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Managing Uncertainties in Networks Uncertainties in Neural Networks Uncertainty in Complex Networked Systems Optimization of Temporal Networks under Uncertainty Vector Network Analyzer (VNA) Measurements and Uncertainty Assessment Uncertainties in Supply Chain Networks. Drivers and Consequences The Effect of Social Uncertainty in Networks of Social Exchange Proceedings of the 5th International Symposium on Uncertainty Quantification and Stochastic Modelling Data Uncertainty and Important Measures Managing Uncertainty in Organizational Communication Uncertainties in Modern Power Systems Uncertainty in Artificial Intelligence Uncertainty Analysis in Engineering and Sciences: Fuzzy Logic, Statistics, and Neural Network Approach On Uncertain Graphs Data Uncertainty and Important Measures Uncertainty for Safe Utilization of Machine Learning in Medical Imaging Uncertainty for Safe Utilization of Machine Learning in Medical Imaging and Clinical Image-Based Procedures Coping with Uncertainty Subjective Logic Uncertainty for Safe Utilization of Machine Learning in Medical Imaging, and Graphs in Biomedical Image Analysis Dimensions of Uncertainty in Communication Engineering Distributed Fusion Estimation for Sensor Networks with Communication Constraints Framing Finance Artificial Intelligence with Uncertainty Symbolic and Quantitative Approaches to Reasoning with Uncertainty Symbolic and Quantitative Approaches to Reasoning with Uncertainty Symbolic and Quantitative Approaches to Reasoning with Uncertainty Epistemic Uncertainty in Artificial Intelligence Symbolic and Quantitative Approaches to Reasoning with Uncertainty Scalable Uncertainty Management Decision Making: Uncertainty, Imperfection, Deliberation and Scalability Uncertainty Treatment Using Paraconsistent Logic Uncertainty and Optimality Symbolic and Quantitative Approaches to Reasoning and Uncertainty Scalable Uncertainty Management Recent Advancements in Civil Engineering Uncertainty Management with Fuzzy and Rough Sets Information Theory and Artificial Intelligence to Manage Uncertainty in Hydrodynamic and Hydrological Models Uncertainty Modelling in Knowledge Engineering and Decision Making Information Processing and Management of Uncertainty

Managing Uncertainties in Networks

2004

despite sophisticated technology and knowledge the strategic networks and games required to solve uncertainties becomes more complex and more important than ever before

Uncertainties in Neural Networks

2021-04-06

in science technology and engineering creating models of the environment to predict future events has always been a key component the models could be everything from how the friction of a tire depends on the wheels slip to how a pathogen is spread throughout society as more data becomes available the use of data driven black box models becomes more attractive in many areas they have shown promising results but for them to be used widespread in safety critical applications such as autonomous driving some notion of uncertainty in the prediction is required an example of such a black box model is neural networks nns this thesis aims to increase the usefulness of nns by presenting an method where uncertainty in the prediction is obtained by linearization of the model in system identification and sensor fusion under the condition that the model structure is identifiable this is a commonly used approach to get uncertainty in the prediction from a nonlinear model if the model structure is not identifiable such as for nns the ambiguities that cause this have to be taken care of in order to make the approach applicable this is handled in the first part of the thesis where nns are analyzed from a system identification perspective and sources of uncertainty are discussed another problem with data driven black box models is that it is difficult to know how flexible the model needs to be in order to correctly model the true system one solution to this problem is to use a model that is more flexible than necessary to make sure that the model is flexible enough but how would that extra flexibility affect the uncertainty in the prediction this is handled in the later part of the thesis where it is shown that the uncertainty in the prediction is bounded from below by the uncertainty in the prediction of the model with lowest flexibility required for representing true system accurately in the literature many other approaches to handle the

uncertainty in predictions by nns have been suggested of which some are summarized in this work furthermore a simulation and an experimental studies inspired by autonomous driving are conducted in the simulation study different sources of uncertainty are investigated as well as how large the uncertainty in the predictions by nns are in areas without training data in the experimental study the uncertainty in predictions done by different models are investigated the results show that compared to existing methods the linearization method produces similar results for the uncertainty in predictions by nns an introduction video is available at youtu be o4zcutgxfn0 inom forskning och utveckling har det har alltid varit centralt att skapa modeller av verkligheten dessa modeller har bland annat använts till att förutspå framtida händelser eller för att styra ett system till att bete sig som man önskar modellerna kan beskriva allt från hur friktionen hos ett bildäck påverkas av hur mycket hjulen glider till hur ett virus kan sprida sig i ett samhälle i takt med att mer och mer data blir tillgänglig ökar potentialen för datadrivna black box modeller dessa modeller är universella approximationer vilka ska kunna representera vilken godtycklig funktion som helst användningen av dessa modeller har haft stor framgång inom många områden men för att verkligen kunna etablera sig inom säkerhetskritiska områden såsom självkörande farkoster behövs en förståelse för osäkerhet i prediktionen från modellen neuronnät är ett exempel på en sådan black box modell i denna avhandling kommer olika sätt att tillförskaffa sig kunskap om osäkerhet i prediktionen av neuronnät undersökas en metod som bygger på linjärisering av modellen för att tillförskaffa sig osäkerhet i prediktionen av neuronnätet kommer att presenteras denna metod är välbeprövad inom systemidentifiering och sensorfusion under antagandet att modellen är identifierbar för modeller såsom neuronnät vilka inte är identifierbara behövs det att det tas hänsyn till tvetydigheterna i modellen en annan utmaning med datadrivna black box modeller är att veta om den valda modellmängden är tillräckligt generell för att kunna modellera det sanna systemet en lösning på detta problem är att använda modeller som har mer flexibilitet än vad som behövs det vill säga en överparameteriserad modell men hur påverkas osäkerheten i prediktionen av detta detta är något som undersöks i denna avhandling vilken visar att osäkerheten i den överparameteriserad modellen kommer att vara begränsad underifrån av modellen med minst flexibilitet som ändå är tillräckligt generell för att modellera det sanna systemet som avslutning kommer dessa resultat att demonstreras i både en simuleringsstudie och en experimentstudie inspirerad av självkörande farkoster fokuset i simuleringsstudien är hur osäkerheten hos modellen är i områden med och utan tillgång till träningsdata medan experimentstudien fokuserar på jämförelsen mellan osäkerheten i olika typer av modeller resultaten från dessa studier visar att metoden som bygger på linjärisering ger liknande resultat för skattningen av osäkerheten i prediktionen av neuronnät jämfört med existerande metoder

Uncertainty in Complex Networked Systems

2018-12-14

the chapters in this volume and the volume itself celebrate the life and research of roberto tempo a leader in the study of complex networked systems their analysis and control under uncertainty and robust designs contributors include authorities on uncertainty in systems robustness networked and network systems social networks distributed and randomized algorithms and multi agent systems all fields that roberto tempo made vital contributions to additionally at least one author of each chapter was a research collaborator of roberto tempo s this volume is structured in three parts the first covers robustness and includes topics like time invariant uncertainties robust static output feedback design and the uncertainty quartet the second part is focused on randomization and probabilistic methods which covers topics such as compressive sensing and stochastic optimization finally the third part deals with distributed systems and algorithms and explores matters involving mathematical sociology fault diagnoses and pagerank computation each chapter presents exposition provides new results and identifies fruitful future directions in research this book will serve as a valuable reference volume to researchers interested in uncertainty complexity robustness optimization algorithms and networked systems

Optimization of Temporal Networks under Uncertainty

2012-01-04

many decision problems in operations research are defined on temporal networks that is workflows of time consuming tasks whose processing order is constrained by precedence relations for example temporal networks are used to model projects computer applications digital circuits and production processes optimization problems arise in temporal networks when a decision maker wishes to determine a temporal arrangement of the tasks and or a resource assignment that optimizes some network characteristic e g the time required to complete all tasks the parameters of these optimization problems e g the task durations are typically unknown at the time the decision problem arises this monograph investigates solution techniques for optimization problems in temporal networks that explicitly account for this parameter uncertainty we study

several formulations each of which requires different information about the uncertain problem parameters

Vector Network Analyzer (VNA) Measurements and Uncertainty Assessment

2016-09-22

this book describes vector network analyzer measurements and uncertainty assessments particularly in waveguide test set environments in order to establish their compatibility to the international system of units si for accurate and reliable characterization of communication networks it proposes a fully analytical approach to measurement uncertainty evaluation while also highlighting the interaction and the linear propagation of different uncertainty sources to compute the final uncertainties associated with the measurements the book subsequently discusses the dimensional characterization of waveguide standards and the quality of the vector network analyzer vna calibration techniques the book concludes with an in depth description of the novel verification artefacts used to assess the performance of the vnas it offers a comprehensive reference guide for beginners to experts in both academia and industry whose work involves the field of network analysis instrumentation and measurements

Uncertainties in Supply Chain Networks. Drivers and Consequences

2021-09-13

seminar paper from the year 2021 in the subject business economics supply production logistics grade 1 2 cologne university of applied sciences language english abstract the paper first gives a general overview of the drivers of uncertainty in supply chains sc and its consequences to emphasize the current relevance of the topic the uncertainties caused by the covid 19 pandemic are ensuing explained using the sc of the food industry as an example additionally the aim of the thesis is to present potential solution approaches to minimize uncertainties in order to improve the overall bottom line performance

first the definition and the meaning of the term uncertainty will be analysed secondly a closer look will be taken on the various causes of uncertainty and the possibility to cluster them this is followed by possible courses of action for companies in dealing with uncertain events next the food logistic industry and its challenges especially with regard to covid will be described in the last chapter of the paper a conclusion is given how all participants of scn should handle uncertainties right now and in the future

The Effect of Social Uncertainty in Networks of Social Exchange

2002

this proceedings book discusses state of the art research on uncertainty quantification in mechanical engineering including statistical data concerning the entries and parameters of a system to produce statistical data on the outputs of the system it is based on papers presented at uncertainties 2020 a workshop organized on behalf of the scientific committee on uncertainty in mechanics mécanique et incertain of the afm french society of mechanical sciences the scientific committee on stochastic modeling and uncertainty quantification of the abcm brazilian society of mechanical sciences and the sbmac brazilian society of applied mathematics

Proceedings of the 5th International Symposium on Uncertainty Quantification and Stochastic Modelling

2020-08-19

the first part of the book defines the concept of uncertainties and the mathematical frameworks that will be used for uncertainty modeling the application to system reliability assessment illustrates the concept in the second part evidential networks as a new tool to model uncertainty in reliability and risk analysis is proposed and described then it is applied on sis performance assessment and in risk analysis of a heat sink in the third part bayesian and evidential networks are used to

deal with important measures evaluation in the context of uncertainties

Data Uncertainty and Important Measures

2018-03-13

this book examines uncertainty reduction theory urt and research applicable to organizational settings it proposes a model for a theory of managing uncertainty tmu for scholars students in organizational interpersonal group communication

Managing Uncertainty in Organizational Communication

2014-04-04

uncertainties in modern power systems combines several aspects of uncertainty management in power systems at the planning and operation stages within an integrated framework this book provides the state of the art in electric network planning including time scales reliability quality optimal allocation of compensators and distributed generators mathematical formulation and search algorithms the book introduces innovative research outcomes programs algorithms and approaches that consolidate the present status and future opportunities and challenges of power systems the book also offers a comprehensive description of the overall process in terms of understanding creating data gathering and managing complex electrical engineering applications with uncertainties this reference is useful for researchers engineers and operators in power distribution systems includes innovative research outcomes programs algorithms and approaches that consolidate current status and future of modern power systems discusses how uncertainties will impact on the performance of power systems offers solutions to significant challenges in power systems planning to achieve the best operational performance of the different electric power sectors

Uncertainties in Modern Power Systems

2020-10-26

uncertainty in artificial intelligence proceedings of the eighth conference 1992 covers the papers presented at the eighth conference on uncertainty in artificial intelligence held at stanford university on july 17 19 1992 the book focuses on the processes methodologies technologies and approaches involved in artificial intelligence the selection first offers information on relative evidential support res modal logics for qualitative possibility and beliefs and optimizing causal orderings for generating dags from data discussions focus on reversal swap and unclique operators modal representation of possibility and beliefs and conditionals the text then examines structural controllability and observability in influence diagrams lattice based graded logic and dynamic network models for forecasting the manuscript takes a look at reformulating inference problems through selective conditioning entropy and belief networks parallelizing probabilistic inference and a symbolic approach to reasoning with linguistic quantifiers the text also ponders on sidestepping the triangulation problem in bayesian net computations exploring localization in bayesian networks for large expert systems and expressing relational and temporal knowledge in visual probabilistic networks the selection is a valuable reference for researchers interested in artificial intelligence

Uncertainty in Artificial Intelligence

2014-05-12

uncertainty has been of concern to engineers managers and scientists for many centuries in management sciences there have existed definitions of uncertainty in a rather narrow sense since the beginning of this century in engineering and uncertainty has for a long time been considered as in sciences however synonymous with random stochastic statistic or probabilistic only since the early sixties views on uncertainty have ecome more heterogeneous and more tools to model uncertainty than statistics have been proposed by several scientists the problem of modeling uncertainty adequately has become more important the more complex systems have become the faster the scientific and engineering world develops

and the more important but also more difficult forecasting of future states of systems have become the first question one should probably ask is whether uncertainty is a phenomenon a feature of real world systems a state of mind or a label for a situation in which a human being wants to make statements about phenomena i e reality models and theories respectively one cart also ask whether uncertainty is an objective fact or just a subjective impression which is closely related to individual persons whether uncertainty is an objective feature of physical real systems seems to be a philosophical question this shall not be answered in this volume

Uncertainty Analysis in Engineering and Sciences: Fuzzy Logic, Statistics, and Neural Network Approach

2012-12-06

large scale highly interconnected networks which are often modeled as graphs pervade both our society and the natural world around us uncertainty on the other hand is inherent in the underlying data due to a variety of reasons such as noisy measurements lack of precise information needs inference and prediction models or explicit manipulation e g for privacy purposes therefore uncertain or probabilistic graphs are increasingly used to represent noisy linked data in many emerging application scenarios and they have recently become a hot topic in the database and data mining communities many classical algorithms such as reachability and shortest path queries become p complete and thus more expensive over uncertain graphs moreover various complex queries and analytics are also emerging over uncertain networks such as pattern matching information diffusion and influence maximization queries in this book we discuss the sources of uncertain graphs and their applications uncertainty modeling as well as the complexities and algorithmic advances on uncertain graphs processing in the context of both classical and emerging graph queries and analytics we emphasize the current challenges and highlight some future research directions

On Uncertain Graphs

2018-07-23

the first part of the book defines the concept of uncertainties and the mathematical frameworks that will be used for uncertainty modeling the application to system reliability assessment illustrates the concept in the second part evidential networks as a new tool to model uncertainty in reliability and risk analysis is proposed and described then it is applied on sis performance assessment and in risk analysis of a heat sink in the third part bayesian and evidential networks are used to deal with important measures evaluation in the context of uncertainties

Data Uncertainty and Important Measures

2018-01-19

this book constitutes the refereed proceedings of the fourth workshop on uncertainty for safe utilization of machine learning in medical imaging unsure 2022 held in conjunction with miccai 2022 the conference was hybrid event held from singapore for this workshop 13 papers from 22 submissions were accepted for publication they focus on developing awareness and encouraging research in the field of uncertainty modelling to enable safe implementation of machine learning tools in the clinical world

Uncertainty for Safe Utilization of Machine Learning in Medical Imaging

2022-09-17

this book constitutes the refereed proceedings of the first international workshop on uncertainty for safe utilization of machine learning in medical imaging unsure 2019 and the 8th international workshop on clinical image based procedures clip 2019 held in conjunction with miccai 2019 in shenzhen china in october 2019 for unsure 2019 8 papers from 15

submissions were accepted for publication they focus on developing awareness and encouraging research in the field of uncertainty modelling to enable safe implementation of machine learning tools in the clinical world clip 2019 accepted 11 papers from the 15 submissions received the workshops provides a forum for work centred on specific clinical applications including techniques and procedures based on comprehensive clinical image and other data

Uncertainty for Safe Utilization of Machine Learning in Medical Imaging and Clinical Image-Based Procedures

2019-10-10

support for addressing the on going global changes needs solutions for new scientific problems which in turn require new concepts and tools a key issue concerns a vast variety of irreducible uncertainties including extreme events of high multidimensional consequences e g the climate change the dilemma is concerned with enormous costs versus massive uncertainties of extreme impacts traditional scientific approaches rely on real observations and experiments yet no sufficient observations exist for new problems and pure experiments and learning by doing may be expensive dangerous or impossible in addition the available historical observations are often contaminated by past actions and policies thus tools are presented for the explicit treatment of uncertainties using synthetic information composed of available hard data from historical observations the results of possible experiments and scientific facts as well as soft data from experts opinions and scenarios

Coping with Uncertainty

2009-12-24

this is the first comprehensive treatment of subjective logic and all its operations the author developed the approach and in this book he first explains subjective opinions opinion representation and decision making under vagueness and uncertainty

and he then offers a full definition of subjective logic harmonising the key notations and formalisms concluding with chapters on trust networks and subjective bayesian networks which when combined form general subjective networks the author shows how real world situations can be realistically modelled with regard to how situations are perceived with conclusions that more correctly reflect the ignorance and uncertainties that result from partially uncertain input arguments the book will help researchers and practitioners to advance improve and apply subjective logic to build powerful artificial reasoning models and tools for solving real world problems a good grounding in discrete mathematics is a prerequisite

Subjective Logic

2016-10-27

this book constitutes the refereed proceedings of the second international workshop on uncertainty for safe utilization of machine learning in medical imaging unsure 2020 and the third international workshop on graphs in biomedical image analysis grail 2020 held in conjunction with miccai 2020 in lima peru in october 2020 the workshops were held virtually due to the covid 19 pandemic for unsure 2020 10 papers from 18 submissions were accepted for publication they focus on developing awareness and encouraging research in the field of uncertainty modelling to enable safe implementation of machine learning tools in the clinical world grail 2020 accepted 10 papers from the 12 submissions received the workshop aims to bring together scientists that use and develop graph based models for the analysis of biomedical images and to encourage the exploration of graph based models for difficult clinical problems within a variety of biomedical imaging contexts

Uncertainty for Safe Utilization of Machine Learning in Medical Imaging, and Graphs in Biomedical Image Analysis

2020-10-05

dimensions of uncertainty in communication engineering is a comprehensive and self contained introduction to the problems of nonaleatory uncertainty and the mathematical tools needed to solve them the book gathers together tools derived from statistics information theory moment theory interval analysis and probability boxes dependence bounds nonadditive measures and dempster shafer theory while the book is mainly devoted to communication engineering the techniques described are also of interest to other application areas and commonalities to these are often alluded to through a number of references to books and research papers this is an ideal supplementary book for courses in wireless communications providing techniques for addressing epistemic uncertainty as well as an important resource for researchers and industry engineers students and researchers in other fields such as statistics financial mathematics and transport theory will gain an overview and understanding on these methods relevant to their field uniquely brings together a variety of tools derived from statistics information theory moment theory interval analysis and probability boxes dependence bounds nonadditive measures and dempster shafer theory focuses on the essentials of various wide ranging methods with references to journal articles where more detail can be found if required includes mimo related results throughout

Dimensions of Uncertainty in Communication Engineering

2022-07-19

this book systematically presents energy efficient robust fusion estimation methods to achieve thorough and comprehensive results in the context of network based fusion estimation it summarizes recent findings on fusion estimation with communication constraints several novel energy efficient and robust design methods for dealing with energy constraints and network induced uncertainties are presented such as delays packet losses and asynchronous information all the results are presented as algorithms which are convenient for practical applications

Distributed Fusion Estimation for Sensor Networks with Communication

Constraints

2018-09-09

as the banking crisis and its effects on the world economy have made plain the stock market is of colossal importance to our livelihoods in framing finance alex preda looks at the history of the market to figure out how we arrived at a point where investing is not only commonplace but critical as market fluctuations threaten our plans to send our children to college or retire comfortably as preda discovers through extensive research the public was once much more skeptical for investing to become accepted a deep seated prejudice against speculation had to be overcome and preda reveals that over the course of the eighteenth and nineteenth centuries groups associated with stock exchanges in new york london and paris managed to redefine finance as a scientific pursuit grounded in observational technology but preda also notes that as the financial data in which they trafficked became ever more difficult to understand charismatic speculators emerged whose manipulations of the market undermined the benefits of widespread investment and so framing finance ends with an eye on the future proposing a system of public financial education to counter the irrational elements that still animate the appeal of finance

Framing Finance

2009-08-01

the information deluge currently assaulting us in the 21st century is having a profound impact on our lifestyles and how we work we must constantly separate trustworthy and required information from the massive amount of data we encounter each day through mathematical theories models and experimental computations artificial intelligence with u

Artificial Intelligence with Uncertainty

2007-09-27

the refereed proceedings of the 7th european conference on symbolic and quantitative approaches to reasoning with uncertainty ecsqaru 2003 held in aalborg denmark in july 2003 the 47 revised full papers presented together with 2 invited survey articles were carefully reviewed and selected for inclusion in the book the papers are organized in topical sections on foundations of uncertainty concepts bayesian networks algorithms for uncertainty inference learning decision graphs belief functions fuzzy sets possibility theory default reasoning belief revision and inconsistency handling logics and tools

Symbolic and Quantitative Approaches to Reasoning with Uncertainty

2004-04-07

these are the proceedings of the 8th european conference on symbolic and quantitative approaches to reasoning with uncertainty ecsqaru 2005 held in barcelona spain july 6 8 2005 the ecsqaru conferences are biennial and have become a major forum for advances in the theory and practice of r soning under uncertainty the rst ecsqaru conference was held in marseille 1991 and after in granada 1993 fribourg 1995 bonn 1997 london 1999 toulouse 2001 and aalborg 2003 the papers gathered in this volume were selected out of 130 submissions after a strict review process by the members of the program committee to be presented at ecsqaru 2005 in addition the conference included invited lectures by three outstanding researchers in the area seraf n moral imprecise probabilities rudolf kruse graphical models in planning and j erˆ ome lang social choice moreover the application of uncertainty models to real world problems was addressed at ecsqaru 2005 by a special session devoted to s cessful industrial applications organized by rudolf kruse both invited lectures and papers of the special session contribute to this volume on the whole the programme of the conference provided a broad rich and up to date perspective of the current high level research in the area which is re ected in the contents of this volume iwouldliketowarmlythankthemembersoftheprogramcommitteeandthe additional referees for their valuable work the invited speakers and the invited session organizer

Symbolic and Quantitative Approaches to Reasoning with Uncertainty

2005-06-24

this book constitutes the refereed proceedings of the 6th european conference on symbolic and quantitative approaches to reasoning with uncertainty ecsqaru 2001 held in toulouse france in september 2001 the 68 revised full papers presented together with three invited papers were carefully reviewed and selected from over a hundred submissions the book offers topical sections on decision theory partially observable markov decision processes decision making coherent probabilities bayesian networks learning causal networks graphical representation of uncertainty imprecise probabilities belief functions fuzzy sets and rough sets possibility theory merging belief revision and preferences inconsistency handling default logic logic programming etc

Symbolic and Quantitative Approaches to Reasoning with Uncertainty

2003-06-30

this book constitutes the refereed proceedings of the 11th european conference on symbolic and quantitative approaches to reasoning with uncertainty ecsqaru 2011 held in belfast uk in june july 2011 the 60 revised full papers presented together with 3 invited talks were carefully reviewed and selected from 108 submissions the papers are organized in topical sections on argumentation bayesian networks and causal networks belief functions belief revision and inconsistency handling classification and clustering default reasoning and logics for reasoning under uncertainty foundations of reasoning and decision making under uncertainty fuzzy sets and fuzzy logic implementation and applications of uncertain systems possibility theory and possibilistic logic and uncertainty in databases

Epistemic Uncertainty in Artificial Intelligence

2011-06-25

this book constitutes the refereed proceedings of the 10th international conference on scalable uncertainty management sum 2016 held in nice france in september 2016 the 18 regular papers and 5 short papers were carefully reviewed and selected from 35 submissions papers are solicited in all areas of managing and reasoning with substantial and complex kinds of uncertain incomplete or inconsistent information these include but are not restricted to applications in decision support systems risk analysis machine learning belief networks logics of uncertainty belief revision and update argumentation negotiation technologies semantic web applications search engines ontology systems information fusion information retrieval natural language processing information extraction image recognition vision systems data and text mining and the consideration of issues such as provenance trust heterogeneity and complexity of data and knowledge

Symbolic and Quantitative Approaches to Reasoning with Uncertainty

2016-08-29

this volume focuses on uncovering the fundamental forces underlying dynamic decision making among multiple interacting imperfect and selfish decision makers the chapters are written by leading experts from different disciplines all considering the many sources of imperfection in decision making and always with an eye to decreasing the myriad discrepancies between theory and real world human decision making topics addressed include uncertainty deliberation cost and the complexity arising from the inherent large computational scale of decision making in these systems in particular analyses and experiments are presented which concern task allocation to maximize the wisdom of the crowd design of a society of edutainment robots who account for one anothers emotional states recognizing and counteracting seemingly non rational human decision making coping with extreme scale when learning causality in networks efficiently incorporating expert knowledge in personalized medicine the effects of personality on risky decision making the volume is a valuable source for researchers graduate students and practitioners in machine learning stochastic control robotics and economics among other

fields

Scalable Uncertainty Management

2015-02-09

this book aggregates much of this research from 1999 up to the present organized to facilitate an understanding of the theory and the development of the applied methods uncertainty treatment using praconsistent logic presents the material in a sequential fashion and is divided into three parts

Decision Making: Uncertainty, Imperfection, Deliberation and Scalability

2010

this book deals with different modern topics in probability statistics and operations research it has been written lucidly in a novel way wherever necessary the theory is explained in great detail with suitable illustrations numerous references are given so that young researchers who want to start their work in a particular area will benefit immensely from the book the contributors are distinguished statisticians and operations research experts from all over the world

Uncertainty Treatment Using Paraconsistent Logic

2002

this book constitutes the refereed proceedings of the 1999 european conference on symbolic and quantitative approaches to reasoning under uncertainty ecsqaru 99 held in london uk in july 1999 the 35 revised full papers presented were carefully reviewed and selected for inclusion in the book by the program committee the volume covers theoretical as well as application oriented aspects of various formalisms for reasoning under uncertainty among the issues addressed are default

reasoning nonmonotonic reasoning fuzzy logic bayesian theory probabilistic reasoning inductive learning rough knowledge discovery dempster shafer theory qualitative decision making belief functions and evidence theory

Uncertainty and Optimality

1999-06-16

this book constitutes the refereed proceedings of the first international conference on scalable uncertainty management sum 2007 held in washington dc usa in october 2007 the 20 revised full papers presented were carefully reviewed and selected from numerous submissions for inclusion in the book the papers address artificial intelligence researchers database researchers and practitioners

Symbolic and Quantitative Approaches to Reasoning and Uncertainty

2007-09-27

this book presents select proceedings of the international conference on advances in civil engineering ace 2020 the book examines the recent advancements in construction management construction materials environmental engineering geotechnical engineering transportation engineering water resource engineering and structural engineering the topics covered include sustainable construction process and materials smart infrastructures green building technology global environmental change and ecosystem management theoretical and analytical solutions for foundation engineering smart transportation systems and policy gis applications in water resource management structural analysis for blast and impact resistance and soft computing techniques in civil engineering the book will be useful for researchers and professionals in the field of civil engineering

Scalable Uncertainty Management

2021-12-14

this book offers a timely overview of fuzzy and rough set theories and methods based on selected contributions presented at the international symposium on fuzzy and rough sets isfuros 2017 held in varadero cuba on october 24 26 2017 the book also covers related approaches such as hybrid rough fuzzy sets and hybrid fuzzy rough sets and granular computing as well as a number of applications from big data analytics to business intelligence security robotics logistics wireless sensor networks and many more it is intended as a source of inspiration for phd students and researchers in the field fostering not only new ideas but also collaboration between young researchers and institutions and established ones

Recent Advancements in Civil Engineering

2019-01-22

the complementary nature of physically based and data driven models in their demand for physical insight and historical data leads to the notion that the predictions of a physically based model can be improved and the associated uncertainty can be systematically reduced through the conjunctive use of a data driven model of the residuals the objective of this thesis is to minimise the inevitable mismatch between physically based models and the actual processes as described by the mismatch between predictions and observations principles based on information theory are used to detect the presence and nature of residual information in model errors that might help to develop a data driven model of the residuals by treating the gap between the process and its physically based model as a separate process the complementary modelling approach is applied to various hydrodynamic and hydrological models to forecast the expected errors and accuracy using neural network and fuzzy rule based models complementary modelling offers the opportunity of incorporating processes and data that are not considered by the model without affecting the routine operation of physically based models the possibility that information may be obtained which will help to improve the physically based model is also demonstrated

Uncertainty Management with Fuzzy and Rough Sets

2004-05-15

flins originally an acronym for fuzzy logic and intelligent technologies in nuclear science is now extended to include computational intelligence for applied research the contributions to the 12th of flins conference cover state of the art research development and technology for computational intelligence systems both from the foundations and the applications points of view

Information Theory and Artificial Intelligence to Manage Uncertainty in Hydrodynamic and Hydrological Models

2016-07-14

these three volumes ccis 442 443 444 constitute the proceedings of the 15th international conference on information processing and management of uncertainty in knowledge based systems ipmu 2014 held in montpellier france july 15 19 2014 the 180 revised full papers presented together with five invited talks were carefully reviewed and selected from numerous submissions the papers are organized in topical sections on uncertainty and imprecision on the web of data decision support and uncertainty management in agri environment fuzzy implications clustering fuzzy measures and integrals non classical logics data analysis real world applications aggregation probabilistic networks recommendation systems and social networks fuzzy systems fuzzy logic in boolean framework management of uncertainty in social networks from different to same from imitation to analogy soft computing and sensory analysis database systems fuzzy set theory measurement and sensory information aggregation formal methods for vagueness and uncertainty in a many valued realm graduality preferences uncertainty management in machine learning philosophy and history of soft computing soft computing and sensory analysis similarity analysis fuzzy logic formal concept analysis and rough set intelligent databases and information systems theory of evidence aggregation functions big data the role of fuzzy methods imprecise probabilities

from foundations to applications multinomial logistic regression on markov chains for crop rotation modelling intelligent measurement and control for nonlinear systems

Uncertainty Modelling in Knowledge Engineering and Decision Making

2014-07-17

Information Processing and Management of Uncertainty

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