and print the reproducible materials.

A CBT Practitioner's Guide to ACT - Joseph V. Ciarrochi 2008-12-03

Interest in acceptance and commitment therapy (ACT) is expanding rapidly. Many of those who are interested in ACT are trained using a mechanistic cognitive behavioral therapy model (or MCBT). Utilizing both ACT and MCBT together can be difficult, because the approaches make different philosophical assumptions and have different theoretical models. The core purpose of the book is to help provide a bridge between ACT and MCBT. The emphasis of this book will be applied psychology, but it will also have important theoretical implications. The book will highlight where ACT and MCBT differ in their predictions, and will suggest directions for future research. It will be grounded in current research and will make clear to the reader what is known and what has yet to be tested. The core theme of A CBT-Practitioner's Guide to ACT is that ACT and CBT can be unified if they share the same philosophical underpinnings (functional contextualism) and theoretical orientation (relational frame theory, or RFT). Thus, from a CBT practitioner's perspective, the mechanistic philosophical core of MCBT can be dropped, and the mechanistic information processing theory of CBT can be held lightly and ignored in contexts where it is not useful. From an ACT practitioner's perspective, the decades of CBT research on cognitive schema and dysfunctional beliefs provides useful information about how clients might be cognitively fused and how this fusion might be undermined. The core premise of the book is that CBT and ACT can be beneficially integrated, provided both are approached from a similar philosophical and theoretical framework. The authors

acknowledge that practitioners often have little interest in extended discussions of philosophy and theory. Thus, their discussion of functional contextualism and RFT is grounded clearly in clinical practice. They talk about what functional contextualism means for the practitioner in the room, with a particular client. They describe how RFT can help the practitioner to understand the barriers to effective client action.

Studying Simulations with Distributed Cognition - Jonas Rybing 2018-03-20

Simulations are frequently used techniques for training, performance assessment, and prediction of future outcomes. In this thesis, the term "human-centered simulation" is used to refer to any simulation in which humans and human cognition are integral to the simulation's function and purpose (e.g., simulation-based training). A general problem for human-centered simulations is to capture the cognitive processes and activities of the target situation (i.e., the real world task) and recreate them accurately in the simulation. The prevalent view within the simulation research community is that cognition is internal, decontextualized computational processes of individuals. However, contemporary theories of cognition emphasize the importance of the external environment, use of tools, as well as social and cultural factors in cognitive practice. Consequently, there is a need for research on how such contemporary perspectives can be used to describe human-centered simulations, re-interpret theoretical constructs of such simulations, and direct how simulations should be modeled, designed, and evaluated. This thesis adopts distributed cognition as a framework for studying human-centered simulations. Training and assessment of emergency medical management in a Swedish context using the Emergo Train System (ETS) simulator was adopted as a case study. ETS simulations were studied and analyzed

using the distributed cognition for teamwork (DiCoT) methodology with the goal of understanding, evaluating, and testing the validity of the ETS simulator. Moreover, to explore distributed cognition as a basis for simulator design, a digital re-design of ETS (DIGEMERGO) was developed based on the DiCoT analysis. The aim of the DIGEMERGO system was to retain core distributed cognitive features of ETS, to increase validity, outcome reliability, and to provide a digital platform for emergency medical studies. DIGEMERGO was evaluated in three separate studies; first, a usefulness, usability, and facevalidation study that involved subject-matter-experts; second, a comparative validation study using an expert-novice group comparison; and finally, a transfer of training study based on self-efficacy and management performance. Overall, the results showed that DIGEMERGO was perceived as a useful, immersive, and promising simulator – with mixed evidence for validity – that demonstrated increased general self-efficacy and management performance following simulation exercises. This thesis demonstrates that distributed cognition, using DiCoT, is a useful framework for understanding, designing and evaluating simulated environments. In addition, the thesis conceptualizes and re-interprets central constructs of human-centered simulation in terms of distributed cognition. In doing so, the thesis shows how distributed cognitive processes relate to validity, fidelity, functionality, and usefulness of human-centered simulations. This thesis thus provides a new understanding of human-centered simulations that is grounded in distributed cognition theory.

Business Process Change - Paul Harmon 2010-07-28

Every company wants to improve the way it does business, to produce goods and services more efficiently, and to increase profits. Nonprofit organizations are also

concerned with efficiency, productivity, and with achieving the goals they set for themselves. Every manager understands that achieving these goals is part of his or her job. BUSINESS PROCESS MANAGEMENT (or BPM) is what they call these activities that companies perform in order to improve and adapt processes that will help improve the way they do business. In this balanced treatment of the field of business process change, Paul Harmon offers concepts, methods, and cases for all aspects and phases of successful business process improvement. Updated and added for this edition are coverage of business process management systems, business rules, enterprise architectures and frameworks (SCOR), and more content on Six Sigma and Lean--in addition to new coverage of performance metrics. * Extensive revision and update to the successful BPM book, addressing the growing interest in Business Process Management Systems, and the integration of process redesign and Six Sigma concerns. * The best first book on business process, the most up-to-date book to read to learn how all the different process elements fit together. * Presents a methodology based on the best practices available that can be tailored for specific needs and that maintains a focus on the human aspects of process redesign. * Offers all new detailed case studies showing how these methods are implemented.

Macrocognition Metrics and Scenarios - Janet E. Miller 2017-06-12

Macrocognition Metrics and Scenarios: Design and Evaluation for Real-World Teams translates advances by scientific leaders in the relatively new area of macrocognition into a format that will support immediate use by members of the software testing and evaluation community for large-scale systems as well as trainers of real-world teams. Macrocognition is defined as how activity in real-world

teams is adapted to the complex demands of a setting with high consequences for failure. The primary distinction between macrocognition and prior research is that the primary unit for measurement is a real-world team coordinating their activity, rather than individuals processing information, the predominant model for cognition for decades. This book provides an overview of the theoretical foundations of macrocognition, describes a set of exciting new macrocognitive metrics, and provides guidance on using the metrics in the context of different approaches to evaluation and measurement of real-world teams.

Buddhist Psychology and Cognitive-Behavioral Therapy - Dennis Tirch 2016-12-29

This user-friendly guide to the basics of Buddhist psychology presents a roadmap specifically designed for cognitive-behavioral therapy (CBT) practitioners. It explains central Buddhist concepts and how they can be applied to clinical work, and features numerous experiential exercises and meditations. Downloadable audio recordings of the guided meditations are provided at the companion website. Essential topics include the relationship between suffering and psychopathology, the role of compassion in understanding and treating psychological problems, and how mindfulness fits into evidence-based psychotherapy practice. The book describes an innovative case conceptualization method, grounded in Buddhist thinking, that facilitates the targeted delivery of specific CBT interventions.

Expertise and Skill Acquisition - James J. Staszewski 2013-05-29

The research on human expertise and complex skill acquisition that Wlliam G. Chase performed in the decade between publication of the classic chess studies he conducted with Herb Simon in 1973 and his untimely and tragic death has proven profoundly influential and

enduring. Its impact spans disciplines that include Psychology, Computer Science, Education, Cognitive Neuroscience, Medicine, and Human Factors. It has contributed significantly to the emergence of Cognitive Engineering and has led to significant applications in the areas of training and instruction and knowledge-based "intelligent" computational systems. Its influence can be seen in current discussions of intelligence, heritability, intellectual potential, and achievement found in the contemporary popular press. The chapters in this volume document the enduring scientific contributions of William G. Chase to current knowledge and understanding of human expertise and skill acquisition and applications his work has supported. It will be of interest to those researching, studying, and working in the multiple fields that were greatly influenced by Chase's work.

Seeing What Others Don't - Gary Klein 2013-06-25

A renowned cognitive psychologist reveals the science behind achieving breakthrough discoveries, allowing readers to confidently solve problems, improve decision-making, and achieve success. Insights-like Darwin's understanding of the way evolution actually works, and Watson and Crick's breakthrough discoveries about the structure of DNA-can change the world. Yet we know very little about when, why, or how insights are formed-or what blocks them. In Seeing What Others Don't, Gary Klein unravels the mystery. Klein is a keen observer of people in their natural settings-scientists, businesspeople, firefighters, police officers, soldiers, family members, friends, himself-and uses a marvelous variety of stories to illuminate his research into what insights are and how they happen. What, for example, enabled Harry Markopolos to put the finger on Bernie Madoff? How did Dr. Michael Gottlieb make the connections

between different patients that allowed him to publish the first announcement of the AIDS epidemic? How did Martin Chalfie come up with a million-dollar idea (and a Nobel Prize) for a natural flashlight that enabled researchers to look inside living organisms to watch biological processes in action? Klein also dissects impediments to insight, such as when organizations claim to value employee creativity and to encourage breakthroughs but in reality block disruptive ideas and prioritize avoidance of mistakes. Or when information technology systems are "dumb by design" and block potential discoveries. Both scientifically sophisticated and fun to read, Seeing What Others Don't shows that insight is not just a "eureka!" moment but a whole new way of understanding.

Evaluation of Human Work - John R. Wilson 2015-04-16
Written by experts with real-world experience in applying ergonomics methodology in a range of contexts, Evaluation of Human Work, Fourth Edition explores ergonomics and human factors from a "doing it" perspective. More than a cookbook of ergonomics methods, the book encourages students to think about which methods they should apply, when, and why.

Biofeedback, Fourth Edition - Mark S. Schwartz 2017-03-29
This comprehensive volume is widely regarded as the definitive practitioner resource and text resource in the field of biofeedback and applied psychophysiology. Leading experts cover basic concepts, assessment, instrumentation, clinical procedures, and professional issues. Chapters describe how traditional and cutting-edge methods are applied in treatment of a wide range of disorders, including headaches, temporomandibular disorders, essential hypertension, pelvic floor disorders, attention-deficit/hyperactivity disorder, tinnitus, and others. Applications for optimizing physical performance among artists and athletes are also reviewed. A wealth of

information and empirical research is presented in an accessible style, including helpful glossaries. New to This Edition *Incorporates significant technological developments and new research areas. *Expanded focus on specialized applications, such as electroencephalographic (EEG) biofeedback/neurofeedback and heart rate variability biofeedback. *Chapters on surface electromyography, quantitative EEG, and consumer products. *Chapters on cognitive-behavioral therapy and relaxation training. *Chapters on additional clinical problems: anxiety disorders, asthma, work-related pain, traumatic brain injury, autism spectrum disorders, and substance use disorders.

Perspectives on Cognitive Task Analysis - Robert R. Hoffman 2012-10-02

This volume is the first comprehensive history of task analysis, charting its origins from the earliest applied psychology through to modern forms of task analysis that focus on the study of cognitive work. Through this detailed historical analysis, it is made apparent how task analysis has always been cognitive. Chapters cover the histories, key ideas, and contributions to methodology of a number of communities of practice, including: Sociotechnics, European Work Analysis, Naturalistic Decision Making, Cognitive Systems Engineering, Ethnography, Human Factors. Further, integrative chapters focus on the purposes of cognitive task analysis. It is shown how all the various communities of practice are living in the same scientific universe, though are in many ways distinctive in terms of their key concerns and main theories. It is a historiography of task analysis, and the people who invented task analysis. It is also an explanatory primer on what cognitive task analysis is all about and what it can do. Perspectives on Cognitive Task Analyis will be of value to professionals in allied disciplines who might come to

rely on cognitive task analysis in their system development programs. It will be invaluable to students who need to know what task analysis and cognitive task analysis are really all about. For practitioners of cognitive task analysis, this volume is a major presentation of what their scientific universe is all about.

Cognitive Task Analysis - Jan Maarten Schraagen 2000-06

Cognitive task analysis is a broad area consisting of tools and techniques for describing the knowledge and strategies required for task performance. Cognitive task analysis has implications for the development of expert systems, training and instructional design, expert decision making and policymaking. It has been applied in a wide range of settings, with different purposes, for instance: specifying user requirements in system design or specifying training requirements in training needs analysis. The topics to be covered by this work include: general approaches to cognitive task analysis, system design, instruction, and cognitive task analysis for teams. The work settings to which the tools and techniques described in this work have been applied include: 911 dispatching, faultfinding on board naval ships, design aircraft, and various support systems. The editors' goal in this book is to present in a single source a comprehensive, in-depth introduction to the field of cognitive task analysis. They have attempted to include as many examples as possible in the book, making it highly suitable for those wishing to undertake a cognitive task analysis themselves. The book also contains a historical introduction to the field and an annotated bibliography, making it an excellent guide to additional resources.

Remote Sensing and Cognition - Raechel A. White 2018-04-19

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 the human 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

The Handbook of Work Analysis - Mark Alan Wilson 2013-05-13

This new handbook, with contributions from experts around the world, is the most comprehensive treatise on work design and job analysis practice and research in over 20 years. The handbook,

dedicated to Sidney Gael, is the next generation of Gael's successful Job Analysis Handbook for Business, Industry and Government, published by Wiley in 1988. It consists of four parts: Methods, Systems, Applications and Research/Innovations. Finally, a tightly integrated, user-friendly handbook, of interest to students, practitioners and researchers in the field of Industrial Organizational Psychology and Human Resource Management. Sample Chapter available: Chapter 24, Training Needs Assessment by Eric A. Surface is available for download.

Usability Inspection Methods - Jakob Nielsen 1994-05-09

Computer Science/Computers-Human Interaction Usability Inspection Methods is the first comprehensive, book-length work in this important new field. Designed to get you quickly up and running with the full complement of UI strategies, tools, and techniques, this extremely practical guide offers you a unique opportunity to learn them from the women and men who invented them. With the help of numerous real-life case studies, the authors give you: Step-by-step guidance on all important methods now in use, including the heuristic evaluation method, the pluralistic walkthrough method, the cognitive walkthrough method, and more Proven techniques for integrating usability inspections with other methods now in use An in-depth, comparative analysis of UI versus user testing A cost-benefit analysis of UI as compared to other approaches Program prototypes that provide UI computer support for interface designers An important resource for user interface developers, software designers, as well as graduate students and researcher

Macrocognition: The Science and Engineering of Sociotechnical Work Systems - Paul Ward 2018-02-28

The increasing complexity of work systems and changes in the nature of workplace

technology over the past century have resulted in an exponential shift in the nature of work activities, from physical labor to cognitive work. Modern work systems have many characteristics that make them cognitively complex: They can be highly interactive; comprised of multiple agents and artifacts; information may be limited and distributed across space and time; task goals are frequently ill-defined, conflicting, dynamic and emergent; planning may only be possible at general levels of abstraction or require adaptive solutions; some degree of proficiency or expertise is required; the stakes are often high; and uncertainty, time-constraints and stress are seldom absent. To complicate matters further, cognition in complex work settings is typically constrained by broader professional, organizational, and institutional practice and policy. These features of cognitive work present significant challenges to scientific methodology and theory, and subsequent design of reliable interventions. Historically, philosophers and scientists have attempted to understand the mental activities experienced during cognitive work at multiple levels of analysis using divergent methods. Some have examined cognition at an associative, contextual, functional or holistic level, relying on naturalistic methods to understand the higher mental processes as they work in harmony during goal-directed behavior. Others have embraced experimental methods and favored internal over external validity, often reducing cognition to a psychology of fundamental acts, such as short-term memory access with millisecond shifts in attention. More recently, Macrocognition has evolved as a complementary paradigm. Macrocognitive researchers have studied the cognitive functions and processes associated with skilled, adaptive, collaborative, and resilient cognitive work in the

context of the aforementioned complexities of psychotechnical and sociotechnical work systems. Typically, this research has been carried out using cognitive task analytic techniques that draw on both naturalistic and (quasi-)experimental methods. The primary goals of research in Macrocognition are to better understand cognitive adaptations to complexity, to increase our theoretical understanding of the organism-environment relations by studying the mapping between cognitive work and real-world demands, and to promote use-inspired research capable of improving system performance.

Deep Work - Cal Newport 2016-01-05

Read the Wall Street Journal Bestseller for "cultivating intense focus" for fast, powerful performance results for achieving success and true meaning in one's professional life (Adam Grant, author of Give and Take). Deep work is the ability to focus without distraction on a cognitively demanding task. It's a skill that allows you to quickly master complicated information and produce better results in less time. Deep Work will make you better at what you do and provide the sense of true fulfillment that comes from craftsmanship. In short, deep work is like a super power in our increasingly competitive twenty-first century economy. And yet, most people have lost the ability to go deep-spending their days instead in a frantic blur of e-mail and social media, not even realizing there's a better way. In Deep Work, author and professor Cal Newport flips the narrative on impact in a connected age. Instead of arguing distraction is bad, he instead celebrates the power of its opposite. Dividing this book into two parts, he first makes the case that in almost any profession, cultivating a deep work ethic will produce massive benefits. He then presents a rigorous training regimen, presented as a series of four "rules," for transforming your mind and habits to support this skill. 1. Work Deeply 2. Embrace

Boredom 3. Quit Social Media 4. Drain the Shallows A mix of cultural criticism and actionable advice, Deep Work takes the reader on a journey through memorable stories-from Carl Jung building a stone tower in the woods to focus his mind, to a social media pioneer buying a round-trip business class ticket to Tokyo to write a book free from distraction in the air-and no-nonsense advice, such as the claim that most serious professionals should quit social media and that you should practice being bored. Deep Work is an indispensable guide to anyone seeking focused success in a distracted world. An Amazon Best Book of 2016 Pick in Business & Leadership Wall Street Journal Business Bestseller A Business Book of the Week at 800-CEO-READ

Clinician's Guide to CBT Using Mind Over Mood, Second Edition - Christine A. Padesky 2020-04-02

This authoritative guide has been completely revised and expanded with over 90% new material in a new step-by-step format. It details how, when, and why therapists can make best use of each chapter in Mind Over Mood, Second Edition (MOM2), in individual, couple, and group therapy. Christine A. Padesky's extensive experience as a CBT innovator, clinician, teacher, and consultant is reflected in 100+ pages of compelling therapist–client dialogues that vividly illustrate core CBT interventions and management of challenging dilemmas. Fully updated, the book offers research-based guidance on the use of MOM2 to treat anxiety disorders, depression, anger, guilt, shame, relationship problems, and personality disorders. Invaluable therapy tips, real-life scenarios, and troubleshooting guides in each chapter make this the essential MOM2 companion for novice and experienced therapists alike. Reproducible Reading Guides show how to sequence MOM2 chapters to target specific moods. First edition title: Clinician's Guide to Mind Over Mood. New to This

Edition *Detailed instructions on how, when, and why to use each of MOM2's 60 worksheets. *Expanded coverage illustrating effective use of thought records, behavioral experiments, and imagery. *Shows how to flexibly tailor MOM2 to address particular anxiety disorders, using distinct principles and protocols. *Incorporates evidence-based practices from positive psychology, motivational interviewing, and acceptance and commitment therapy. *Updated practice guidelines throughout, based on current clinical research. *More content on using MOM2 for therapist self-study and in training programs and classrooms. *Free supplemental videos on the author's YouTube channel provide additional clinical tips and discuss issues in practicing, teaching, and learning CBT. See also Mind Over Mood, Second Edition: Change How You Feel by Changing the Way You Think.

Design Recommendations for Intelligent Tutoring Systems: Volume 4 - Domain Modeling - Robert A. Sottilare 2016-07-15

Design Recommendations for Intelligent Tutoring Systems (ITSs) explores the impact of intelligent tutoring system design on education and training. Specifically, this volume examines "Domain Modeling". The "Design Recommendations book series examines tools and methods to reduce the time and skill required to develop Intelligent Tutoring Systems with the goal of improving the Generalized Intelligent Framework for Tutoring (GIFT). GIFT is a modular, service-oriented architecture developed to capture simplified authoring techniques, promote reuse and standardization of ITSs along with automated instructional techniques and effectiveness evaluation capabilities for adaptive tutoring tools and methods.

Making Cognitive-Behavioral Therapy Work, Third Edition - Deborah Roth Ledley 2018-07-04

"What should I do when a

client asks me personal questions?" "How do my client's multiple problems fit together, and which ones should we focus on in treatment?" This engaging text--now revised and updated--has helped tens of thousands of students and novice cognitive-behavioral therapy (CBT) practitioners build skills and confidence for real-world clinical practice. Hands-on guidance is provided for developing strong therapeutic relationships and navigating each stage of treatment; vivid case material illustrates what CBT looks like in action. Aided by sample dialogues, questions to ask, and helpful checklists, readers learn how to conduct assessments, create strong case conceptualizations, deliver carefully planned interventions, comply with record-keeping requirements, and overcome frequently encountered challenges all along the way. Key Words/Subject Areas: CBT, cognitive therapy, cognitive-behavioral therapy, cognitive behaviour therapy, psychotherapy, interventions, evidence-based treatments, case conceptualization, case formulation, assessments, techniques, treatment planning, therapeutic relationship, beginning clinicians, texts, textbooks Audience: Clinical psychologists, psychiatrists, clinical social workers, counselors, and psychiatric nurses; graduate students and trainees"--

Foundations of Augmented Cognition - Dylan D. Schmorrow 2015-07-07

This book constitutes the proceedings of the 9th International Conference on the Foundations of Augmented Cognition, AC 2015, held as part of the 17th International Conference on Human-Computer Interaction, HCII 2015, which took place in Los Angeles, CA, USA, in August 2015. HCII 2015 received a total of 4843 submissions, of which 1462 papers and 246 posters were accepted for publication after a careful reviewing process. These papers address the latest

research and development efforts and highlight the human aspects of design and use of computing systems. The papers thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The 78 papers presented in the AC 2015 proceedings address the following major topics: cognitive performance and work load, BCI and operational neuroscience, cognition, perception and emotion measurement, adaptive and tutoring training, applications of augmented cognition.

Information Fusion and Analytics for Big Data and IoT - Eloi Bosse 2016-02-01

The Internet of Things (IoT) and Big Data are hot topics in the world of intelligence operations and information gathering. This first-of-its-kind volume reveals the benefits of addressing these topics with the integration of Fusion of Information and Analytics Technologies (FIAT). The book explains how FIAT is materialized into decision support systems that are capable of supporting the prognosis, diagnosis, and prescriptive tasks within complex systems and organizations. This unique resource offers keen insight into how complex systems emerge from the interrelation of social and cognitive information, cyber and physical worlds, and the various models of decision-making and situational awareness. Practitioners also discover the central notions of analytics and information fusion. Moreover the book introduces propos such as integration through a FIAT computational model and applications at the systems level. This book concludes with a list of prospective research activities that can contribute towards the required FIAT integration for critical application domains such as: energy, health, transport and defense and security.

International Recent Issues about ECDIS, e-Navigation and Safety at Sea - Adam Weintrit 2017-09-29

The TransNav 2011 Symposium held at the Gdynia Maritime University, Poland in June 2011 has brought together a wide range of participants from all over the world. The program has offered a variety of contributions, allowing to look at many aspects of the navigational safety from various different points of view. Topics presented and discussed at th

The Therapist's Guide to Psychopharmacology, Third Edition - JoEllen Patterson 2021-08-12

Now in a revised and updated third edition, this noted practitioner guide and text incorporates the latest knowledge about psychopharmacology and collaborative care. Therapists and counselors learn when and how to make medication referrals and how to address patients' questions about drug benefits, side effects, safety, and more. Organized around frequently encountered mental health disorders, the book explains how medications work (including what they can and cannot accomplish). Strategies for collaborating successfully with patients, their family members, and prescribers are discussed in detail. Written for optimal practical utility, the text features case examples, sample referral letters, checklists, and a glossary. New to This Edition *Chapter on the therapeutic relationship. *New separate chapter on bipolar disorder. *Expanded discussions of distinguishing psychiatric illness from normal distress, optimizing collaboration with psychiatrists, how medications work in the brain, treatment of chronic pain, and more. *Additional case vignettes and psychopharmacology principles.