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The Atlas for the Aspiring Network Scientist Recent Advances in Robot Path Planning Algorithms: a Review of Theory and Experiment *Large-Scale Scientific Computing* Computer Vision – ECCV 2022 *Theory and Engineering of Dependable Computer Systems and Networks* **Exploring Future Paths for Historical Sociolinguistics** Computer Vision – ACCV 2020 *Computer Vision – ECCV 2018* **Medical Image Computing and Computer Assisted Intervention – MICCAI 2021** Image and Graphics **Combinatorial Designs Computer Vision – ECCV 2020** Advances in Neural Computation, Machine Learning, and Cognitive Research VI **Advanced Methods and Deep Learning in Computer Vision Credible Asset Allocation, Optimal Transport Methods, and Related Topics DNA Computing and Molecular Programming** Coded Computing **Computer Vision – ACCV 2018 Explainable and Interpretable Models in Computer Vision and Machine Learning Intelligent Computer Mathematics** *Low-Power Computer Vision* **Computer Vision – ECCV 2020 Workshops** *Advanced Computing* **Learning to Understand Remote Sensing Images Frontier Computing** Computer Supported Cooperative Work and Social Computing **ECAI 2020** *Trends in Quantum Computing Research Stochastic Analysis, Filtering, and Stochastic Optimization* Pattern Recognition *Algorithmic Combinatorics: Enumerative Combinatorics, Special Functions and Computer Algebra* **Pattern Recognition and**

Computer Vision Graph-Theoretic Concepts in Computer Science Pattern Recognition and Computer Vision Integer Programming and Combinatorial Optimization Medical Image Computing and Computer Assisted Intervention – MICCAI 2022 Computing and Data Science **Intelligent Computing Theories and Application** Automata, Languages, and Programming **Quantum Computation and Quantum Information**

Computer Supported Cooperative Work and Social Computing Sep 01 2020 The two-volume set CCIS 1491 and 1492 constitutes the refereed post-conferenceproceedings of the 16th CCF Conference on Computer Supported Cooperative Work and Social Computing, ChineseCSCW 2021, held in Xiangtan, China, November 26–28, 2021. The conference was held in a hybrid mode i.e. online and on-site in Xiangtan due to the COVID-19 crisis. The 65 revised full papers and 22 revised short papers were carefully reviewed and selected from 242 submissions. The papers are organized in the following topical sections: Volume I: Collaborative Mechanisms, Models, Approaches, Algorithms and Systems; Cooperative Evolutionary Computation and Human-like Intelligent Collaboration; Domain-Specific Collaborative Applications; Volume II: Crowd Intelligence and Crowd Cooperative Computing; Social Media and Online Communities.

Computing and Data Science Sep 20 2019 This volume constitutes selected papers presented at the Third International Conference on Computing and Data Science, CONF-CDS 2021, held online in August 2021. The 22 full papers 9 short papers presented in this volume were thoroughly reviewed and selected from the 85 qualified submissions. They are organized in

topical sections on advances in deep learning; algorithms in machine learning and statistics; advances in natural language processing.

Learning to Understand Remote Sensing Images Nov 03 2020 With the recent advances in remote sensing technologies for Earth observation, many different remote sensors are collecting data with distinctive properties. The obtained data are so large and complex that analyzing them manually becomes impractical or even impossible. Therefore, understanding remote sensing images effectively, in connection with physics, has been the primary concern of the remote sensing research community in recent years. For this purpose, machine learning is thought to be a promising technique because it can make the system learn to improve itself. With this distinctive characteristic, the algorithms will be more adaptive, automatic, and intelligent. This book introduces some of the most challenging issues of machine learning in the field of remote sensing, and the latest advanced technologies developed for different applications. It integrates with multi-source/multi-temporal/multi-scale data, and mainly focuses on learning to understand remote sensing images. Particularly, it presents many more effective techniques based on the popular concepts of deep learning and big data to reach new heights of data understanding. Through reporting recent advances in the machine learning approaches towards analyzing and understanding remote sensing images, this book can help readers become more familiar with knowledge frontier and foster an increased interest in this field.

Image and Graphics Jan 17 2022 This three-volume set LNCS 12888, 12898, and 12890 constitutes the refereed conference proceedings of the 11th International Conference on Image and Graphics, ICIG 2021, held in Haikou, China, in August 2021.* The 198 full papers presented were selected from 421 submissions and focus on advances of theory, techniques and

algorithms as well as innovative technologies of image, video and graphics processing and fostering innovation, entrepreneurship, and networking. *The conference was postponed due to the COVID-19 pandemic.

Advanced Methods and Deep Learning in Computer Vision Sep 13 2021 Advanced Methods and Deep Learning in Computer Vision presents advanced computer vision methods, emphasizing machine and deep learning techniques that have emerged during the past 5–10 years. The book provides clear explanations of principles and algorithms supported with applications. Topics covered include machine learning, deep learning networks, generative adversarial networks, deep reinforcement learning, self-supervised learning, extraction of robust features, object detection, semantic segmentation, linguistic descriptions of images, visual search, visual tracking, 3D shape retrieval, image inpainting, novelty and anomaly detection. This book provides easy learning for researchers and practitioners of advanced computer vision methods, but it is also suitable as a textbook for a second course on computer vision and deep learning for advanced undergraduates and graduate students. Provides an important reference on deep learning and advanced computer methods that was created by leaders in the field Illustrates principles with modern, real-world applications Suitable for self-learning or as a text for graduate courses

Integer Programming and Combinatorial Optimization Nov 22 2019 This book constitutes the proceedings of the 22nd Conference on Integer Programming and Combinatorial Optimization, IPCO 2021, which took place during May 19-21, 2021. The conference was organized by Georgia Institute of Technology and planned to take place it Atlanta, GA, USA, but changed to an online format due to the COVID-19 pandemic. The 33 papers included in this book were carefully reviewed and selected from 90 submissions. IPCO is under the

auspices of the MathematicalOptimization Society, and it is an important forum for presenting the latest results of theory and practice of the various aspects of discrete optimization.

Computer Vision – ACCV 2018 May 09 2021 The six volume set LNCS 11361-11366 constitutes the proceedings of the 14th Asian Conference on Computer Vision, ACCV 2018, held in Perth, Australia, in December 2018. The total of 274 contributions was carefully reviewed and selected from 979 submissions during two rounds of reviewing and improvement. The papers focus on motion and tracking, segmentation and grouping, image-based modeling, dep learning, object recognition object recognition, object detection and categorization, vision and language, video analysis and event recognition, face and gesture analysis, statistical methods and learning, performance evaluation, medical image analysis, document analysis, optimization methods, RGBD and depth camera processing, robotic vision, applications of computer vision.

Computer Vision – ACCV 2020 Apr 20 2022 The six volume set of LNCS 12622-12627 constitutes the proceedings of the 15th Asian Conference on Computer Vision, ACCV 2020, held in Kyoto, Japan, in November/ December 2020.* The total of 254 contributions was carefully reviewed and selected from 768 submissions during two rounds of reviewing and improvement. The papers focus on the following topics: Part I: 3D computer vision; segmentation and grouping Part II: low-level vision, image processing; motion and tracking Part III: recognition and detection; optimization, statistical methods, and learning; robot vision Part IV: deep learning for computer vision, generative models for computer vision Part V: face, pose, action, and gesture; video analysis and event recognition; biomedical image analysis Part VI: applications of computer vision; vision for X; datasets and performance analysis *The conference was held

virtually.

Coded Computing Jun 10 2021 We introduce the concept of “coded computing”, a novel computing paradigm that utilizes coding theory to effectively inject and leverage data/computation redundancy to mitigate several fundamental bottlenecks in large-scale distributed computing, namely communication bandwidth, straggler’s (i.e., slow or failing nodes) delay, privacy and security bottlenecks.

Stochastic Analysis, Filtering, and Stochastic Optimization May 29 2020 This volume is a collection of research works to honor the late Professor Mark H.A. Davis, whose pioneering work in the areas of Stochastic Processes, Filtering, and Stochastic Optimization spans more than five decades. Invited authors include his dissertation advisor, past collaborators, colleagues, mentees, and graduate students of Professor Davis, as well as scholars who have worked in the above areas. Their contributions may expand upon topics in piecewise deterministic processes, pathwise stochastic calculus, martingale methods in stochastic optimization, filtering, mean-field games, time-inconsistency, as well as impulse, singular, risk-sensitive and robust stochastic control.

Computer Vision – ECCV 2022 Jul 23 2022 The 39-volume set, comprising the LNCS books 13661 until 13699, constitutes the refereed proceedings of the 17th European Conference on Computer Vision, ECCV 2022, held in Tel Aviv, Israel, during October 23–27, 2022. The 1645 papers presented in these proceedings were carefully reviewed and selected from a total of 5804 submissions. The papers deal with topics such as computer vision; machine learning; deep neural networks; reinforcement learning; object recognition; image classification; image processing; object detection; semantic segmentation; human pose estimation; 3d reconstruction; stereo vision; computational photography; neural networks; image coding; image reconstruction; object

recognition; motion estimation.

Computer Vision – ECCV 2020 Nov 15 2021 The 30-volume set, comprising the LNCS books 12346 until 12375, constitutes the refereed proceedings of the 16th European Conference on Computer Vision, ECCV 2020, which was planned to be held in Glasgow, UK, during August 23-28, 2020. The conference was held virtually due to the COVID-19 pandemic. The 1360 revised papers presented in these proceedings were carefully reviewed and selected from a total of 5025 submissions. The papers deal with topics such as computer vision; machine learning; deep neural networks; reinforcement learning; object recognition; image classification; image processing; object detection; semantic segmentation; human pose estimation; 3d reconstruction; stereo vision; computational photography; neural networks; image coding; image reconstruction; object recognition; motion estimation.

Advanced Computing Dec 04 2020 This two-volume set (CCIS 1367-1368) constitutes reviewed and selected papers from the 10th International Advanced Computing Conference, IACC 2020, held in December 2020. The 65 full papers and 2 short papers presented in two volumes were thorougly reviewed and selected from 286 submissions. The papers are organized in the following topical sections: Application of Artificial Intelligence and Machine Learning in Healthcare; Using Natural Language Processing for Solving Text and Language related Applications; Using Different Neural Network Architectures for Interesting applications; Using AI for Plant and Animal related Applications.- Applications of Blockchain and IoT.- Use of Data Science for Building Intelligence Applications; Innovations in Advanced Network Systems; Advanced Algorithms for Miscellaneous Domains; New Approaches in Software Engineering.

Medical Image Computing and Computer Assisted Intervention – MICCAI 2022 Oct 22

2019 The eight-volume set LNCS 13431, 13432, 13433, 13434, 13435, 13436, 13437, and 13438 constitutes the refereed proceedings of the 25th International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2022, which was held in Singapore in September 2022. The 574 revised full papers presented were carefully reviewed and selected from 1831 submissions in a double-blind review process. The papers are organized in the following topical sections: Part I: Brain development and atlases; DWI and tractography; functional brain networks; neuroimaging; heart and lung imaging; dermatology; Part II: Computational (integrative) pathology; computational anatomy and physiology; ophthalmology; fetal imaging; Part III: Breast imaging; colonoscopy; computer aided diagnosis; Part IV: Microscopic image analysis; positron emission tomography; ultrasound imaging; video data analysis; image segmentation I; Part V: Image segmentation II; integration of imaging with non-imaging biomarkers; Part VI: Image registration; image reconstruction; Part VII: Image-Guided interventions and surgery; outcome and disease prediction; surgical data science; surgical planning and simulation; machine learning – domain adaptation and generalization; Part VIII: Machine learning – weakly-supervised learning; machine learning – model interpretation; machine learning – uncertainty; machine learning theory and methodologies.

ECAI 2020 Jul 31 2020 This book presents the proceedings of the 24th European Conference on Artificial Intelligence (ECAI 2020), held in Santiago de Compostela, Spain, from 29 August to 8 September 2020. The conference was postponed from June, and much of it conducted online due to the COVID-19 restrictions. The conference is one of the principal occasions for researchers and practitioners of AI to meet and discuss the latest trends and challenges in all fields of AI and to demonstrate innovative

applications and uses of advanced AI technology. The book also includes the proceedings of the 10th Conference on Prestigious Applications of Artificial Intelligence (PAIS 2020) held at the same time. A record number of more than 1,700 submissions was received for ECAI 2020, of which 1,443 were reviewed. Of these, 361 full-papers and 36 highlight papers were accepted (an acceptance rate of 25% for full-papers and 45% for highlight papers). The book is divided into three sections: ECAI full papers; ECAI highlight papers; and PAIS papers. The topics of these papers cover all aspects of AI, including Agent-based and Multi-agent Systems; Computational Intelligence; Constraints and Satisfiability; Games and Virtual Environments; Heuristic Search; Human Aspects in AI; Information Retrieval and Filtering; Knowledge Representation and Reasoning; Machine Learning; Multidisciplinary Topics and Applications; Natural Language Processing; Planning and Scheduling; Robotics; Safe, Explainable, and Trustworthy AI; Semantic Technologies; Uncertainty in AI; and Vision. The book will be of interest to all those whose work involves the use of AI technology.

Trends in Quantum Computing Research Jun 29 2020 Quantum information processing is an exciting new emergent and interdisciplinary field. It combines questions of national security (When will today's public key cryptography be broken?) to questions of fundamental science (What are the fundamental limits to information processing?). It has thrived through the collaboration between the computer, engineering, mathematical and physical sciences. It is a field that is challenging our understanding of information, communication, computation, and of the fundamental laws of nature. This book brings together leading research in the field.

Algorithmic Combinatorics: Enumerative Combinatorics, Special Functions and Computer Algebra Mar 27 2020 The book is centered

around the research areas of combinatorics, special functions, and computer algebra. What these research fields share is that many of their outstanding results do not only have applications in Mathematics, but also other disciplines, such as computer science, physics, chemistry, etc. A particular charm of these areas is how they interact and influence one another. For instance, combinatorial or special functions' techniques have motivated the development of new symbolic algorithms. In particular, first proofs of challenging problems in combinatorics and special functions were derived by making essential use of computer algebra. This book addresses these interdisciplinary aspects. Algorithmic aspects are emphasized and the corresponding software packages for concrete problem solving are introduced. Readers will range from graduate students, researchers to practitioners who are interested in solving concrete problems within mathematics and other research disciplines.

Computer Vision – ECCV 2020 Workshops Jan 05 2021 The 5-volume set, comprising the LNCS books 12535 until 12540, constitutes the refereed proceedings of 28 out of the 45 workshops held at the 16th European Conference on Computer Vision, ECCV 2020. The conference was planned to take place in Glasgow, UK, during August 23-28, 2020, but changed to a virtual format due to the COVID-19 pandemic. The 249 full papers, 18 short papers, and 21 further contributions included in the workshop proceedings were carefully reviewed and selected from a total of 467 submissions. The papers deal with diverse computer vision topics. Part I focusses on adversarial robustness in the real world; bioimage computation; egocentric perception, interaction and computing; eye gaze in VR, AR, and in the wild; TASK-CV workshop and VisDA challenge; and bodily expressed emotion understanding.

Pattern Recognition and Computer Vision Dec 24 2019 The 4-volume set LNCS 13534,

13535, 13536 and 13537 constitutes the refereed proceedings of the 5th Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2022, held in Shenzhen, China, in November 2022. The 233 full papers presented were carefully reviewed and selected from 564 submissions. The papers have been organized in the following topical sections: Theories and Feature Extraction; Machine learning, Multimedia and Multimodal; Optimization and Neural Network and Deep Learning; Biomedical Image Processing and Analysis; Pattern Classification and Clustering; 3D Computer Vision and Reconstruction, Robots and Autonomous Driving; Recognition, Remote Sensing; Vision Analysis and Understanding; Image Processing and Low-level Vision; Object Detection, Segmentation and Tracking.

Medical Image Computing and Computer Assisted Intervention – MICCAI 2021 Feb 18 2022 The eight-volume set LNCS 12901, 12902, 12903, 12904, 12905, 12906, 12907, and 12908 constitutes the refereed proceedings of the 24th International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2021, held in Strasbourg, France, in September/October 2021.* The 531 revised full papers presented were carefully reviewed and selected from 1630 submissions in a double-blind review process. The papers are organized in the following topical sections: Part I: image segmentation Part II: machine learning - self-supervised learning; machine learning - semi-supervised learning; and machine learning - weakly supervised learning Part III: machine learning - advances in machine learning theory; machine learning - attention models; machine learning - domain adaptation; machine learning - federated learning; machine learning - interpretability / explainability; and machine learning - uncertainty Part IV: image registration; image-guided interventions and surgery; surgical data science; surgical planning and simulation; surgical skill and work flow

analysis; and surgical visualization and mixed, augmented and virtual reality Part V: computer aided diagnosis; integration of imaging with non-imaging biomarkers; and outcome/disease prediction Part VI: image reconstruction; clinical applications - cardiac; and clinical applications - vascular Part VII: clinical applications - abdomen; clinical applications - breast; clinical applications - dermatology; clinical applications - fetal imaging; clinical applications - lung; clinical applications - neuroimaging - brain development; clinical applications - neuroimaging - DWI and tractography; clinical applications - neuroimaging - functional brain networks; clinical applications - neuroimaging – others; and clinical applications - oncology Part VIII: clinical applications - ophthalmology; computational (integrative) pathology; modalities - microscopy; modalities - histopathology; and modalities - ultrasound *The conference was held virtually.

Low-Power Computer Vision Feb 06 2021 Energy efficiency is critical for running computer vision on battery-powered systems, such as mobile phones or UAVs (unmanned aerial vehicles, or drones). This book collects the methods that have won the annual IEEE Low-Power Computer Vision Challenges since 2015. The winners share their solutions and provide insight on how to improve the efficiency of machine learning systems.

Graph-Theoretic Concepts in Computer Science Jan 25 2020 This book constitutes the proceedings of the 47th International Workshop on Graph-Theoretic Concepts in Computer Science which was held during June 23–25, 2021. The conference was planned to take place in Warsaw, Poland, but changed to an online event due to the COVID-19 pandemic. The 30 full papers included in this volume were carefully reviewed and selected from 73 submissions. The conference aims to merge theory and practice by demonstrating how concepts from graph theory can be applied to various areas in computer science or by extracting new graph-theoretic

problems from applications. Chapter “Bears with Hats and Independence Polynomials” is are available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Combinatorial Designs Dec 16 2021 Created to teach students many of the most important techniques used for constructing combinatorial designs, this is an ideal textbook for advanced undergraduate and graduate courses in combinatorial design theory. The text features clear explanations of basic designs, such as Steiner and Kirkman triple systems, mutual orthogonal Latin squares, finite projective and affine planes, and Steiner quadruple systems. In these settings, the student will master various construction techniques, both classic and modern, and will be well-prepared to construct a vast array of combinatorial designs. Design theory offers a progressive approach to the subject, with carefully ordered results. It begins with simple constructions that gradually increase in complexity. Each design has a construction that contains new ideas or that reinforces and builds upon similar ideas previously introduced. A new text/reference covering all apsects of modern combinatorial design theory. Graduates and professionals in computer science, applied mathematics, combinatorics, and applied statistics will find the book an essential resource.

Theory and Engineering of Dependable Computer Systems and Networks Jun 22 2022 This book contains papers on selected aspects of dependability analysis in computer systems and networks, which were chosen for discussion during the 16th DepCoS-RELCOMEX conference held in Wrocław, Poland, from June 28 to July 2, 2021. Their collection will be a valuable source material for scientists, researchers, practitioners and students who are dealing with design, analysis and engineering of computer systems and networks and must ensure their dependable operation. Being probably the most complex

technical systems ever engineered by man (and also—the most dynamically evolving ones), organization of contemporary computer systems cannot be interpreted only as structures built on the basis of (unreliable) technical resources. Their evaluation must take into account a specific blend of interacting people (their needs and behaviours), networks (together with mobile properties, cloud organization, Internet of Everything, etc.) and a large number of users dispersed geographically and constantly producing an unconceivable number of applications. Ever-growing number of research methods being continuously developed for dependability analyses apply the newest techniques of artificial and computational intelligence. Selection of papers in these proceedings illustrates diversity of multi-disciplinary topics which are considered in present-day dependability explorations.

Large-Scale Scientific Computing Aug 24 2022 This book constitutes the thoroughly refereed post-proceedings of the 5th International Conference on Large-Scale Scientific Computations, LSSC 2005, held in Sozopol, Bulgaria in June 2005. The 75 revised full papers presented together with five invited papers were carefully reviewed and selected for inclusion in the book. The papers are organized in topical sections.

Automata, Languages, and Programming Jul 19 2019 This two-volume set of LNCS 7391 and LNCS 7392 constitutes the refereed proceedings of the 39th International Colloquium on Automata, Languages and Programming, ICALP 2012, held in Warwick, UK, in July 2012. The total of 123 revised full papers presented in this volume were carefully reviewed and selected from 432 submissions. They are organized in three tracks focussing on algorithms, complexity and games; logic, semantics, automata and theory of programming; and foundations of networked computation.

Advances in Neural Computation, Machine

Learning, and Cognitive Research VI Oct 14 2021 This book describes new theories and applications of artificial neural networks, with a special focus on answering questions in neuroscience, biology and biophysics and cognitive research. It covers a wide range of methods and technologies, including deep neural networks, large-scale neural models, brain–computer interface, signal processing methods, as well as models of perception, studies on emotion recognition, self-organization and many more. The book includes both selected and invited papers presented at the XXIV International Conference on Neuroinformatics, held on October 17–21, 2022, in Moscow, Russia.

DNA Computing and Molecular Programming Jul 11 2021 This book constitutes the refereed proceedings of the 25th International Conference on DNA Computing and Molecular Programming, DNA 25, held in Seattle, WA, USA, in August 2019. The 12 full papers presented were carefully selected from 19 submissions. The papers cover a wide range of topics relating to biomolecular computing such as algorithms and models for computation on biomolecular systems; computational processes in vitro and in vivo; molecular switches, gates, devices, and circuits; molecular folding and self-assembly of nanostructures; analysis and theoretical models of laboratory techniques; molecular motors and molecular robotics; information storage; studies of fault-tolerance and error correction; software tools for analysis, simulation, anddesign; synthetic biology and in vitro evolution; and applications in engineering, physics, chemistry, biology, and medicine.

Credible Asset Allocation, Optimal Transport Methods, and Related Topics Aug 12 2021 This book describes state-of-the-art economic ideas and how these ideas can be (and are) used to make economic decision (in particular, to optimally allocate assets) and to

gauge the results of different economic decisions (in particular, by using optimal transport methods). Special emphasis is paid to machine learning techniques (including deep learning) and to different aspects of quantum econometrics—when quantum physics and quantum computing models are techniques are applied to study economic phenomena. Applications range from more traditional economic areas to more non-traditional topics such as economic aspects of tourism, cryptocurrencies, telecommunication infrastructure, and pandemic. This book helps student to learn new techniques, practitioners to become better knowledgeable of the state-of-the-art econometric techniques, and researchers to further develop these important research directions

Recent Advances in Robot Path Planning Algorithms: a Review of Theory and Experiment Sep 25 2022 The dominant theme of this book is to introduce the different path planning methods and present some of the most appropriate ones for robotic routing; methods that are capable of running on a variety of robots and are resistant to disturbances; being real-time, being autonomous, and the ability to identify high risk areas and risk management are the other features that will be mentioned in the introduction of the methods. The introduction of the profound significance of the robots and delineation of the navigation and routing theme is provided in the first chapter of the book. The second chapter is concerned with the subject of routing in unknown environments. In the first part of this chapter, the family of bug algorithms including are described. In the following, several conventional methods are submitted. The last part of this chapter is dedicated to the introduction of two recently developed routing methods. In Chapter 3, routing is reviewed in the known environment in which the robot either utilizes the created maps by extraneous sources or makes use of the

sensor in order to prepare the maps from the local environment. The robot path planning relying on the robot vision sensors and applicable computing hardware are concentrated in the fourth chapter. The first part of this chapter deals with routing methods supported mapping capabilities. The second part manages the routing dependent on vision sensor typically known as the best sensor within the routing subject. The movement of two-dimensional robots with two or three degrees of freedom is analyzed within the third part of this chapter. In Chapter 5, the performance of a few of the foremost important routing methods initiating from the second to fourth chapters is conferred regarding the implementation in various environments. The first part of this chapter is engaged in the implementation of the algorithms Bug1, Bug2, and Distbug on the pioneering robot. In the second part, a theoretical technique is planned to boost the robot's performance in line with obstacle collision avoidance. This method, underlying the tangential escape, seeks to proceed the robot through various obstacles with curved corners. In the third and fourth parts of this chapter, path planning in different environments is preceded in the absence and the presence of danger space. Accordingly, four approaches, named artificial fuzzy potential field, linguistic technique, Markov decision making processes, and fuzzy Markov decision making have been proposed in two following parts and enforced on the Nao humanoid robot.

Explainable and Interpretable Models in Computer Vision and Machine Learning Apr 08 2021 This book compiles leading research on the development of explainable and interpretable machine learning methods in the context of computer vision and machine learning. Research progress in computer vision and pattern recognition has led to a variety of modeling techniques with almost human-like performance. Although these models have

obtained astounding results, they are limited in their explainability and interpretability: what is the rationale behind the decision made? what in the model structure explains its functioning? Hence, while good performance is a critical required characteristic for learning machines, explainability and interpretability capabilities are needed to take learning machines to the next step to include them in decision support systems involving human supervision. This book, written by leading international researchers, addresses key topics of explainability and interpretability, including the following: · Evaluation and Generalization in Interpretable Machine Learning · Explanation Methods in Deep Learning · Learning Functional Causal Models with Generative Neural Networks · Learning Interpreatable Rules for Multi-Label Classification · Structuring Neural Networks for More Explainable Predictions · Generating Post Hoc Rationales of Deep Visual Classification Decisions · Ensembling Visual Explanations · Explainable Deep Driving by Visualizing Causal Attention · Interdisciplinary Perspective on Algorithmic Job Candidate Search · Multimodal Personality Trait Analysis for Explainable Modeling of Job Interview Decisions · Inherent Explainability Pattern Theory-based Video Event Interpretations

Pattern Recognition and Computer Vision

Feb 24 2020 The 4-volume set LNCS 13019, 13020, 13021 and 13022 constitutes the refereed proceedings of the 4th Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2021, held in Beijing, China, in October-November 2021. The 201 full papers presented were carefully reviewed and selected from 513 submissions. The papers have been organized in the following topical sections: Object Detection, Tracking and Recognition; Computer Vision, Theories and Applications, Multimedia Processing and Analysis; Low-level Vision and Image Processing; Biomedical Image Processing and Analysis; Machine Learning,

Neural Network and Deep Learning, and New Advances in Visual Perception and Understanding.

Computer Vision – ECCV 2018 Mar 19 2022 The sixteen-volume set comprising the LNCS volumes 11205-11220 constitutes the refereed proceedings of the 15th European Conference on Computer Vision, ECCV 2018, held in Munich, Germany, in September 2018.The 776 revised papers presented were carefully reviewed and selected from 2439 submissions. The papers are organized in topical sections on learning for vision; computational photography; human analysis; human sensing; stereo and reconstruction; optimization; matching and recognition; video attention; and poster sessions.

Quantum Computation and Quantum Information Jun 17 2019 First-ever comprehensive introduction to the major new subject of quantum computing and quantum information.

The Atlas for the Aspiring Network Scientist Oct 26 2022 Network science is the field dedicated to the investigation and analysis of complex systems via their representations as networks. We normally model such networks as graphs: sets of nodes connected by sets of edges and a number of node and edge attributes. This deceptively simple object is the starting point of never-ending complexity, due to its ability to represent almost every facet of reality: chemical interactions, protein pathways inside cells, neural connections inside the brain, scientific collaborations, financial relations, citations in art history, just to name a few examples. If we hope to make sense of complex networks, we need to master a large analytic toolbox: graph and probability theory, linear algebra, statistical physics, machine learning, combinatorics, and more. This book aims at providing the first access to all these tools. It is intended as an "Atlas", because its interest is not in making you a specialist in using any of these techniques. Rather, after reading this book, you will have a

general understanding about the existence and the mechanics of all these approaches. You can use such an understanding as the starting point of your own career in the field of network science. This has been, so far, an interdisciplinary endeavor. The founding fathers of this field come from many different backgrounds: mathematics, sociology, computer science, physics, history, digital humanities, and more. This Atlas is charting your path to be something different from all of that: a pure network scientist.

Pattern Recognition Apr 27 2020 This two-volume set constitutes the proceedings of the 5th Asian Conference on ACPR 2019, held in Auckland, New Zealand, in November 2019. The 9 full papers presented in this volume were carefully reviewed and selected from 14 submissions. They cover topics such as: classification; action and video and motion; object detection and anomaly detection; segmentation, grouping and shape; face and body and biometrics; adversarial learning and networks; computational photography; learning theory and optimization; applications, medical and robotics; computer vision and robot vision; pattern recognition and machine learning; multi-media and signal processing; and interaction.

Intelligent Computing Theories and Application Aug 20 2019 This three-volume set LNCS 10361, LNCS 10362, and LNAI 10363 constitutes the refereed proceedings of the 13th International Conference on Intelligent Computing, ICIC 2017, held in Liverpool, UK, in August 2017. The 212 full papers and 20 short papers of the three proceedings volumes were carefully reviewed and selected from 612 submissions. This first volume of the set comprises 71 papers. The papers are organized in topical sections such as Evolutionary Computation and Learning; Neural Networks; Nature Inspired Computing and Optimization; Signal Processing; Pattern Recognition; Biometrics Recognition; Image Processing;

Information Security; Virtual Reality and Human-Computer Interaction; Business Intelligence and Multimedia Technology; Genetic Algorithms; Biomedical Informatics Theory and Methods; Particle Swarm Optimization and Niche Technology; Swarm Intelligence and Optimization; Independent Component Analysis; Compressed Sensing and Sparse Coding; Natural Computing; Intelligent Computing in Computer Vision; Computational Intelligence and Security for Image Applications in Social Network; Neural Networks: Theory and Application.

Frontier Computing Oct 02 2020 This book gathers the proceedings of the 11th International Conference on Frontier Computing, held in Seoul, on July 13–17, 2021, and provides comprehensive coverage of the latest advances and trends in information technology, science, and engineering. It addresses a number of broad themes, including communication networks, business intelligence and knowledge management, Web intelligence, and related fields that inspire the development of information technology. The respective contributions cover a wide range of topics: database and data mining, networking and communications, Web and Internet of things, embedded systems, soft computing, social network analysis, security and privacy, optical communication, and ubiquitous/pervasive computing. Many of the papers outline promising future research directions, and the book benefits students, researchers, and professionals alike. Further, it offers a useful reference guide for newcomers to the field.

Exploring Future Paths for Historical Sociolinguistics May 21 2022 This volume explores potential paths in historical sociolinguistics, with a particular focus on the inter-related areas of methodological innovations, hitherto un- or under-explored textual resources, and theoretical advancements and challenges. The individual chapters cover

Dutch, Finnish and different varieties of English and are based on data spanning from the fifteenth century to the present day. Paying tribute to Terttu Nevalainen's pioneering work, the book highlights the wide range and complexity of the field of historical sociolinguistics and presents achievements and challenges of interdisciplinary collaboration. The book is of interest to a wide readership, ranging from scholars of historical linguistics, sociolinguistics, corpus linguistics and digital humanities to (advanced) graduate and postgraduate students in courses on language variation and change.

Intelligent Computer Mathematics Mar 07 2021 This book constitutes the refereed proceedings of the 13th International Conference on Intelligent Computer Mathematics, CICM 2020, held in Bertinoro, Italy, in July 2020*. The 15 full papers, 1 invited paper and 2 abstracts of invited papers presented were carefully reviewed and selected from a total of 35 submissions. The papers focus on advances in automated theorem provers and formalization, computer algebra systems and their libraries, and applications of machine learning, among other topics. * The conference was held virtually due to the COVID-19 pandemic.