

A Structurally And Temporally Extended Bayesian Belief

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Quantitative Analyses in Wildlife Science - Leonard A. Brennan 2019-09-10

Williams, Damon L. Williford

Novel Tools for the Study of Structural and Functional Networks in the Brain - Luis M. Colon-Perez 2018-04-27

Throughout the history of neuroscience, technological advances are the drivers behind many major advances in our understanding of the nervous system. Investigations of the structure and function of the brain take place on multiple scales, including macroscale at the level of brain regions, mesoscale at the level of neuronal populations, and microscale at the level of single neurons and neuron to neuron interactions. Integration of knowledge over these scales requires novel techniques and interpretations. In this research topic, we highlight nine articles that integrate structural and functional approaches to study brain networks.

Hybrid Artificial Intelligent Systems, Part I - Manuel Grana Romay 2010-06-11

This book constitutes the proceedings of the 5th International Conference on Hybrid Artificial Intelligent Systems, held in San Sebastian, Spain, in June 2010.

Clinical use of biomarkers for neurodegenerative disorders - Manuel Menéndez-González 2014-12-03

The prevalence of neurodegenerative disorders is increasing dramatically and one of the major challenges today is the need of early and accurate diagnosis, the other is the need of more effective therapies -in turn the development of such therapies also requires early and accurate diagnosis-. The main hope for an earlier and more accurate diagnosis comes from the use of biomarkers. Much research is being done trying to solve the many interrogates related to the role of biomarkers in clinical practice, including the early diagnosis, differential diagnosis and follow-up of neurodegenerative disorders. This is a field where translational research is intense enough to make this topic interesting for basic researchers and clinicians. Indeed, the amount and quality of articles received in response to the call for contributions was very good. This eBook contains a good amount of high quality articles devoted to diverse techniques across several neurodegenerative disorders from different perspectives, including original reports, reviews, methods reports and opinion letters on biochemical biomarkers in biological fluids, neuroimaging techniques and multidimensional approaches linking clinical findings with biomarkers. The disorders covered are also diverse: Alzheimer's disease, Frontotemporal Dementia, Dementia with Lewy Bodies, Huntington's disease, Parkinson's disease among others. As we can learn from articles in this Research Topic, biomarkers are allowing us to expand the knowledge on the biological and anatomical basis of neurodegenerative diseases and to implement diagnostic techniques in clinical practice and clinical trials.

Dynamic Bayesian Networks - Kevin Patrick Murphy 2002

Engineering Asset Management and Infrastructure Sustainability - Joseph Mathew 2012-05-11

Engineering Asset Management 2010 represents state-of-the art trends and developments in the emerging field of engineering asset management as presented at the Fifth World Congress on Engineering Asset Management (WCEAM). The proceedings of the WCEAM 2010 is an excellent reference for practitioners, researchers and students in the multidisciplinary field of asset management, covering topics such as: Asset condition monitoring and intelligent maintenance Asset data warehousing, data mining and fusion Asset performance and level-of-service models Design and life-cycle integrity of physical assets Education and training in asset management Engineering standards in asset management Fault diagnosis and prognostics

Financial analysis methods for physical assets Human dimensions in integrated asset management Information quality management Information systems and knowledge management Intelligent sensors and devices Maintenance strategies in asset management Optimisation decisions in asset management Risk management in asset management Strategic asset management Sustainability in asset management
Principles of Data Mining and Knowledge Discovery - 2000

Advances in Network Clustering and Blockmodeling - Patrick Doreian 2020-02-03

Provides an overview of the developments and advances in the field of network clustering and blockmodeling over the last 10 years This book offers an integrated treatment of network clustering and blockmodeling, covering all of the newest approaches and methods that have been developed over the last decade.

Presented in a comprehensive manner, it offers the foundations for understanding network structures and processes, and features a wide variety of new techniques addressing issues that occur during the partitioning of networks across multiple disciplines such as community detection, blockmodeling of valued networks, role assignment, and stochastic blockmodeling. Written by a team of international experts in the field, *Advances in Network Clustering and Blockmodeling* offers a plethora of diverse perspectives covering topics such as: bibliometric analyses of the network clustering literature; clustering approaches to networks; label propagation for clustering; and treating missing network data before partitioning. It also examines the partitioning of signed networks, multimode networks, and linked networks. A chapter on structured networks and coarsegrained descriptions is presented, along with another on scientific coauthorship networks. The book finishes with a section covering conclusions and directions for future work. In addition, the editors provide numerous tables, figures, case studies, examples, datasets, and more. Offers a clear and insightful look at the state of the art in network clustering and blockmodeling Provides an excellent mix of mathematical rigor and practical application in a comprehensive manner Presents a suite of new methods, procedures, algorithms for partitioning networks, as well as new techniques for visualizing matrix arrays Features numerous examples throughout, enabling readers to gain a better understanding of research methods and to conduct their own research effectively Written by leading contributors in the field of spatial networks analysis *Advances in Network Clustering and Blockmodeling* is an ideal book for graduate and undergraduate students taking courses on network analysis or working with networks using real data. It will also benefit researchers and practitioners interested in network analysis.

Temporal Network Theory - Petter Holme 2019-10-29

This book focuses on the theoretical side of temporal network research and gives an overview of the state of the art in the field. Curated by two pioneers in the field who have helped to shape it, the book contains contributions from many leading researchers. Temporal networks fill the border area between network science and time-series analysis and are relevant for the modeling of epidemics, optimization of transportation and logistics, as well as understanding biological phenomena. Network theory has proven, over the past 20 years to be one of the most powerful tools for the study and analysis of complex systems. Temporal network theory is perhaps the most recent significant development in the field in recent years, with direct applications to many of the "big data" sets. This monograph will appeal to students, researchers and professionals alike interested in theory and temporal networks, a field that has grown tremendously over the last decade.

Mapping Psychopathology with fMRI and Effective Connectivity Analysis - Baojuan Li 2017-06-22

There is a growing appreciation that many psychiatric (and neurological) conditions can be understood as functional disconnection syndromes – as reflected in aberrant functional integration and synaptic connectivity. This Research Topic considers recent advances in understanding psychopathology in terms of aberrant effective connectivity – as measured noninvasively using functional magnetic resonance imaging (fMRI). Recently, there has been increasing interest in inferring directed connectivity (effective connectivity) from fMRI data. Effective connectivity refers to the influence that one neural system exerts over another and quantifies the directed coupling among brain regions – and how they change with pathophysiology. Compared to functional connectivity, effective connectivity allows one to understand how brain regions interact with each other in terms of context sensitive changes and directed coupling – and therefore may provide mechanistic insights into the neural basis of psychopathology. Established models of effective connectivity include psychophysiological interaction (PPI), structural equation modeling (SEM) and dynamic causal modelling (DCM). DCM is unique because it explicitly models the interaction among brain regions in terms of latent neuronal activity. Moreover, recent advances in DCM such as stochastic and spectral DCM, make it possible to characterize the interaction between different brain regions both at rest and during a cognitive task.

Time Series Analysis with Long Memory in View - Uwe Hassler 2018-10-30

Provides a simple exposition of the basic time series material, and insights into underlying technical aspects and methods of proof Long memory time series are characterized by a strong dependence between distant events. This book introduces readers to the theory and foundations of univariate time series analysis with a focus on long memory and fractional integration, which are embedded into the general framework. It presents the general theory of time series, including some issues that are not treated in other books on time series, such as ergodicity, persistence versus memory, asymptotic properties of the periodogram, and Whittle estimation. Further chapters address the general functional central limit theory, parametric and semiparametric estimation of the long memory parameter, and locally optimal tests. Intuitive and easy to read, Time Series Analysis with Long Memory in View offers chapters that cover: Stationary Processes; Moving Averages and Linear Processes; Frequency Domain Analysis; Differencing and Integration; Fractionally Integrated Processes; Sample Means; Parametric Estimators; Semiparametric Estimators; and Testing. It also discusses further topics. This book: Offers beginning-of-chapter examples as well as end-of-chapter technical arguments and proofs Contains many new results on long memory processes which have not appeared in previous and existing textbooks Takes a basic mathematics (Calculus) approach to the topic of time series analysis with long memory Contains 25 illustrative figures as well as lists of notations and acronyms Time Series Analysis with Long Memory in View is an ideal text for first year PhD students, researchers, and practitioners in statistics, econometrics, and any application area that uses time series over a long period. It would also benefit researchers, undergraduates, and practitioners in those areas who require a rigorous introduction to time series analysis.

Dynamics of decision making: from evidence to preference and belief - Erica Yu 2014-10-24

At the core of the many debates throughout cognitive science concerning how decisions are made are the processes governing the time course of preference formation and decision. From perceptual choices, such as whether the signal on a radar screen indicates an enemy missile or a spot on a CT scan indicates a tumor, to cognitive value-based decisions, such as selecting an agreeable flatmate or deciding the guilt of a defendant, significant and everyday decisions are dynamic over time. Phenomena such as decoy effects, preference reversals and order effects are still puzzling researchers. For example, in a legal context, jurors receive discrete pieces of evidence in sequence, and must integrate these pieces together to reach a singular verdict. From a standard Bayesian viewpoint the order in which people receive the evidence should not influence their final decision, and yet order effects seem a robust empirical phenomena in many decision contexts. Current research on how decisions unfold, especially in a dynamic environment, is advancing our theoretical understanding of decision making. This Research Topic aims to review and further explore the time course of a decision - from how prior beliefs are formed to how those beliefs are used and updated over time, towards the formation of preferences and choices and post-decision processes and effects. Research literatures encompassing varied approaches to the time-scale of decisions will be brought into scope: a)

Speeded decisions (and post-decision processes) that require the accumulation of noisy and possibly non-stationary perceptual evidence (e.g., randomly moving dots stimuli), within a few seconds, with or without temporal uncertainty. b) Temporally-extended, value-based decisions that integrate feedback values (e.g., gambling machines) and internally-generated decision criteria (e.g., when one switches attention, selectively, between the various aspects of several choice alternatives). c) Temporally extended, belief-based decisions that build on the integration of evidence, which interacts with the decision maker's belief system, towards the updating of the beliefs and the formation of judgments and preferences (as in the legal context). Research that emphasizes theoretical concerns (including optimality analysis) and mechanisms underlying the decision process, both neural and cognitive, is presented, as well as research that combines experimental and computational levels of analysis.

Attention in Cognitive Systems. Theories and Systems from an Interdisciplinary Viewpoint - Lucas Paletta 2007-12-03

This volume provides a much-needed interdisciplinary angle on the subject of attention in cognitive systems. It constitutes the thoroughly refereed post-workshop proceedings of the 5th International Workshop on Attention in Cognitive Systems, held in Hyderabad, India, in January 2007. The 31 papers are organized in topical sections that cover every aspect of the subject, from the embodiment of attention and its cognitive control, to the applications of attentive vision.

Advances in Automation and Robotics Research - Alexnder Martnez 2020-01-29

This book gathers the proceedings of the 2nd Latin American Congress on Automation and Robotics, held at Pontificia Universidad Javeriana de Cali, Colombia, on October 30th–November 1st, 2019. It presents papers from researchers, scientists, and engineers from academia and industry, and explores current exciting research applications and future challenges, mainly in Latin American countries. The book covers a wide range of research fields associated with automation and robotics encountered in engineering, scientific research, and practice, including: autonomous systems, multi-robot and multi-agent systems, industrial automation and robotics, process control, modeling and optimization, control theory, artificial intelligence, kinematic and dynamic analysis of robotic systems, computer vision, self-localization, mapping and navigation, instruments, sensing and sensor fusion, evolutionary, bio-inspired, micro/nano, and soft robotics, novel robot designs, haptics, human-robot interaction and interfaces, simulation procedures, experimental validations, and educational robotics.

Artificial Intelligence in Medicine - Werner Horn 1999-06-09

This book constitutes the refereed proceedings of the Joint European Conference on Artificial Intelligence in Medicine and Medical Decision Making, AIMDM'99, held in Aalborg, Denmark, in June 1999. The 27 full papers and 19 short papers presented in the book together with four invited papers were selected from 90 submissions. The papers are organized in topical sections on guidelines and protocols; decision support systems, knowledge-based systems, and cooperative systems; model-based systems; neural nets and causal probabilistic networks; knowledge representation; temporal reasoning; machine learning; natural language processing; and image processing and computer aided design.

Advanced Intelligent Systems for Sustainable Development (AI2SD'2020) - Janusz Kacprzyk 2022-02-10

This book publishes the best papers accepted and presented at the 3rd edition of the International Conference on Advanced Intelligent Systems for Sustainable Development Applied to Agriculture, Energy, Health, Environment, Industry, Education, Economy, and Security (AI2SD'2020). This conference is one of the biggest amalgamations of eminent researchers, students, and delegates from both academia and industry where the collaborators have an interactive access to emerging technology and approaches globally. In this book, readers find the latest ideas addressing technological issues relevant to all areas of the social and human sciences for sustainable development. Due to the nature of the conference with its focus on innovative ideas and developments, the book provides the ideal scientific and brings together very high-quality chapters written by eminent researchers from different disciplines, to discover the most recent developments in scientific research.

Managing Interactions in Smart Environments - Paddy Nixon 2012-12-06

Research into Smart Buildings and Spaces has increased rapidly over the last few years. This volume aims to address the convergence of research in Distributed Systems, Robotics and Human Centred computing within

the domain of smart buildings and present a unique opportunity to investigate work that crosses the boundaries of these disciplines. It provides an overview of progress in a fast-moving area, by bringing together researchers, implementors and practitioners and the papers draw together the developments and concerns of those working on the different aspects of smart environments, as well as providing views on the future prospects for work in this area.

Advances in Neural Information Processing Systems 15 - Suzanna Becker 2003

Proceedings of the 2002 Neural Information Processing Systems Conference.

Machine Learning and Knowledge Discovery in Databases - Toon Calders 2014-09-01

This three-volume set LNAI 8724, 8725 and 8726 constitutes the refereed proceedings of the European Conference on Machine Learning and Knowledge Discovery in Databases: ECML PKDD 2014, held in Nancy, France, in September 2014. The 115 revised research papers presented together with 13 demo track papers, 10 nectar track papers, 8 PhD track papers, and 9 invited talks were carefully reviewed and selected from 550 submissions. The papers cover the latest high-quality interdisciplinary research results in all areas related to machine learning and knowledge discovery in databases.

Reasoning in Event-Based Distributed Systems - Sven Helmer 2011-03-29

With the rapid expansion of the Internet over the last 20 years, event-based distributed systems are playing an increasingly important role in a broad range of application domains, including enterprise management, environmental monitoring, information dissemination, finance, pervasive systems, autonomic computing, collaborative working and learning, and geo-spatial systems. Many different architectures, languages and technologies are being used for implementing event-based distributed systems, and much of the development has been undertaken independently by different communities. However, a common factor is an ever-increasing complexity. Users and developers expect that such systems are able not only to handle large volumes of simple events but also to detect complex patterns of events that may be spatially distributed and may span significant periods of time. Intelligent and logic-based approaches provide sound foundations for addressing many of the research challenges faced and this book covers a broad range of recent advances, contributed by leading experts in the field. It presents a comprehensive view of reasoning in event-based distributed systems, bringing together reviews of the state-of-the art, new research contributions, and an extensive set of references. It will serve as a valuable resource for students, faculty and researchers as well as industry practitioners responsible for new systems development.

Advanced Materials and Information Technology Processing - Jun Qiao Xiong 2011-07-04

Volume is indexed by Thomson Reuters CPCI-S (WoS). The objective of this collection was to bring together researchers from academia and industry, as well as end-users, in order to share ideas, problems and solutions related to the multitudinous aspects of Advanced Materials and Information Technology Processing. The 387 peer-reviewed papers are presented under the chapter headings: 1 Machine Vision and Materials Science, 2 Information Technology and Materials Science, 3 Education Engineering. This makes the book a useful guide to those subjects.

Uncertainty in Artificial Intelligence - 1997

Topics in Modal Analysis I, Volume 5 - R. Allemang 2012-05-17

Topics in Modal Analysis I, Volume 5. Proceedings of the 30th IMAC, A Conference and Exposition on Structural Dynamics, 2012, the fifth volume of six from the Conference, brings together 53 contributions to this important area of research and engineering. The collection presents early findings and case studies on fundamental and applied aspects of Structural Dynamics, including papers on: Modal Parameter Identification Damping of Materials and Members New Methods Structural Health Monitoring Processing Modal Data Operational Modal Analysis Damping Excitation Methods Active Control Damage Detection for Civil Structures System Identification: Applications

The New Frontier of Network Physiology: From Temporal Dynamics to the Synchronization and Principles of Integration in Networks of Physiological Systems - Plamen Ch. Ivanov 2022-02-17

Condition Monitoring Using Computational Intelligence Methods - Tshilidzi Marwala 2012-01-25

Condition Monitoring Using Computational Intelligence Methods promotes the various approaches gathered

under the umbrella of computational intelligence to show how condition monitoring can be used to avoid equipment failures and lengthen its useful life, minimize downtime and reduce maintenance costs. The text introduces various signal-processing and pre-processing techniques, wavelets and principal component analysis, for example, together with their uses in condition monitoring and details the development of effective feature extraction techniques classified into frequency-, time-frequency- and time-domain analysis. Data generated by these techniques can then be used for condition classification employing tools such as: • fuzzy systems; rough and neuro-rough sets; neural and Bayesian networks; hidden Markov and Gaussian mixture models; and support vector machines.

User Modeling 2005 - Liliana Ardissono 2005-08-25

The 33 revised full papers and 30 poster summaries presented together with papers of 12 selected doctoral consortium articles and the abstracts of 3 invited lectures were carefully reviewed and selected from 160 submissions. The book offers topical sections on adaptive hypermedia, affective computing, data mining for personalization and cross-recommendation, ITS and adaptive advice, modeling and recognizing human activity, multimodality and ubiquitous computing, recommender systems, student modeling, user modeling and interactive systems, and Web site navigation support.

Contactless Human Activity Analysis - Md Atiqur Rahman Ahad 2021-03-23

This book is a truly comprehensive, timely, and very much needed treatise on the conceptualization of analysis, and design of contactless & multimodal sensor-based human activities, behavior understanding & intervention. From an interaction design perspective, the book provides views and methods that allow for more safe, trustworthy, efficient, and more natural interaction with technology that will be embedded in our daily living environments. The chapters in this book cover sufficient grounds and depth in related challenges and advances in sensing, signal processing, computer vision, and mathematical modeling. It covers multi-domain applications, including surveillance and elderly care that will be an asset to entry-level and practicing engineers and scientists. (See inside for the reviews from top experts)

Report -

Real Fourdimensionalism - Ludwig Jaskolla 2017-10-19

This book explores persistence, taking human beings as an example case. It investigates how concrete particulars stay the same during their temporal carriers while changing significantly. Themes of relativity, structural realism, 4-dimensional ontologies and different strains of panpsychism are amongst those addressed in this work. Beginning with an exploration of the puzzle of persistence, early chapters look at philosophers' perspectives and models of persistence. Competitors in the debate are introduced, from classical 3-dimensionalism to two flavors of 4-dimensionalism, namely worm theory and stage theory. The second part of the book explores the various challenges to 4-dimensionalism and develops a positive taxonomy of those questions that the reasonable proponent of 4-dimensionism needs to answer. In the third part of the book readers may explore an ontology at the interface of analytic metaphysics and philosophy of mind, called Real Fourdimensionalism, or more specifically: Physicalistic Stage-Panexperientialism (PSP). This is a version of panexperiential stage theory and its alleged model of persistence-as-deciding answers the questions of the taxonomy. This book makes a substantial contribution to debates concerning the status, extent and viability of both stage theoretic models of persistence as well as non-reductive, naturalistic models of persistence. It will be of interest to graduates and scholars involved in analytic metaphysics, as well as the philosophy of mind, especially those specializing in questions of persistence and the ontology of the mind.

Uncertainty in Artificial Intelligence - Gregory Floyd Cooper 1999

This volume contains papers accepted for presentation at the Fifteenth Conference on Uncertainty in Artificial Intelligence (UAI99) held at the Royal Institute of Technology (KTH) in Stockholm, Sweden from July 30 through August 1, 1999. This conference continues a 15-year tradition of providing an international forum for exchange of ideas on problems of reasoning, under uncertainty. During those 15 years, UAI has moved from a little-noticed niche at the edge of the field, solidly into the mainstream of artificial intelligence research and practice. Research first presented at UAI has contributed significantly to advances in a number of related fields and has found application in a wide variety of domains. The UAI conference has acquired a

reputation for excellence, and the proceedings have become an important reference source for high-quality work in the field.

Featural Relations in the Brain: Theoretical and Experimental Perspectives on Grammatical Agreement, 2nd Edition - Simona Mancini

Successful speaking and understanding hinges on the almost effortless capacity of speakers to decode and build dependencies among words in a sentence, based on covariance in some specific feature(s). Whenever two features covary, an agreement relation is established. Agreement is a widespread and varied phenomenon: its pervasiveness in some languages contrasts with its near absence in others, which poses a challenge for linguists and psycholinguists that attempt to explain the mechanics of its representation, processing and acquisition. Agreement has been extensively investigated from a theoretical perspective, but also from the point of view of psycholinguistics and the cognitive neuroscience of language. Theoretical linguistics has provided an articulated system of structural representations and computations on which the establishment of agreement relations hinges, while psycholinguistics and cognitive neuroscience have aimed at unveiling the algorithms that underlie the use of these computations and their behavioral and neuro-physiological bases. The goal of this Research Topic is to draw together multiple and interdisciplinary work to highlight the state of the art in the study of agreement and propose new perspectives on this research topic. Publisher's note: In this 2nd edition, the following article was added: Mancini S, Caffarra S and Nevins A (2021) Editorial: Featural Relations in the Brain: Theoretical and Experimental Perspectives on Grammatical Agreement. *Front. Psychol.* 12:754430. doi: 10.3389/fpsyg.2021.754430

Mathematical Modeling and Simulation of Systems (MODS'2020) - Serhiy Shkarlet 2020-08-29

This book contains works on mathematical and simulation modeling of processes in various domains: ecology and geographic information systems, IT, industry, and project management. The development of complex multicomponent systems requires an increase in accuracy, efficiency, and adequacy while reducing the cost of their creation. The studies presented in the book are useful to specialists who are involved in the development of real events models: analog, management and decision-making models, production models, and software products. Scientists can get acquainted with the latest research in various decisions proposed by leading scholars and identify promising directions for solving complex scientific and practical problems. The chapters of this book contain the contributions presented on the 15th International Scientific-Practical Conference, MODS, June 29-July 01, 2020, Chernihiv, Ukraine.

Computational Materials Science - Feng Xiong 2011-07-04

The goal of this collection was to gather together up-to-date knowledge from researchers in academia and industry, as well as end-users, and also give them the opportunity to share ideas, problems and solutions related to the divers aspects of Computational Materials Science, Mechanical, Industrial and Manufacturing Engineering. The result is an up-to-date survey which should be essential reading for those interested in thesetopics. Volume is indexed by Thomson Reuters CPCI-S (WoS).

Application of Advanced Information Technologies - 1998

Proceedings -- Miscellaneous.

Context-Aware Computing and Self-Managing Systems - Waltenegus Dargie 2009-03-25

Bringing together an extensively researched area with an emerging research issue, Context-Aware Computing and Self-Managing Systems presents the core contributions of context-aware computing in the development of self-managing systems, including devices, applications, middleware, and networks. The expert contributors reveal the usefulness of context-aware computing in developing autonomous systems that have practical application in the real world. The first chapter of the book identifies features that are common to both context-aware computing and autonomous computing. It offers a basic definition of context-awareness, covers fundamental aspects of self-managing systems, and provides several examples of context information and self-managing systems. Subsequent chapters on context-awareness demonstrate how a context can be employed to make systems smart, how a context can be captured and represented, and how dynamic binding of context sources can be possible. The chapters on self-management illustrate the need for "implicit knowledge" to develop fault-tolerant and self-protective systems. They also present a higher-level vision of future large-scale networks. Through various examples, this book shows how context-aware computing can be used in many self-managing systems. It enables researchers of context-aware computing

to identify potential applications in the area of autonomous computing. The text also supports researchers of autonomous computing in defining, modeling, and capturing dynamic aspects of self-managing systems.

European Workshop on Structural Health Monitoring - Piervincenzo Rizzo 2022-06-15

This volume gathers the latest advances, innovations, and applications in the field of structural health monitoring (SHM) and more broadly in the fields of smart materials and intelligent systems, as presented by leading international researchers and engineers at the 10th European Workshop on Structural Health Monitoring (EWSHM), held in Palermo, Italy on July 4-7, 2022. The volume covers highly diverse topics, including signal processing, smart sensors, autonomous systems, remote sensing and support, UAV platforms for SHM, Internet of Things, Industry 4.0, and SHM for civil structures and infrastructures. The contributions, which are published after a rigorous international peer-review process, highlight numerous exciting ideas that will spur novel research directions and foster multidisciplinary collaboration among different specialists.

ECML PKDD 2020 Workshops - Irena Koprinska 2021-02-01

This volume constitutes the refereed proceedings of the workshops which complemented the 20th Joint European Conference on Machine Learning and Knowledge Discovery in Databases, ECML PKDD, held in September 2020. Due to the COVID-19 pandemic the conference and workshops were held online. The 43 papers presented in volume were carefully reviewed and selected from numerous submissions. The volume presents the papers that have been accepted for the following workshops: 5th Workshop on Data Science for Social Good, SoGood 2020; Workshop on Parallel, Distributed and Federated Learning, PDFL 2020; Second Workshop on Machine Learning for Cybersecurity, MLCS 2020, 9th International Workshop on New Frontiers in Mining Complex Patterns, NFMCP 2020, Workshop on Data Integration and Applications, DINA 2020, Second Workshop on Evaluation and Experimental Design in Data Mining and Machine Learning, EDML 2020, Second International Workshop on eXplainable Knowledge Discovery in Data Mining, XKDD 2020; 8th International Workshop on News Recommendation and Analytics, INRA 2020. The papers from INRA 2020 are published open access and licensed under the terms of the Creative Commons Attribution 4.0 International License.

Life-cycle of Structural Systems - Hitoshi Furuta 2018-12-07

This book aims to promote the study, research and applications in the design, assessment, prediction, and optimal management of life-cycle performance, safety, reliability, and risk of civil structures and infrastructure systems. The contribution in each chapter presents state-of-the-art as well as emerging applications related to key aspects of the life-cycle civil engineering field. The chapters in this book were originally published as a special issue of Structure and Infrastructure Engineering.

Anatomy and Plasticity in Large-Scale Brain Models - Markus Butz 2017-01-05

Supercomputing facilities are becoming increasingly available for simulating activity dynamics in large-scale neuronal networks. On today's most advanced supercomputers, networks with up to a billion of neurons can be readily simulated. However, building biologically realistic, full-scale brain models requires more than just a huge number of neurons. In addition to network size, the detailed local and global anatomy of neuronal connections is of crucial importance. Moreover, anatomical connectivity is not fixed, but can rewire throughout life (structural plasticity)—an aspect that is missing in most current network models, in which plasticity is confined to changes in synaptic strength (synaptic plasticity). The papers in this Ebook, which may broadly be divided into three themes, aim to bring together high-performance computing with recent experimental and computational research in neuroanatomy. In the first theme (fiber connectivity), new methods are described for measuring and data-basing microscopic and macroscopic connectivity. In the second theme (structural plasticity), novel models are introduced that incorporate morphological plasticity and rewiring of anatomical connections. In the third theme (large-scale simulations), simulations of large-scale neuronal networks are presented with an emphasis on anatomical detail and plasticity mechanisms. Together, the articles in this Ebook make the reader aware of the methods and models by which large-scale brain networks running on supercomputers can be extended to include anatomical detail and plasticity.

Representation and Processing of Spatial Expressions - Patrick Olivier 1998

Coping with spatial expressions in a plausible manner is a crucial problem in a number of research fields, specifically cognitive science, artificial intelligence, psychology, and linguistics. This volume contains a set of

theoretical analyses as well as accounts of applications which deal with the problems of representing and processing spatial expressions. These include dialogue understanding using mental images; interfaces to CAD and multi-media systems, such as natural language querying of photographic databases; speech-driven design and assembly; machine translation systems; spatial queries for Geographic Information Systems; and systems which generate spatial descriptions on the basis of maps, cognitive maps, or other spatial representations, such as intelligent vehicle navigation systems. Though there have been many different

approaches to the representation and processing of spatial expressions, most existing computational characterizations have so far been restricted to particularly narrow problem domains, usually specific spatial contexts determined by overall system goals. To date, artificial intelligence research in this field has rarely taken advantage of language and spatial cognition studies carried out by the cognitive science community. One of the fundamental aims of this book is to bring together research from both disciplines in the belief that artificial intelligence has much to gain from an appreciation of cognitive theories.