

Code For Single Image Super Resolution

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Generative Adversarial Networks for Image-to-Image Translation Arun Solanki 2021-06-22 Generative Adversarial Networks (GAN) have started a revolution in Deep Learning, and today GAN is one of the most researched topics in Artificial Intelligence. Generative Adversarial Networks for Image-to-Image Translation provides a comprehensive overview of the GAN (Generative Adversarial Network) concept starting from the original GAN network to various GAN-based systems such as Deep Convolutional GANs (DCGANs), Conditional GANs (cGANs), StackGAN, Wasserstein GANs (WGAN), cyclical GANs, and many more. The book also provides readers with detailed real-world applications and common projects built using the GAN system with respective Python code. A typical GAN system consists of two neural networks, i.e., generator and discriminator. Both of these networks contest with each other, similar to game theory. The generator is responsible for generating quality images that should resemble ground truth, and the discriminator is accountable for identifying whether the generated image is a real image or a fake image generated by the generator. Being one of the unsupervised learning-based architectures, GAN is a preferred method in cases where labeled data is not available. GAN can generate high-quality images, images of human faces developed from several sketches, convert images from one domain to another, enhance images, combine an image with the style of another image, change the appearance of a human face image to show the effects in the progression of aging, generate images from text, and many more applications. GAN is helpful in generating output very close to the output generated by humans in a fraction of second, and it can efficiently produce high-quality music, speech, and images. Introduces the concept of Generative Adversarial Networks (GAN), including the basics of Generative Modelling, Deep Learning, Autoencoders, and advanced topics in GAN Demonstrates GANs for a wide variety of applications, including image generation, Big Data and data analytics, cloud computing, digital transformation, E-Commerce, and Artistic Neural Networks Includes a wide variety of biomedical and scientific applications, including unsupervised learning, natural language processing, pattern recognition, image and video processing, and disease diagnosis Provides a robust set of methods that will help readers to appropriately and judiciously use the suitable GANs for their applications

Advances in Visual Computing George Bebis 2021 This two-volume set of LNCS 13017 and 13018 constitutes the refereed proceedings of the 16th International Symposium on Visual Computing, ISVC 2021, which was held in October 2021. The symposium took place virtually instead due to the COVID-19 pandemic. The 48 papers presented in these volumes were carefully reviewed and selected from 135 submissions. The papers are organized into the following topical sections: Part I: deep learning; computer graphics; segmentation; visualization; applications; 3D vision; virtual reality; motion and tracking; object detection and recognition. Part II: ST: medical image analysis; pattern recognition; video analysis and event recognition; posters.

Advances in Neural Networks – ISNN 2017 Fengyu Cong 2017-06-14 This book constitutes the refereed proceedings of the 14th International Symposium on Neural Networks, ISNN 2017, held in Sapporo, Hakodate, and Muroran, Hokkaido, Japan, in June 2017. The 135 revised full papers presented in this two-volume set were carefully reviewed and selected from 259 submissions. The papers cover topics like perception, emotion and development, action and motor control, attractor and associative memory, neurodynamics, complex systems, and chaos.

Computer Vision – ECCV 2014 David Fleet 2014-08-14 The seven-volume set comprising LNCS volumes 8689-8695 constitutes the refereed proceedings of the 13th European Conference on Computer Vision, ECCV 2014, held in Zurich, Switzerland, in September 2014. The 363 revised papers presented were carefully reviewed and selected from 1444 submissions. The papers are organized in topical sections on tracking and activity recognition; recognition; learning and inference; structure from motion and feature matching; computational photography and low-level vision; vision; segmentation and saliency; context and 3D scenes; motion and 3D scene analysis; and poster sessions.

Computer Vision – ACCV 2020 Hiroshi Ishikawa 2021-02-26 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.

Deep Learning through Sparse and Low-Rank Modeling Zhangyang Wang 2019-04-26 Deep Learning through Sparse Representation and Low-Rank Modeling bridges classical sparse and low rank models-those that emphasize problem-specific Interpretability-with recent deep network models that have enabled a larger learning capacity and better utilization of Big Data. It shows how the toolkit of deep learning is closely tied with the sparse/low rank methods and algorithms, providing a rich variety of theoretical and analytic tools to guide the design and interpretation of deep learning models. The development of the theory and models is supported by a wide variety of applications in computer vision, machine learning, signal processing, and data mining. This book will be highly useful for researchers, graduate students and practitioners working in the fields of computer vision, machine learning, signal processing, optimization and statistics. Combines classical sparse and low-rank models and algorithms with the latest advances in deep learning networks Shows how the structure and algorithms of sparse and low-rank methods improves the performance and interpretability of Deep Learning models Provides tactics on how to build and apply customized deep learning models for various applications

Pattern Recognition and Machine Intelligence Marzena Kryszkiewicz 2015-06-22 This book constitutes the proceedings of the 6th International Conference on Pattern Recognition and Machine Intelligence, PRMI 2015, held in Warsaw, Poland, in June/July 2015. The total of 53 full papers and 1 short paper presented in this volume were carefully reviewed and selected from 90 submissions. They were organized in topical sections named: foundations of machine learning; image processing; image retrieval; image tracking; pattern recognition; data mining techniques for large scale data; fuzzy computing; rough sets; bioinformatics; and applications of artificial intelligence.

Computer Vision – ECCV 2020 Workshops Adrien Bartoli 2021-01-29 The 6-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 III includes the Advances in Image Manipulation Workshop and Challenges.

Selfie Biometrics Ajita Rattani 2019-09-21 This book highlights the field of selfie biometrics, providing a clear

overview and presenting recent advances and challenges. It also discusses numerous selfie authentication techniques on mobile devices. Biometric authentication using mobile devices is becoming a convenient and important means of verifying identity for secured access and services such as telebanking and electronic transactions. In this context, face and ocular biometrics in the visible spectrum has gained increased attention from the research community. However, device mobility and operation in uncontrolled environments mean that facial and ocular images captured with mobile devices exhibit substantial degradation as a result of adverse lighting conditions, specular reflections and motion and defocus blur. In addition, low spatial resolution and the small sensor of front-facing mobile cameras further degrade the sample quality, reducing the recognition accuracy of face and ocular recognition technology when integrated into smartphones. Presenting the state of the art in mobile biometric research and technology, and offering an overview of the potential problems in real-time integration of biometrics in mobile devices, this book is a valuable resource for final-year undergraduate students, postgraduate students, engineers, researchers and academics in various fields of computer engineering.

Pattern Recognition and Artificial Intelligence Yue Lu 2020-10-09 This book constitutes the proceedings of the Second International Conference on Pattern Recognition and Artificial Intelligence, ICPRAI 2020, which took place in Zhongshan, China, in October 2020. The 49 full and 14 short papers presented were carefully reviewed and selected for inclusion in the book. The papers were organized in topical sections as follows: handwriting and text processing; features and classifiers; deep learning; computer vision and image processing; medical imaging and applications; and forensic studies and medical diagnosis.

Smart Algorithms for Multimedia and Imaging Michael N. Rychagov 2021-05-05 This book presents prospective, industrially proven methods and software solutions for storing, processing, and viewing multimedia content on digital cameras, camcorders, TV, and mobile devices. Most of the algorithms described here are implemented as systems on chip firmware or as software products and have low computational complexity and memory consumption. In the four parts of the book, which contains a total of 16 chapters, the authors address solutions for the conversion of images and videos by super-resolution, depth estimation and control and mono-to-stereo (2D to 3D) conversion; display applications by video editing; the real-time detection of sport episodes; and the generation and reproduction of natural effects. The practical principles of machine learning are illustrated using technologies such as image classification as a service, mobile user profiling, and automatic view planning with dictionary-based compressed sensing in magnetic resonance imaging. The implementation of these technologies in mobile devices is discussed in relation to algorithms using a depth camera based on a colour-coded aperture, the animated graphical abstract of an image, a motion photo, and approaches and methods for iris recognition on mobile platforms. The book reflects the authors' practical experience in the development of algorithms for industrial R&D and the commercialization of technologies. Explains digital techniques for digital cameras, camcorders, TV, mobile devices; Offers essential algorithms for the processing pipeline in multimedia devices and accompanying software tools; Features advanced topics on data processing, addressing current technology challenges. **Computer Vision, Graphics and Image Processing** Prem Kalra 2007-01-01 This book constitutes the refereed proceedings of the Indian Conference on Computer Vision, Graphics and Image Processing, ICVGIP 2006, held in Madurai, India, December 2006. Coverage in this volume includes image restoration and super-resolution, image filtering, visualization, tracking and surveillance, face-, gesture-, and object-recognition, compression, content based image retrieval, stereo/camera calibration, and biometrics.

Multi-resolution Image Fusion in Remote Sensing Manjunath V. Joshi 2019-01-24 Written using clear and accessible language, this useful guide discusses fundamental concepts and practices of multi-resolution image fusion.

Computer Vision – ECCV 2022 Shai Avidan 2022-12-04 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.

Neural Information Processing Chu Kiong Loo 2014-10-21 The three volume set LNCS 8834, LNCS 8835, and LNCS 8836 constitutes the proceedings of the 20th International Conference on Neural Information Processing, ICONIP 2014, held in Kuching, Malaysia, in November 2014. The 231 full papers presented were carefully reviewed and selected from 375 submissions. The selected papers cover major topics of theoretical research, empirical study, and applications of neural information processing research. The 3 volumes represent topical sections containing articles on cognitive science, neural networks and learning systems, theory and design, applications, kernel and statistical methods, evolutionary computation and hybrid intelligent systems, signal and image processing, and special sessions intelligent systems for supporting decision, making processes, theories and applications, cognitive robotics, and learning systems for social network and web mining.

Intelligent Computing Methodologies De-Shuang Huang 2018-08-08 This book constitutes – in conjunction with the two-volume set LNCS 10954 and LNCS 10955 – the refereed proceedings of the 14th International Conference on Intelligent Computing, ICIC 2018, held in Wuhan, China, in August 2018. The 275 full papers and 72 short papers of the three proceedings volumes were carefully reviewed and selected from 632 submissions. The papers are organized in topical sections such as Evolutionary Computation and Learning; Neural Networks; Pattern Recognition; Image Processing; Information Security; Virtual Reality and Human-Computer Interaction; Business Intelligence and Multimedia Technology; Biomedical Informatics Theory and Methods; Swarm Intelligence and Optimization; Natural Computing; Quantum Computing; Intelligent Computing in Computer Vision; Fuzzy Theory and Algorithms; Machine Learning; Systems Biology; Intelligent Systems and Applications for Bioengineering; Evolutionary Optimization: Foundations and Its Applications to Intelligent Data Analytics; Swarm Evolutionary Algorithms for Scheduling and Combinatorial Optimization; Swarm Intelligence and Applications in Combinatorial Optimization; Advances in Metaheuristic Optimization Algorithm; Advances in Image Processing and Pattern Techniques; Bioinformatics.

Handbook of Convex Optimization Methods in Imaging Science Vishal Monga 2017-10-27 This book covers recent advances in image processing and imaging sciences from an optimization viewpoint, especially convex optimization with the goal of designing tractable algorithms. Throughout the handbook, the authors introduce topics on the most key aspects of image acquisition and processing that are based on the formulation and solution of novel optimization problems. The first part includes a review of the mathematical methods and foundations required, and covers topics in image quality optimization and assessment. The second part of the book discusses concepts in image formation and capture from color imaging to radar and multispectral imaging. The third part focuses on sparsity constrained optimization in image processing and vision and includes inverse problems such as image restoration and de-noising, image classification and recognition and

learning-based problems pertinent to image understanding. Throughout, convex optimization techniques are shown to be a critically important mathematical tool for imaging science problems and applied extensively. Convex Optimization Methods in Imaging Science is the first book of its kind and will appeal to undergraduate and graduate students, industrial researchers and engineers and those generally interested in computational aspects of modern, real-world imaging and image processing problems.

New Trends in Computer Technologies and Applications Chuan-Yu Chang 2019-07-10 The present book includes extended and revised versions of papers presented during the 2018 International Computer Symposium (ICS 2018), held in Yunlin, Republic of China (Taiwan), on December 20-22, 2018. The 86 papers presented were carefully reviewed and selected from 263 submissions from 11 countries. The variety of the topics include machine learning, sensor devices and platforms, sensor networks, robotics, embedded systems, networks, operating systems, software system structures, database design and models, multimedia and multimodal retrieval, object detection, image processing, image compression, mobile and wireless security.

Computer Vision - ECCV 2018 Workshops Laura Leal-Taixé 2019-01-22 The six-volume set comprising the LNCS volumes 11129-11134 constitutes the refereed proceedings of the workshops that took place in conjunction with the 15th European Conference on Computer Vision, ECCV 2018, held in Munich, Germany, in September 2018. 43 workshops from 74 workshops proposals were selected for inclusion in the proceedings. The workshop topics present a good orchestration of new trends and traditional issues, built bridges into neighboring fields, and discuss fundamental technologies and novel applications.

Computer Analysis of Images and Patterns Ainhoa Berciano 2011-08-19 The two volume set LNCS 6854/6855 constitutes the refereed proceedings of the International Conference on Computer Analysis of Images and Patterns, CAIP 2011, which took place in Seville, Spain, August 29-31, 2011. The 138 papers presented together with 2 invited talks were carefully reviewed and selected from 286 submissions. The papers are organized in topical section on: motion analysis, image and shape models, segmentation and grouping, shape recovery, kernel methods, medical imaging, structural pattern recognition, Biometrics, image and video processing, calibration; and tracking and stereo vision.

Image and Graphics Yao Zhao 2019-11-27 This three-volume set LNCS 11901, 11902, and 11903 constitutes the refereed conference proceedings of the 10thth International Conference on Image and Graphics, ICIG 2019, held in Beijing, China, in August 2019. The 183 full papers presented were selected from 384 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.

Image Super-Resolution and Applications Fathi E. Abd El-Samie 2012-12-15 This book is devoted to the issue of image super-resolution-obtaining high-resolution images from single or multiple low-resolution images. Although there are numerous algorithms available for image interpolation and super-resolution, there's been a need for a book that establishes a common thread between the two processes. Filling this need, Image Super-Resolution and Applications presents image interpolation as a building block in the super-resolution reconstruction process. Instead of approaching image interpolation as either a polynomial-based problem or an inverse problem, this book breaks the mold and compares and contrasts the two approaches. It presents two directions for image super-resolution: super-resolution with a priori information and blind super-resolution reconstruction of images. It also devotes chapters to the two complementary steps used to obtain high-resolution images: image registration and image fusion. Details techniques for color image interpolation and interpolation for pattern recognition Analyzes image interpolation as an inverse problem Presents image registration methodologies Considers image fusion and its application in image super resolution Includes simulation experiments along with the required MATLAB® code Supplying complete coverage of image-super resolution and its applications, the book illustrates applications for image interpolation and super-resolution in medical and satellite image processing. It uses MATLAB® programs to present various techniques, including polynomial image interpolation and adaptive polynomial image interpolation. MATLAB codes for most of the simulation experiments supplied in the book are included in the appendix.

Computer Vision -- ACCV 2012 Kyoung Mu Lee 2013-03-27 The four-volume set LNCS 7724--7727 constitutes the thoroughly refereed post-conference proceedings of the 11th Asian Conference on Computer Vision, ACCV 2012, held in Daejeon, Korea, in November 2012. The total of 226 contributions presented in these volumes was carefully reviewed and selected from 869 submissions. The papers are organized in topical sections on object detection, learning and matching; object recognition; feature, representation, and recognition; segmentation, grouping, and classification; image representation; image and video retrieval and medical image analysis; face and gesture analysis and recognition; optical flow and tracking; motion, tracking, and computational photography; video analysis and action recognition; shape reconstruction and optimization; shape from X and photometry; applications of computer vision; low-level vision and applications of computer vision.

Intelligent Computing Kohei Arai 2022-08-07 The book, "Intelligent Computing - Proceedings of the 2022 Computing Conference", is a comprehensive collection of chapters focusing on the core areas of computing and their further applications in the real world. Each chapter is a paper presented at the Computing Conference 2022 held on July 14-15, 2022. Computing 2022 attracted a total of 498 submissions which underwent a double-blind peer-review process. Of those 498 submissions, 179 submissions have been selected to be included in this book. The goal of this conference is to give a platform to researchers with fundamental contributions and to be a premier venue for academic and industry practitioners to share new ideas and development experiences. We hope that readers find this book interesting and valuable as it provides the state-of-the-art intelligent methods and techniques for solving real-world problems. We also expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject.

Denoising of Photographic Images and Video Marcelo Bertalmio 2018-09-10 This unique text/reference presents a detailed review of noise removal for photographs and video. An international selection of expert contributors provide their insights into the fundamental challenges that remain in the field of denoising, examining how to properly model noise in real scenarios, how to tailor denoising algorithms to these models, and how to evaluate the results in a way that is consistent with perceived image quality. The book offers comprehensive coverage from problem formulation to the evaluation of denoising methods, from historical perspectives to state-of-the-art algorithms, and from fast real-time techniques that can be implemented in-camera to powerful and computationally intensive methods for off-line processing. Topics and features: describes the basic methods for the analysis of signal-dependent and correlated noise, and the key concepts underlying sparsity-based image denoising algorithms; reviews the most successful variational approaches for image reconstruction, and introduces convolutional neural network-based denoising methods; provides an overview of the use of Gaussian priors for patch-based image denoising, and examines the potential of internal denoising; discusses selection and estimation strategies for patch-based video denoising, and explores how noise enters the imaging pipeline; surveys the properties of real camera noise, and outlines a fast approximation of nonlocal means filtering; proposes routes to improving denoising results via indirectly denoising a transform of the image, considering the right noise model and taking into account the perceived quality of the outputs. This concise and clearly written volume will be of great value to researchers and professionals working in image processing and computer vision. The book will also serve as an accessible reference for advanced undergraduate and graduate students in computer science, applied mathematics, and related fields. "The relentless quest for higher image resolution, greater ISO sensitivity, faster frame rates and smaller imaging sensors in digital imaging and videography has demanded unprecedented innovation and improvement in noise reduction technologies. This book provides a comprehensive treatment of all aspects of image noise including noise modelling, state of the art noise reduction technologies and visual perception and quantitative evaluation of noise." Geoff Woolfe, Former President of The Society for Imaging Science and Technology. "This book on denoising of photographic images and video is the most comprehensive and up-to-date account of this deep and classic problem of image

processing. The progress on its solution is being spectacular. This volume therefore is a must read for all engineers and researchers concerned with image and video quality." Jean-Michel Morel, Professor at Ecole Normale Supérieure de Cachan, France.

Hands-On Image Generation with TensorFlow Soon Yau Cheong 2020-12-24 Implement various state-of-the-art architectures, such as GANs and autoencoders, for image generation using TensorFlow 2.x from scratch Key FeaturesUnderstand the different architectures for image generation, including autoencoders and GANsBuild models that can edit an image of your face, turn photos into paintings, and generate photorealistic imagesDiscover how you can build deep neural networks with advanced TensorFlow 2.x featuresBook DescriptionThe emerging field of Generative Adversarial Networks (GANs) has made it possible to generate indistinguishable images from existing datasets. With this hands-on book, you'll not only develop image generation skills but also gain a solid understanding of the underlying principles. Starting with an introduction to the fundamentals of image generation using TensorFlow, this book covers Variational Autoencoders (VAEs) and GANs. You'll discover how to build models for different applications as you get to grips with performing face swaps using deepfakes, neural style transfer, image-to-image translation, turning simple images into photorealistic images, and much more. You'll also understand how and why to construct state-of-the-art deep neural networks using advanced techniques such as spectral normalization and self-attention layer before working with advanced models for face generation and editing. You'll also be introduced to photo restoration, text-to-image synthesis, video retargeting, and neural rendering. Throughout the book, you'll learn to implement models from scratch in TensorFlow 2.x, including PixelCNN, VAE, DCGAN, WGAN, pix2pix, CycleGAN, StyleGAN, GauGAN, and BigGAN. By the end of this book, you'll be well versed in TensorFlow and be able to implement image generative technologies confidently. What you will learnTrain on face datasets and use them to explore latent spaces for editing new facesGet to grips with swapping faces with deepfakesPerform style transfer to convert a photo into a paintingBuild and train pix2pix, CycleGAN, and BicycleGAN for image-to-image translationUse iGAN to understand manifold interpolation and GauGAN to turn simple images into photorealistic imagesBecome well versed in attention generative models such as SAGAN and BigGANGenerate high-resolution photos with Progressive GAN and StyleGANWho this book is forThe Hands-On Image Generation with TensorFlow book is for deep learning engineers, practitioners, and researchers who have basic knowledge of convolutional neural networks and want to learn various image generation techniques using TensorFlow 2.x. You'll also find this book useful if you are an image processing professional or computer vision engineer looking to explore state-of-the-art architectures to improve and enhance images and videos. Knowledge of Python and TensorFlow will help you to get the best out of this book.

ICT with Intelligent Applications Tomonobu Senjyu 2021-12-05 This book gathers papers addressing state-of-the-art research in all areas of information and communication technologies and their applications in intelligent computing, cloud storage, data mining and software analysis. It presents the outcomes of the Fifth International Conference on Information and Communication Technology for Intelligent Systems (ICTIS 2021), held in Ahmedabad, India. The book is divided into two volumes. It discusses the fundamentals of various data analysis techniques and algorithms, making it a valuable resource for researchers and practitioners alike.

Technologies for Sustainable Development Alka Mahajan 2022-02-14 This volume contains a selection of papers presented at the 7th Nirma University International Conference on Engineering 'NUICONE 2019'. This conference followed the successful organization of four national conferences and six international conferences in previous years. The main theme of the conference was "Technologies for Sustainable Development", which is in line with the "SUSTAINABLE DEVELOPMENT GOAL" established by the United Nations. The conference was organized with many inter-disciplinary technical themes encompassing a broad range of disciplines and enabling researchers, academicians and practitioners to choose between ideas and themes. Besides, NUICONE-2019 has also presented an exciting new set of events to engage practicing engineers, technologists and technopreneurs from industry through special knowledge sharing sessions involving applied technical papers based on case-study applications, white-papers, panel discussions, innovations and technology products. This proceedings will definitely provide a platform to proliferate new findings among researchers. Advances in Transportation Engineering Emerging Trends in Water Resources and Environmental Engineering Construction Technology and Management Concrete and Structural Engineering Futuristic Power System Control of Power Electronics Converters, Drives and E-mobility Advanced Electrical Machines and Smart Apparatus Chemical Process Development and Design Technologies and Green Environment Sustainable Manufacturing Processes Design and Analysis of Machine and Mechanism Energy Conservation and Management Advances in Networking Technologies Machine Intelligence / Computational Intelligence Autonomic Computing Control and Automation Electronic Communications Electronics Circuits and System Design Signal Processing

Intelligent Automation and Systems Engineering Sio-Iong Ao 2011-08-23 Intelligent systems are required to facilitate the use of information provided by the internet and other computer based technologies. This book describes the state-of-the-art in Intelligent Automation and Systems Engineering. Topics covered include Intelligent decision making, Automation, Robotics, Expert systems, Fuzzy systems, Knowledge-based systems, Knowledge extraction, Large database management, Data analysis tools, Computational biology, Optimization algorithms, Experimental designs, Complex system identification, Computational modeling, Systems simulation, Decision modeling, and industrial applications.

Example-Based Super Resolution Jordi Salvador 2016-09-22 Example-Based Super Resolution provides a thorough introduction and overview of example-based super resolution, covering the most successful algorithmic approaches and theories behind them with implementation insights. It also describes current challenges and explores future trends. Readers of this book will be able to understand the latest natural image patch statistical models and the performance limits of example-based super resolution algorithms, select the best state-of-the-art algorithmic alternative and tune it for specific use cases, and quickly put into practice implementations of the latest and most successful example-based super-resolution methods. Provides detailed coverage of techniques and implementation details that have been successfully introduced in diverse and demanding real-world applications Covers a wide variety of machine learning approaches, ranging from cross-scale self-similarity concepts and sparse coding, to the latest advances in deep learning Presents a statistical interpretation of the subspace of natural image patches that transcends super resolution and makes it a valuable source for any researcher on image processing or low-level vision

Hybrid Intelligent Systems Ajith Abraham 2021-04-16 This book highlights the recent research on hybrid intelligent systems and their various practical applications. It presents 58 selected papers from the 20th International Conference on Hybrid Intelligent Systems (HIS 2020) and 20 papers from the 12th World Congress on Nature and Biologically Inspired Computing (NaBIC 2020), which was held online, from December 14 to 16, 2020. A premier conference in the field of artificial intelligence, HIS - NaBIC 2020 brought together researchers, engineers and practitioners whose work involves intelligent systems, network security and their applications in industry. Including contributions by authors from 25 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of science and engineering.

Advanced Data Mining and Applications Jianxin Li 2019-11-16 This book constitutes the proceedings of the 15th International Conference on Advanced Data Mining and Applications, ADMA 2019, held in Dalian, China in November 2019. The 39 full papers presented together with 26 short papers and 2 demo papers were carefully reviewed and selected from 170 submissions. The papers were organized in topical sections named: Data Mining Foundations; Classification and Clustering Methods; Recommender Systems; Social Network and Social Media; Behavior Modeling and User Profiling; Text and Multimedia Mining; Spatial-Temporal Data; Medical and Healthcare Data/Decision Analytics; and Other Applications.

Computer Vision - ECCV 2016 Bastian Leibe 2016-09-16 The eight-volume set comprising LNCS volumes 9905-9912 constitutes the refereed proceedings of the 14th European Conference on Computer Vision, ECCV 2016, held in Amsterdam, The Netherlands, in October 2016. The 415 revised papers presented were carefully reviewed and selected from 1480 submissions. The papers cover all aspects of computer vision and pattern recognition such as 3D computer vision; computational photography, sensing and display; face and gesture; low-level vision and image processing; motion and tracking; optimization methods; physics-based vision, photometry and shape-from-X; recognition: detection,

categorization, indexing, matching; segmentation, grouping and shape representation; statistical methods and learning; video: events, activities and surveillance; applications. They are organized in topical sections on detection, recognition and retrieval; scene understanding; optimization; image and video processing; learning; action activity and tracking; 3D; and 9 poster sessions.

Intelligent Computing Theory De-Shuang Huang 2014-07-03 This book - in conjunction with the volumes LNAI 8589 and LNBI 8590 - constitutes the refereed proceedings of the 10th International Conference on Intelligent Computing, ICIC 2014, held in Taiyuan, China, in August 2014. The 92 papers of this volume were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections such as evolutionary computation and learning; swarm intelligence and optimization; machine learning; social and natural computing; neural networks; biometrics recognition; image processing; information security; virtual reality and human-computer interaction; knowledge discovery and data mining; signal processing; pattern recognition; biometric system and security for intelligent computing.

Curves and Surfaces Pierre-Jean Laurent 2014-05-12 Curves and Surfaces provides information pertinent to the fundamental aspects of approximation theory with emphasis on approximation of images, surface compression, wavelets, and tomography. This book covers a variety of topics, including error estimates for multiquadratic interpolation, spline manifolds, and vector spline approximation. Organized into 77 chapters, this book begins with an overview of the method, based on a local Taylor expansion of the final curve, for computing the parameter values. This text then presents a vector approximation based on general spline function theory. Other chapters consider a nonparametric technique for estimating under random censorship the amplitude of a change point in change point hazard models. This book discusses as well the algorithm for ray tracing rational parametric surfaces based on inversion and implicitization. The final chapter deals with the results concerning the norm of the interpolation operator and error estimates for a square domain. This book is a valuable resource for mathematicians.

Biometric Recognition Zhisheng You 2016-10-07 This book constitutes the refereed proceedings of the 11th Chinese Conference on Biometric Recognition, CCBR 2016, held in Chengdu, China, in October 2016. The 84 revised full papers presented in this book were carefully reviewed and selected from 138 submissions. The papers focus on Face Recognition

and Analysis; Fingerprint, Palm-print and Vascular Biometrics; Iris and Ocular Biometrics; Behavioral Biometrics; Affective Computing; Feature Extraction and Classification Theory; Anti-Spoofing and Privacy; Surveillance; and DNA and Emerging Biometrics.

Processing Casey Reas 2007 An introduction to the ideas of computer programming within the context of the visualarts that also serves as a reference and text for Processing, an open-source programming language designed for creating images, animation, and interactivity.

Neural Information Processing Derong Liu 2017-11-07 The six volume set LNCS 10634, LNCS 10635, LNCS 10636, LNCS 10637, LNCS 10638, and LNCS 10639 constitutes the proceedings of the 24th International Conference on Neural Information Processing, ICONIP 2017, held in Guangzhou, China, in November 2017. The 563 full papers presented were carefully reviewed and selected from 856 submissions. The 6 volumes are organized in topical sections on Machine Learning, Reinforcement Learning, Big Data Analysis, Deep Learning, Brain-Computer Interface, Computational Finance, Computer Vision, Neurodynamics, Sensory Perception and Decision Making, Computational Intelligence, Neural Data Analysis, Biomedical Engineering, Emotion and Bayesian Networks, Data Mining, Time-Series Analysis, Social Networks, Bioinformatics, Information Security and Social Cognition, Robotics and Control, Pattern Recognition, Neuromorphic Hardware and Speech Processing.

New techniques for improving climate models, predictions and projections Matthew Collins 2022-01-24

Computer Vision - ECCV 2020 Andrea Vedaldi 2020-11-29 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.