

Academic Coupled Dictionary Learning For Sketch Based

Academic Press Library in Signal Processing, Volume 6: Image and Video Processing and Analysis and Computer Vision is aimed at university researchers, post graduate students and R&D engineers in the industry, providing a tutorial-based, comprehensive review of key topics and technologies of research in both image and video processing and analysis and computer vision. The book provides an invaluable starting point to the area through the insight and understanding that it provides. With this reference, readers will quickly grasp an unfamiliar area of research, understand the underlying principles of a topic, learn how a topic relates to other areas, and learn of research issues yet to be resolved. Presents a quick tutorial of reviews of important and emerging topics of research Explores core principles, technologies, algorithms and applications Edited and contributed by international leading figures in the field Includes comprehensive references to journal articles and other literature upon which to build further, more detailed knowledge This book equips readers to handle complex multi-view data representation, centered around several major visual applications, sharing many tips and insights through a unified learning framework. This framework is able to model most existing multi-view learning and domain adaptation, enriching readers' understanding from their similarity, and differences based on data organization and problem settings, as well as the research goal. A comprehensive review exhaustively provides the key recent research on multi-view data analysis, i.e., multi-view clustering, multi-view classification, zero-shot learning, and domain adaptation. More practical challenges in multi-view data analysis are discussed including incomplete, unbalanced and large-scale multi-view learning. Learning Representation for Multi-View

Data Analysis covers a wide range of applications in the research fields of big data, human-centered computing, pattern recognition, digital marketing, web mining, and computer vision. The last few years have witnessed fast development on dictionary learning approaches for a set of visual computing tasks, largely due to their utilization in developing new techniques based on sparse representation. Compared with conventional techniques employing manually defined dictionaries, such as Fourier Transform and Wavelet Transform, dictionary learning aims at obtaining a dictionary adaptively from the data so as to support optimal sparse representation of the data. In contrast to conventional clustering algorithms like K-means, where a data point is associated with only one cluster center, in a dictionary-based representation, a data point can be associated with a small set of dictionary atoms. Thus, dictionary learning provides a more flexible representation of data and may have the potential to capture more relevant features from the original feature space of the data. One of the early algorithms for dictionary learning is K-SVD. In recent years, many variations/extensions of K-SVD and other new algorithms have been proposed, with some aiming at adding discriminative capability to the dictionary, and some attempting to model the relationship of multiple dictionaries. One prominent application of dictionary learning is in the general field of visual computing, where long-standing challenges have seen promising new solutions based on sparse representation with learned dictionaries. With a timely review of recent advances of dictionary learning in visual computing, covering the most recent literature with an emphasis on papers after 2008, this book provides a systematic presentation of the general methodologies, specific algorithms, and examples of applications for those who wish to have a quick start on this subject.

The two volumes CCIS 546 and 547 constitute the refereed proceedings of the CCF Chinese Conference on Computer Vision, CCCV 2015, held in Xi'an, China, in September 2015. The total of

89 revised full papers presented in both volumes were carefully reviewed and selected from 176 submissions. The papers address issues such as computer vision, machine learning, pattern recognition, target recognition, object detection, target tracking, image segmentation, image restoration, face recognition, image classification.

This book presents collective works published in the recent Special Issue (SI) entitled " Digital Signal, Image and Video Processing for Emerging Multimedia Technology". These works address the emerging technology in signal processing and its new aspects, as well as the related applications. Recent developments in image/video-based deep learning technology have enabled new services in the field of multimedia and recognition technology. The applications vary and range from digital signal processing to image, video and multimedia signal processing, also including object classification, learning mechanism design and data security. Recent advances in numerical, theoretical and experimental methodologies are presented within the scope of the current book, along with the finding of new learning methods and new methodological developments and their limitations. This book brings together a collection of inter-/multidisciplinary works applied to many classification and data security applications in a coherent manner.

Computer Vision, Pattern Recognition, Image Processing, and Graphics

22nd International Conference, ICONIP 2015, Istanbul, Turkey, November 9-12, 2015, Proceedings, Part I

Robust Representation for Data Analytics

Technologies for Sustainable Development

Image and Video Processing and Analysis and Computer Vision

Artificial Intelligence and Computer Vision

The three-volume set CCIS 761, CCIS 762, and CCIS 763

constitutes the thoroughly refereed proceedings of the International Conference on Life System Modeling and Simulation, LSMS 2017,

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and of the International Conference on Intelligent Computing for Sustainable Energy and Environment, ICSEE 2017, held in Nanjing, China, in September 2017. The 208 revised full papers presented were carefully reviewed and selected from over 625 submissions. The papers of this volume are organized in topical sections on: Biomedical Signal Processing; Computational Methods in Organism Modeling; Medical Apparatus and Clinical Applications; Bionics Control Methods, Algorithms and Apparatus; Modeling and Simulation of Life Systems; Data Driven Analysis; Image and Video Processing; Advanced Fuzzy and Neural Network Theory and Algorithms; Advanced Evolutionary Methods and Applications; Advanced Machine Learning Methods and Applications; Intelligent Modeling, Monitoring, and Control of Complex Nonlinear Systems; Advanced Methods for Networked Systems; Control and Analysis of Transportation Systems; Advanced Sliding Mode Control and Applications; Advanced Analysis of New Materials and Devices; Computational Intelligence in Utilization of Clean and Renewable Energy Resources; Intelligent Methods for Energy Saving and Pollution Reduction; Intelligent Methods in Developing Electric Vehicles, Engines and Equipment; Intelligent Computing and Control in Power Systems; Modeling, Simulation and Control in Smart Grid and Microgrid; Optimization Methods; Computational Methods for Sustainable Environment.

The 4-volumes set of LNCS 13529, 13530, 13531, and 13532 constitutes the proceedings of the 31st International Conference on Artificial Neural Networks, ICANN 2022, held in Bristol, UK, in September 2022. The total of 255 full papers presented in these proceedings was carefully reviewed and selected from 561 submissions. ICANN 2022 is a dual-track conference featuring tracks in brain inspired computing and machine learning and artificial neural networks, with strong cross-disciplinary interactions and applications.

The two-volume set LNCS 9242 + 9243 constitutes the proceedings of the 5th International Conference on Intelligence Science and Big

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Data Engineering, IScIDE 2015, held in Suzhou, China, in June 2015. The total of 126 papers presented in the proceedings was carefully reviewed and selected from 416 submissions. They deal with big data, neural networks, image processing, computer vision, pattern recognition and graphics, object detection, dimensionality reduction and manifold learning, unsupervised learning and clustering, anomaly detection, semi-supervised learning.

The two volume set LNCS 8887 and 8888 constitutes the refereed proceedings of the 10th International Symposium on Visual Computing, ISVC 2014, held in Las Vegas, NV, USA. The 74 revised full papers and 55 poster papers presented together with 39 special track papers were carefully reviewed and selected from more than 280 submissions. The papers are organized in topical sections: Part I (LNCS 8887) comprises computational bioimaging, computer graphics; motion, tracking, feature extraction and matching, segmentation, visualization, mapping, modeling and surface reconstruction, unmanned autonomous systems, medical imaging, tracking for human activity monitoring, intelligent transportation systems, visual perception and robotic systems. Part II (LNCS 8888) comprises topics such as computational bioimaging, recognition, computer vision, applications, face processing and recognition, virtual reality, and the poster sessions.

This authoritative text/reference presents a comprehensive review of algorithms and techniques for face recognition (FR), with an emphasis on systems that can be reliably used in operational environments. Insights are provided by an international team of pre-eminent experts into the processing of multispectral and hyperspectral face images captured under uncontrolled environments. These discussions cover a variety of imaging sensors ranging from state-of-the-art visible and infrared imaging sensors, to RGB-D and mobile phone image sensors. A range of different biometric modalities are also examined, including face, periocular and iris. This timely volume is a mine of useful information for researchers, practitioners and students involved in image

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processing, computer vision, biometrics and security.

ACCV 2016 International Workshops, Taipei, Taiwan, November 20-24, 2016, Revised Selected Papers, Part I

Sparse Coding and Its Applications in Computer Vision

14th European Conference, Amsterdam, The Netherlands, October 11-14, 2016, Proceedings, Part V

5th International Conference, IScIDE 2015, Suzhou, China, June 14-16, 2015, Revised Selected Papers, Part I

Multisensor Data Fusion and Machine Learning for Environmental Remote Sensing

Dictionary Learning in Visual Computing

This book introduces the applications of deep learning in various human centric visual analysis tasks,

including classical ones like face detection and

alignment and some newly rising tasks like fashion

clothing parsing. Starting from an overview of current

research in human centric visual analysis, the book

then presents a tutorial of basic concepts and

techniques of deep learning. In addition, the book systematically investigates the main human centric

analysis tasks of different levels, ranging from

detection and segmentation to parsing and higher-level

understanding. At last, it presents the state-of-the-art

solutions based on deep learning for every task, as well

as providing sufficient references and extensive

discussions. Specifically, this book addresses four

important research topics, including 1) localizing

persons in images, such as face and pedestrian

detection; 2) parsing persons in details, such as human

pose and clothing parsing, 3) identifying and verifying

persons, such as face and human identification, and 4)

high-level human centric tasks, such as person

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attributes and human activity understanding. This book can serve as reading material and reference text for academic professors / students or industrial engineers working in the field of vision surveillance, biometrics, and human-computer interaction, where human centric visual analysis are indispensable in analysing human identity, pose, attributes, and behaviours for further understanding.

This edited book presents essential findings in the research fields of artificial intelligence and computer vision, with a primary focus on new research ideas and results for mathematical problems involved in computer vision systems. The book provides an international forum for researchers to summarize the most recent developments and ideas in the field, with a special emphasis on the technical and observational results obtained in the past few years.

Deep learning is providing exciting solutions for medical image analysis problems and is seen as a key method for future applications. This book gives a clear understanding of the principles and methods of neural network and deep learning concepts, showing how the algorithms that integrate deep learning as a core component have been applied to medical image detection, segmentation and registration, and computer-aided analysis, using a wide variety of application areas. Deep Learning for Medical Image Analysis is a great learning resource for academic and industry researchers in medical imaging analysis, and for graduate students taking courses on machine learning and deep learning for computer vision and

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medical image computing and analysis. Covers common research problems in medical image analysis and their challenges Describes deep learning methods and the theories behind approaches for medical image analysis Teaches how algorithms are applied to a broad range of application areas, including Chest X-ray, breast CAD, lung and chest, microscopy and pathology, etc. Includes a Foreword written by Nicholas Ayache This book constitutes the refereed proceedings of the First International Workshop on Simulation and Synthesis in Medical Imaging, held in conjunction with MICCAI 2016, in Athens, Greece, in October 2016. The 17 revised full papers presented together in this book were carefully reviewed and selected from 21 submissions. The contributions span the following broad categories: fundamental methods for image-based biophysical modeling and image synthesis; biophysical and data-driven models of disease progression or organ development; biophysical and data-driven models of organ motion and deformation; biophysical and data-driven models of image formation and acquisition; segmentation/registration across or within modalities to aid the learning of model parameters; cross modality (PET/MR, PET/CT, CT/MR, etc.) image synthesis; simulation and synthesis from large-scale image databases; automated techniques for quality assessment of simulations and synthetic images; as well as several applications of image synthesis and simulation in medical imaging such as image registration and segmentation; image denoising and information fusion; image reconstruction from

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sparse data or sparse views; and real-time simulation of biophysical properties. The papers were divided into two general topics named “simulation based approaches for medical imaging” and “synthesis and its applications in computational medical imaging”. Recent progress in artificial intelligence (AI) has revolutionized our everyday life. Many AI algorithms have reached human-level performance and AI agents are replacing humans in most professions. It is predicted that this trend will continue and 30% of work activities in 60% of current occupations will be automated. This success, however, is conditioned on availability of huge annotated datasets to training AI models. Data annotation is a time-consuming and expensive task which still is being performed by human workers. Learning efficiently from less data is a next step for making AI more similar to natural intelligence. Transfer learning has been suggested a remedy to relax the need for data annotation. The core idea in transfer learning is to transfer knowledge across similar tasks and use similarities and previously learned knowledge to learn more efficiently. In this book, we provide a brief background on transfer learning and then focus on the idea of transferring knowledge through intermediate embedding spaces. The idea is to couple and relate different learning through embedding spaces that encode task-level relations and similarities. We cover various machine learning scenarios and demonstrate that this idea can be used to overcome challenges of zero-shot learning, few-shot learning, domain adaptation, continual learning, lifelong

learning, and collaborative learning.

*Intelligent Computing, Networked Control, and Their
Engineering Applications*

*CCF Chinese Conference, CCCV 2015, Xi'an, China,
September 18-20, 2015, Proceedings, Part I*

EEG Signal Processing and Machine Learning

Advances in Visual Computing

*Artificial Neural Networks and Machine Learning -
ICANN 2022*

Image and Graphics

***This book constitutes the refereed
proceedings of the 6th National
Conference on Computer Vision, Pattern
Recognition, Image Processing, and
Graphics, NCVPRIPG 2017, held in
Mandi, India, in December 2017. The 48
revised full papers presented in this
volume were carefully reviewed and
selected from 147 submissions. The
papers are organized in topical sections
on video processing; image and signal
processing; segmentation, retrieval,
captioning; pattern recognition
applications.***

***The three-volume set, consisting of LNCS
10116, 10117, and 10118, contains
carefully reviewed and selected papers
presented at 17 workshops held in
conjunction with the 13th Asian***

Conference on Computer Vision, ACCV 2016, in Taipei, Taiwan in November 2016. The 134 full papers presented were selected from 223 submissions. LNCS 10116 contains the papers selected Performing 3D face recognition when only partial 3D data are present in the gallery and probe is a very challenging task. The task is even more challenging when the gallery dataset originates from one side of the face while the probe dataset originates from the other. We present a new method for computing the similarity of partial 3D data for the purpose of face recognition. This method improves upon an existing Semi-Coupled Dictionary Learning method by computing a jointly-optimized solution that incorporates the reconstruction cost, the discrimination cost and the semi-coupling cost. Our experiments show that this method can improve upon recognition performance of existing state-of-the-art wavelet signatures used in 3D face recognition. The use of a semi-coupling term allows our method to handle partial face meshes with a possible extension to other types of signatures.

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 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.

Computer Vision

Issues in Analysis, Measurement, Monitoring, Imaging, and Remote Sensing Technology: 2013 Edition

Coding Theory

10th International Symposium, ISVC 2014, Las Vegas, NV, USA, December 8-10, 2014, Proceedings, Part I

Dictionary Learning Algorithms and Applications

Intelligence Science and Big Data Engineering. Image and Video Data Engineering

This book introduces the concepts and models of robust representation learning, and provides a set of solutions to deal with real-world data analytics tasks, such as clustering, classification, time series modeling, outlier detection, collaborative filtering, community detection, etc. Three types of robust feature representations are developed, which extend the understanding of graph, subspace, and dictionary.

Leveraging the theory of low-rank and sparse modeling, the authors develop robust feature representations under various learning paradigms, including unsupervised learning, supervised learning, semi-supervised learning, multi-view learning, transfer learning, and deep learning. Robust Representations for Data Analytics covers a wide range of applications in the research fields of big data, human-centered computing, pattern recognition, digital marketing, web mining, and computer vision. In the last few years the scientific community has realized that obtaining a better understanding of interactions between natural systems and the man-made environment across different scales demands more research efforts in remote sensing. An integrated Earth system observatory that merges surface-based, air-borne, space-borne, and even underground sensors with comprehensive and predictive capabilities indicates promise for revolutionizing the study of global water, energy, and carbon cycles as well as land use and land cover changes. The aim of this book is to present a suite of relevant

concepts, tools, and methods of integrated multisensor data fusion and machine learning technologies to promote environmental sustainability. The process of machine learning for intelligent feature extraction consists of regular, deep, and fast learning algorithms. The niche for integrating data fusion and machine learning for remote sensing rests upon the creation of a new scientific architecture in remote sensing science that is designed to support numerical as well as symbolic feature extraction managed by several cognitively oriented machine learning tasks at finer scales. By grouping a suite of satellites with similar nature in platform design, data merging may come to help for cloudy pixel reconstruction over the space domain or concatenation of time series images over the time domain, or even both simultaneously. Organized in 5 parts, from Fundamental Principles of Remote Sensing; Feature Extraction for Remote Sensing; Image and Data Fusion for Remote Sensing; Integrated Data Merging, Data Reconstruction, Data Fusion, and Machine Learning; to Remote Sensing for

Environmental Decision Analysis, the book will be a useful reference for graduate students, academic scholars, and working professionals who are involved in the study of Earth systems and the environment for a sustainable future. The new knowledge in this book can be applied successfully in many areas of environmental science and engineering.

Discriminative Semi-coupled Dictionary Learning for Face Recognition

"This book provides a broader introduction to the theories and applications of sparse coding techniques in computer vision research. It introduces sparse coding in the context of representation learning, illustrates the fundamental concepts, and summarizes the most active research directions. A variety of applications of sparse coding are discussed, ranging from low-level image processing tasks such as super-resolution and de-blurring to high-level semantic understanding tasks such as image recognition, clustering and fusion. The book is suitable to be used as an introductory overview to this field, with its theoretical

part being both easy and precious enough for quick understanding. It is also of great value to experienced researchers as it offers new perspective to the underlying mechanism of sparse coding, and points out potential future directions for different applications."-- Tensor is a natural representation for multi-dimensional data, and tensor computation can avoid possible multi-linear data structure loss in classical matrix computation-based data analysis. This book is intended to provide non-specialists an overall understanding of tensor computation and its applications in data analysis, and benefits researchers, engineers, and students with theoretical, computational, technical and experimental details. It presents a systematic and up-to-date overview of tensor decompositions from the engineer's point of view, and comprehensive coverage of tensor computation based data analysis techniques. In addition, some practical examples in machine learning, signal processing, data mining, computer vision, remote sensing, and biomedical engineering are also presented for easy

understanding and implementation. These data analysis techniques may be further applied in other applications on neuroscience, communication, psychometrics, chemometrics, biometrics, quantum physics, quantum chemistry, etc. The discussion begins with basic coverage of notations, preliminary operations in tensor computations, main tensor decompositions and their properties. Based on them, a series of tensor-based data analysis techniques are presented as the tensor extensions of their classical matrix counterparts, including tensor dictionary learning, low rank tensor recovery, tensor completion, coupled tensor analysis, robust principal tensor component analysis, tensor regression, logistical tensor regression, support tensor machine, multilinear discriminate analysis, tensor subspace clustering, tensor-based deep learning, tensor graphical model and tensor sketch. The discussion also includes a number of typical applications with experimental results, such as image reconstruction, image enhancement, data fusion, signal recovery,

recommendation system, knowledge graph acquisition, traffic flow prediction, link prediction, environmental prediction, weather forecasting, background extraction, human pose estimation, cognitive state classification from fMRI, infrared small target detection, heterogeneous information networks clustering, multi-view image clustering, and deep neural network compression.

Transfer Learning through Embedding Spaces

Learning Representation for Multi-View Data Analysis

Second CCF Chinese Conference, CCCV 2017, Tianjin, China, October 11-14, 2017, Proceedings, Part II

Digital Signal, Image and Video Processing for Emerging Multimedia Technology

Discriminative Semi-coupled Dictionary Learning for Face Recognition

10th International Conference, ICIG 2019, Beijing, China, August 23-25, 2019, Proceedings, Part III

Artificial intelligence (AI) and machine learning (ML) have transformed many standard and conventional methods in undertaking health and well-being issues of humans.

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AL/ML-based systems and tools play a critical role in this digital and big data era to address a variety of medical and healthcare problems, improving treatments and quality of care for patients. This edition on AI and ML for healthcare consists of two volumes. The first presents selected AI and ML studies on medical imaging and healthcare data analytics, while the second unveils emerging methodologies and trends in AI and ML for delivering better medical treatments and healthcare services in the future. In this first volume, progresses in AI and ML technologies for medical image, video, and signal processing as well as health information and data analytics are presented. These selected studies offer readers theoretical and practical knowledge and ideas pertaining to recent advances in AI and ML for effective and efficient image and data analytics, leading to state-of-the-art AI and ML technologies for advancing the healthcare sector.

Over-complete bases offer the flexibility to represent much wider range of signals with more elementary basis atoms than signal dimension. The use of over-complete dictionaries for sparse representation has been a new trend recently and has increasingly become recognized as providing high performance for applications such as denoise, image super-resolution, inpainting, compression, blind source separation and linear unmixing. This dissertation studies the dictionary learning for single or coupled feature spaces and its application in image restoration tasks. A Bayesian strategy using a beta process prior is applied to solve both problems. Firstly, we illustrate how to generalize the existing beta process dictionary learning method (BP) to learn dictionary for single feature space. The advantage of this approach is that the number of dictionary atoms and their relative

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importance may be inferred non-parametrically. Next, we propose a new beta process joint dictionary learning method (BP-JDL) for coupled feature spaces, where the learned dictionaries also reflect the relationship between the two spaces. Compared to previous couple feature spaces dictionary learning algorithms, our algorithm not only provides dictionaries that customized to each feature space, but also adds more consistent and accurate mapping between the two feature spaces. This is due to the unique property of the beta process model that the sparse representation can be decomposed to values and dictionary atom indicators. The proposed algorithm is able to learn sparse representations that correspond to the same dictionary atoms with the same sparsity but different values in coupled feature spaces, thus bringing consistent and accurate mapping between coupled feature spaces. Two applications, single image super-resolution and inverse halftoning, are chosen to evaluate the performance of the proposed Bayesian approach. In both cases, the Bayesian approach, either for single feature space or coupled feature spaces, outperforms state-of-the-art methods in comparative domains.

Transfer learning deals with how systems can quickly adapt themselves to new situations, tasks and environments. It gives machine learning systems the ability to leverage auxiliary data and models to help solve target problems when there is only a small amount of data available. This makes such systems more reliable and robust, keeping the machine learning model faced with unforeseeable changes from deviating too much from expected performance. At an enterprise level, transfer learning allows knowledge to be reused so experience gained once can be repeatedly applied to the

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real world. For example, a pre-trained model that takes account of user privacy can be downloaded and adapted at the edge of a computer network. This self-contained, comprehensive reference text describes the standard algorithms and demonstrates how these are used in different transfer learning paradigms. It offers a solid grounding for newcomers as well as new insights for seasoned researchers and developers.

This book introduces the challenges of robotic tactile perception and task understanding, and describes an advanced approach based on machine learning and sparse coding techniques. Further, a set of structured sparse coding models is developed to address the issues of dynamic tactile sensing. The book then proves that the proposed framework is effective in solving the problems of multi-finger tactile object recognition, multi-label tactile adjective recognition and multi-category material analysis, which are all challenging practical problems in the fields of robotics and automation. The proposed sparse coding model can be used to tackle the challenging visual-tactile fusion recognition problem, and the book develops a series of efficient optimization algorithms to implement the model. It is suitable as a reference book for graduate students with a basic knowledge of machine learning as well as professional researchers interested in robotic tactile perception and understanding, and machine learning.

The seven-volume set of LNCS 11301-11307, constitutes the proceedings of the 25th International Conference on Neural Information Processing, ICONIP 2018, held in Siem Reap, Cambodia, in December 2018. The 401 full papers presented were carefully reviewed and selected from 575 submissions. The papers address the emerging topics of theoretical research, empirical studies, and

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applications of neural information processing techniques across different domains. The third volume, LNCS 11303, is organized in topical sections on embedded learning, transfer learning, reinforcement learning, and other learning approaches.

Transfer Learning

Deep Learning for Medical Image Analysis

Tensor Computation for Data Analysis

Face Recognition in Adverse Conditions

Proceedings of the 7th Nirma University International Conference on Engineering (NUICONE 2019), November 21-22, 2019, Ahmedabad, India

Machine Learning Approach for Cloud Data Analytics in IoT

Issues in Analysis, Measurement, Monitoring, Imaging, and Remote Sensing Technology: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Analysis and Measurement. The editors have built Issues in Analysis, Measurement, Monitoring, Imaging, and Remote Sensing Technology: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Analysis and Measurement in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant.

The content of Issues in Analysis, Measurement, Monitoring, Imaging, and Remote Sensing Technology: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>. EEG Signal Processing and Machine Learning Explore cutting edge techniques at the forefront of electroencephalogram research and artificial intelligence from leading voices in the field The newly revised Second Edition of EEG Signal Processing and Machine Learning delivers an inclusive and thorough exploration of new techniques and outcomes in electroencephalogram (EEG) research in the areas of analysis, processing, and decision making about a variety of brain states, abnormalities, and

disorders using advanced signal processing and machine learning techniques. The book content is substantially increased upon that of the first edition and, while it retains what made the first edition so popular, is composed of more than 50% new material. The distinguished authors have included new material on tensors for EEG analysis and sensor fusion, as well as new chapters on mental fatigue, sleep, seizure, neurodevelopmental diseases, BCI, and psychiatric abnormalities. In addition to including a comprehensive chapter on machine learning, machine learning applications have been added to almost all the chapters. Moreover, multimodal brain screening, such as EEG-fMRI, and brain connectivity have been included as two new chapters in this new edition. Readers will also benefit from the inclusion of: A thorough introduction to EEGs, including neural activities, action potentials, EEG generation, brain rhythms, and EEG recording and measurement An exploration of brain waves, including their generation, recording, and instrumentation,

abnormal EEG patterns and the effects of ageing and mental disorders A treatment of mathematical models for normal and abnormal EEGs Discussions of the fundamentals of EEG signal processing, including statistical properties, linear and nonlinear systems, frequency domain approaches, tensor factorization, diffusion adaptive filtering, deep neural networks, and complex-valued signal processing Perfect for biomedical engineers, neuroscientists, neurophysiologists, psychiatrists, engineers, students and researchers in the above areas, the Second Edition of EEG Signal Processing and Machine Learning will also earn a place in the libraries of undergraduate and postgraduate students studying Biomedical Engineering, Neuroscience and Epileptology.

This book is intended to attract the attention of practitioners and researchers in academia and industry interested in challenging paradigms of coding theory and computer vision. The chapters in this comprehensive reference explore the latest

developments, methods, approaches, and applications of coding theory in a wide variety of fields and endeavours. This book is compiled with a view to provide researchers, academicians, and readers with an in-depth discussion of the latest advances in this field. It consists of twelve chapters from academicians, practitioners, and researchers from different disciplines of life. All the chapters are authored by various researchers around the world covering the field of coding theory and image and video processing. This book mainly focusses on researchers who can do quality research in the area of coding theory and image and video processing and related fields. Each chapter is an independent research study, which will motivate young researchers to think about. These twelve chapters are presented in three sections and will be an eye-opener for all who systematic researchers in these fields.

The four volume set LNCS 9489, LNCS 9490, LNCS 9491, and LNCS 9492 constitutes the proceedings of the 22nd International Conference on Neural

Information Processing, ICONIP 2015, held in Istanbul, Turkey, in November 2015. The 231 full papers presented were carefully reviewed and selected from 375 submissions. The 4 volumes represent topical sections containing articles on Learning Algorithms and Classification Systems; Artificial Intelligence and Neural Networks: Theory, Design, and Applications; Image and Signal Processing; and Intelligent Social Networks.

Machine Learning Approach for Cloud Data Analytics in IoT The book covers the multidimensional perspective of machine learning through the perspective of cloud computing and Internet of Things ranging from fundamentals to advanced applications Sustainable computing paradigms like cloud and fog are capable of handling issues related to performance, storage and processing, maintenance, security, efficiency, integration, cost, energy and latency in an expeditious manner. In order to expedite decision-making involved in the complex computation and processing of collected data, IoT devices are connected to the cloud or

fog environment. Since machine learning as a service provides the best support in business intelligence, organizations have been making significant investments in this technology. Machine Learning Approach for Cloud Data Analytics in IoT elucidates some of the best practices and their respective outcomes in cloud and fog computing environments. It focuses on all the various research issues related to big data storage and analysis, large-scale data processing, knowledge discovery and knowledge management, computational intelligence, data security and privacy, data representation and visualization, and data analytics. The featured technologies presented in the book optimizes various industry processes using business intelligence in engineering and technology. Light is also shed on cloud-based embedded software development practices to integrate complex machines so as to increase productivity and reduce operational costs. The various practices of data science and analytics which are used in all sectors to understand big data and analyze massive

data patterns are also detailed in the book.

Bayesian Dictionary Learning for Single and Coupled Feature Spaces

*RGB-D Image Analysis and Processing
Artificial Intelligence and Machine
Learning for Healthcare*

*Robotic Tactile Perception and
Understanding*

Neural Information Processing

This three volume set, CCIS 771, 772, 773, constitutes the refereed proceedings of the CCF Chinese Conference on Computer Vision, CCCV 2017, held in Tianjin, China, in October 2017. The total of 174 revised full papers presented in three volumes were carefully reviewed and selected from 465 submissions. The papers are organized in the following topical sections: biological vision inspired visual method; biomedical image analysis; computer vision applications; deep neural network; face and posture analysis; image and video retrieval; image color and texture; image composition; image quality assessment and analysis; image restoration; image segmentation and classification; image-based modeling; object detection and classification; object identification; photography and video; robot vision; shape representation and matching; statistical methods and learning; video analysis and event recognition; visual salient detection

This book focuses on the fundamentals and recent

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advances in RGB-D imaging as well as covering a range of RGB-D applications. The topics covered include: data acquisition, data quality assessment, filling holes, 3D reconstruction, SLAM, multiple depth camera systems, segmentation, object detection, saliency detection, pose estimation, geometric modelling, fall detection, autonomous driving, motor rehabilitation therapy, people counting and cognitive service robots. The availability of cheap RGB-D sensors has led to an explosion over the last five years in the capture and application of colour plus depth data. The addition of depth data to regular RGB images vastly increases the range of applications, and has resulted in a demand for robust and real-time processing of RGB-D data. There remain many technical challenges, and RGB-D image processing is an ongoing research area. This book covers the full state of the art, and consists of a series of chapters by internationally renowned experts in the field. Each chapter is written so as to provide a detailed overview of that topic. RGB-D Image Analysis and Processing will enable both students and professional developers alike to quickly get up to speed with contemporary techniques, and apply RGB-D imaging in their own projects.

Facial recognition software has improved by leaps and bounds over the past few decades, with error rates decreasing significantly within the past ten years.

Though this is true, conditions such as poor lighting, obstructions, and profile-only angles have continued to persist in preventing wholly accurate readings. Face Recognition in Adverse Conditions examines how the field of facial recognition takes these adverse conditions

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into account when designing more effective applications by discussing facial recognition under real world PIE variations, current applications, and the future of the field of facial recognition research. The work is intended for academics, engineers, and researchers specializing in the field of facial recognition.

This book covers all the relevant dictionary learning algorithms, presenting them in full detail and showing their distinct characteristics while also revealing the similarities. It gives implementation tricks that are often ignored but that are crucial for a successful program. Besides MOD, K-SVD, and other standard algorithms, it provides the significant dictionary learning problem variations, such as regularization, incoherence enforcing, finding an economical size, or learning adapted to specific problems like classification. Several types of dictionary structures are treated, including shift invariant; orthogonal blocks or factored dictionaries; and separable dictionaries for multidimensional signals. Nonlinear extensions such as kernel dictionary learning can also be found in the book. The discussion of all these dictionary types and algorithms is enriched with a thorough numerical comparison on several classic problems, thus showing the strengths and weaknesses of each algorithm. A few selected applications, related to classification, denoising and compression, complete the view on the capabilities of the presented dictionary learning algorithms. The book is accompanied by code for all algorithms and for reproducing most tables and figures. Presents all relevant dictionary learning algorithms - for the standard problem and its main

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variations - in detail and ready for implementation; Covers all dictionary structures that are meaningful in applications; Examines the numerical properties of the algorithms and shows how to choose the appropriate dictionary learning algorithm.

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.

Human Centric Visual Analysis with Deep Learning
6th National Conference, NCVPRIPG 2017, Mandi, India, December 16-19, 2017, Revised Selected Papers
Vol. 1: Image and Data Analytics

Simulation and Synthesis in Medical Imaging
25th International Conference, ICONIP 2018, Siem Reap, Cambodia, December 13 – 16, 2018, Proceedings,

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Part III

Computer Vision – ECCV 2016

This book constitutes the refereed conference proceedings of the 8th International Conference on Image and Graphics, ICIIG 2015 held in Tianjin, China, in August 2015. The 164 revised full papers and 6 special issue papers were carefully reviewed and selected from 339 submissions. The papers focus on various advances of theory, techniques and algorithms in the fields of images and graphics.

31st International Conference on Artificial Neural Networks, Bristol, UK, September 6–9, 2022, Proceedings, Part III

Models and Applications

International Conference on Life System Modeling and Simulation, LSMS 2017 and International Conference on Intelligent Computing for Sustainable Energy and Environment, ICSEE 2017, Nanjing, China, September 22-24, 2017, Proceedings, Part II

8th International Conference, ICIIG 2015, Tianjin, China, August 13-16, 2015, Proceedings, Part III

Face Recognition Across the Imaging Spectrum

Academic Press Library in Signal Processing, Volume 6