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Wavelets and Pattern Metrics
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Pattern Recognition and Computer Vision
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Multiscale Analysis of Landscape Data Sets from Northern Ghana
Front-End Vision and Multi-Scale Image Analysis
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19th International Conference, Athens, Greece, October 17-21, 2016, Proceedings, Part II
Recent Advances and Applications
Application of Analytical Techniques to Petroleum Systems
13th International Conference, CAIP 2009, Münster, Germany, September 2-4, 2009, Proceedings
Critical Reactions and Resilience to Climate Changes
Perspectives and Applications
Multiscale Lattices and Composite Materials: Optimal Design, Modeling and Characterization
Hardware Development for Multi-scale Medical Imaging
Multi-Scale Modeling and Characterization of Infrastructure Materials
Multiscale Technologies For Cryomedicine: Implementation From Nano To Macroscale
ICCII 2017

PETERSEN HULL

Wavelets and Pattern Metrics Springer Science & Business Media
This book is composed by the papers written in English and accepted for presentation and discussion at The 2021 International Conference on Information Technology & Systems (ICITS 21), held at the Universidad Estatal Península de Santa Elena, in Libertad, Ecuador, between the 10th and the 12th of February 2021. ICITS is a global forum for researchers and practitioners to present and discuss recent findings and innovations, current trends, professional experiences and challenges of modern information technology and systems research, together with their technological development and applications. The main topics covered are information and knowledge management; organizational models and information systems; software and systems modelling; software systems, architectures, applications and tools; multimedia systems and applications; computer networks, mobility and pervasive systems; intelligent and decision support systems; big data analytics and applications; human–computer interaction; ethics, computers & security; health informatics; and information technologies in education.
Techniques for Reservoir Engineering Analysis Springer Science & Business Media
The three-volume set LNCS 9900, 9901, and 9902 constitutes the refereed proceedings of the 19th International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2016, held in Athens, Greece, in October 2016. Based on rigorous peer reviews, the program committee carefully selected 228 revised regular papers from 756 submissions for presentation in three volumes. The papers have been organized in the following topical sections: Part I: brain analysis, brain analysis - connectivity; brain analysis - cortical morphology; Alzheimer disease; surgical guidance and tracking; computer aided interventions; ultrasound image analysis;

cancer image analysis; Part II: machine learning and feature selection; deep learning in medical imaging; applications of machine learning; segmentation; cell image analysis; Part III: registration and deformation estimation; shape modeling; cardiac and vascular image analysis; image reconstruction; and MR image analysis.

9th International Symposium on Mathematical Morphology, ISMM 2009 Groningen, The Netherlands, August 24-27, 2009 Proceedings World Scientific

The 18th European Symposium on Computer Aided Process Engineering contains papers presented at the 18th European Symposium of Computer Aided Process Engineering (ESCAPE 18) held in Lyon, France, from 1-4 June 2008. The ESCAPE series brings the latest innovations and achievements by leading professionals from the industrial and academic communities. The series serves as a forum for engineers, scientists, researchers, managers and students from academia and industry to: - present new computer aided methods, algorithms, techniques related to process and product engineering, - discuss innovative concepts, new challenges, needs and trends in the area of CAPE. This research area bridges fundamental sciences (physics, chemistry, thermodynamics, applied mathematics and computer sciences) with the various aspects of process and product engineering. The special theme for ESCAPE-18 is CAPE for the Users! CAPE systems are to be put in the hands of end users who need functionality and assistance beyond the scientific and technological capacities which are at the core of the systems. The four main topics are: - off-line systems for synthesis and design, - on-line systems for control and operation, - computational and numerical solutions strategies, - integrated and multi-scale modelling and simulation, Two general topics address the impact of CAPE tools and methods on Society and Education. * CD-ROM that accompanies the book contains all research papers and contributions * International in scope with guest speeches and keynote talks from leaders in science and industry * Presents papers covering the latest research, key top areas and developments in Computer Aided Process Engineering

Image Restoration BoD – Books on Demand

3D Multiscale Physiological Human aims to promote scientific exchange by bringing together overviews and examples of recent scientific and technological advancements across a wide range of research disciplines. As a result, the variety in methodologies and knowledge paradigms are contrasted, revealing potential gaps and opportunities for integration. Chapters have been contributed by selected authors in the relevant domains of tissue engineering, medical image acquisition and processing, visualization, modeling, computer aided diagnosis and knowledge management. The multi-scale and multi-disciplinary research aspects of articulations in humans are highlighted, with a particular emphasis on medical diagnosis and treatment of musculoskeletal diseases and related disorders. The need for multi-scale modalities and multi-disciplinary research is an emerging paradigm in the search for a better biological and medical understanding of the human musculoskeletal system. This is particularly motivated by the increasing socio-economic burden of disability and musculoskeletal diseases, especially in the increasing population of elderly people. Human movement is generated through a complex web of interactions between embedded physiological systems on different spatiotemporal scales, ranging from the molecular to the organ level. Much research is dedicated to the understanding of each of these systems, using methods and modalities tailored for each scale. Nevertheless, combining knowledge from different perspectives opens new venues of scientific thinking and stimulates innovation. Integration of this mosaic of multifaceted data across multiple scales and modalities requires further exploration of methods in simulations and visualization to obtain a comprehensive synthesis. However, this integrative approach cannot be achieved without a broad appreciation for the multiple research disciplines involved.

16th Chinese Conference on Image and Graphics Technologies, IGTA 2021, Beijing, China, June 6–7, 2021, Revised Selected Papers Springer

This book includes selected papers presented at International Conference on Computational Intelligence, Data Science and Cloud Computing (IEM-ICDC) 2020, organized by the Department of Information Technology, Institute of Engineering & Management, Kolkata, India, during 25-27 September 2020. It presents substantial new research findings about AI and robotics, image processing and NLP, cloud computing and big data analytics as well as in cyber security, blockchain and IoT, and various allied fields. The book serves as a reference resource for researchers and practitioners in academia and industry.

Proceedings of the International RILEM Symposium Stockholm, June 2013

Hardware Development for Multi-scale Medical ImagingMedical imaging has provided countless new ways for researchers and clinicians to investigate their patients and research subjects. However, challenges and inefficiencies remain in the way these modalities are run and work with each other. The goal of this work is to leverage advanced fabrication techniques to develop hardware tools that address these challenges by both allowing for multiscale imaging across modalities and making standard imaging procedures more efficient and safer to conduct. Specifically, challenges in multiscale imaging are addressed in vitro through the development of a bioreactor for combined magnetic resonance spectroscopy and fluorescence lifetime imaging microscopy. Challenges in multiscale imaging are addressed in vivo through the development of mammary imaging windows and a pilot study testing them with a murine model of breast cancer. Finally, inefficiencies in standard imaging and calibration procedures are addressed through the development and testing of four novel imaging phantoms, including a preclinical MRI phantom, a preclinical PET calibration phantom, a clinical PET calibration phantom and a preclinical PET phantom for partial volume corrections. Novel hardware is only as good as its accessibility to end users and other developers. Therefore, a secondary goal of this work is to make accessible as many tools as possible for the easy recreation of any piece of hardware presented. Detailed part drawings of each custom part, files necessary for fabrication of components and descriptions and procedures of their use are all included. Finally, many of these tools have been published, creating an open record of their development and encouraging their future use and iteration.Front-End Vision and Multi-Scale Image AnalysisMulti-scale Computer Vision Theory and Applications, Written in Mathematica

This book represents a sample of recent contributions of researchers all around the world in the field of image restoration. The book consists of 15 chapters organized in three main sections (Theory, Applications, Interdisciplinarity). Topics cover some different aspects of the theory of image restoration, but this book is also an occasion to highlight some new topics of research related to the emergence of some original imaging devices. From this arise some real challenging problems related to image reconstruction/restoration that open the

way to some new fundamental scientific questions closely related with the world we interact with.

Multiscale Transforms with Application to Image Processing Springer Nature

The three-volume set LNCS 11857, 11858, and 11859 constitutes the refereed proceedings of the Second Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2019, held in Xi'an, China, in November 2019. The 165 revised full papers presented were carefully reviewed and selected from 412 submissions. The papers have been organized in the following topical sections: Part I: Object Detection, Tracking and Recognition, Part II: Image/Video Processing and Analysis, Part III: Data Analysis and Optimization.

Unconventional Hydrocarbon Resources Springer Nature

Front-End Vision and Multi-Scale Image Analysis is a tutorial in multi-scale methods for computer vision and image processing. It builds on the cross fertilization between human visual perception and multi-scale computer vision (`scale-space') theory and applications. The multi-scale strategies recognized in the first stages of the human visual system are carefully examined, and taken as inspiration for the many geometric methods discussed. All chapters are written in Mathematica, a spectacular high-level language for symbolic and numerical manipulations. The book presents a new and effective approach to quickly mastering the mathematics of computer vision and image analysis. The typically short code is given for every topic discussed, and invites the reader to spend many fascinating hours `playing' with computer vision. Front-End Vision and Multi-Scale Image Analysis is intended for undergraduate and graduate students, and all with an interest in computer vision, medical imaging, and human visual perception.

MultiMedia Modeling Cuvillier Verlag

Archaeological materials science or archaeometry is the scientific study of material culture, which plays an important role in the development and interpretation of archaeological theory by establishing links between an object's materiality and its societal context. Driven by the complex nature of archaeological materials and the necessity to improve analysis, interpretation, and access of material culture and scientific research in the field, in the last decade there has been a significant advancement in instrumentation development for rapid, non-invasive and high-specificity materials characterization. To this end, imaging spectroscopy and portable chemical sensing modalities have played a revolutionary role in the identification and chemical mapping of constituent materials in ancient and historical wall paintings and other immovable artifacts. In this research, different imaging and spectroscopic modalities are explored: direct-detection terahertz (THz) imaging, hyperspectral imaging spectroscopy (HSI), and high-resolution scanning reflectance spectroscopy. First, a novel direct-detection THz imaging system, adopted from biomedical imaging applications, was used to probe hierarchically-complex painting targets for sub-surface imaging of hidden decorative features and structural defects that are difficult to discern by X-ray and infrared imaging techniques. The imaging system's deep signal penetration depth and high contrast sensitivity can successfully penetrate overlaying layers of strong signal scatterers such as lead white and chalk and to identify internal voids, hidden text, and topographic details of concealed iconography, which has important implications for future applications of this system on the study of wall paintings covered by whitewash or plaster layer(s). Investigations of two different collections of painted artifacts were performed using novel imaging spectroscopy applications, supplemented by forensic photography and portable chemical sensing modalities, fiber-optic reflectance spectroscopy (FORS) and X-ray fluorescence (XRF) spectroscopy: (1) Cypriot wall paintings, and (2) Greco-Roman funerary portraits from Egypt. A comprehensive in situ characterization of Hellenistic, Roman and Byzantine Cypriot wall paintings in the region of Paphos, Cyprus was achieved for the first time, applying a non-invasive multi-scale approach, employing a commercial hyperspectral imaging (HSI) camera operated in reflectance and luminescence modes and a custom-made high-resolution scanning reflectance spectroscopy system developed and adapted for field research. The HSI and the scanning reflectance spectroscopy system offered complementary, powerful high-spectral and spatial resolution 3D data cubes to reconstruct the palette of Cypriot painters. From an archaeological materials science perspective, the characterization and mapping of pigments through derivative spectral analysis provided important information on pigment layering and mixtures used to produce complex hues and special optical effects, such as shading and translucency. Combined with FORS and XRF, these techniques offered fast, in-depth studies of large painted surfaces, inferring material and artistic choices and the chaine operatoire of production technology. Similarly, the analysis of funerary portraits of ancient Egypt (first to fourth century AD) identified technological choices, materials selection and application methodology, revealing the vogue of Greco-Roman society. From a materials engineering perspective, the study of these paintings lead to adaptations and development of novel methods of analysis: luminescence imaging spectroscopy was for the first time employed to collect and map luminescence signatures of Egyptian blue and madder lake, two of the most important synthetic pigments of antiquity, over painting surfaces; and the success of forensic and spectral imaging in producing luminescence/chemical maps across 2D surfaces led to the development of a streamlined, accessible methodology to construct luminescence-textured 3D models for new visualizations and analyses of high-relief/3D polychrome artifacts that feature photoluminescent pigments and conservation materials.

12th International Conference, ICIC 2016, Lanzhou, China, August 2-5, 2016, Proceedings, Part II Springer Nature

Image Fusion is an important branch of information fusion, and it is also an important technology for image understanding and computer vision. The fusion process is to merging different images into one to get more accurate description for the scene. The original images for image fusion are always obtained by several different image sensors, or the same sensor in different operating modes. The fused image can provide more effective information for further image processing, such as image segmentation, object detection and recognition. Image fusion is a new study field which combined with many different disciplines, such as sensors, signal processing, image processing, computer and artificial intelligence. In the past two decades, a large number of research literatures appear. This book is edited based on these research results, and many research scholars give a great help to this book.

3D Multiscale Physiological Human Springer

The volume contains 69 high quality papers presented at International Conference on Computational Intelligence and Informatics (ICCII 2017). The conference was held during 25-27, September, 2017 at Department of Computer Science and Engineering, JNTUHCEH, Hyderabad, Telangana, India. This volume contains papers mainly

focused on data mining, wireless sensor networks, parallel computing, image processing, network security, MANETS, natural language processing, and internet of things.

Interactive Collaborative Robotics BoD – Books on Demand

Cutting-edge techniques have always been utilized in petroleum exploration and production to reduce costs and improve efficiencies. The demand for petroleum in the form of oil and gas is expected to increase for electricity production, transport and chemical production, largely driven by an increase in energy consumption in the developing world. Innovations in analytical methods will continue to play a key role in the industry moving forwards as society shifts towards lower carbon energy systems and more advantaged oil and gas resources are targeted. This volume brings together new analytical approaches and describes how they can be applied to the study of petroleum systems. The papers within this volume cover a wide range of topics and case studies, in the fields of fluid and isotope geochemistry, organic geochemistry, imaging and sediment provenance. The work illustrates how the current, state-of-the-art technology can be effectively utilised to address ongoing challenges in petroleum geoscience.

Multi-Scale Biogeochemical Processes in Soil Ecosystems Elsevier

Hardware Development for Multi-scale Medical Imaging

12th International Workshop, IWDM 2014, Gifu City, Japan, June 29 - July 2, 2014, Proceedings Springer Nature

Magnetized plasmas in the universe exhibit complex dynamical behavior over a huge range of scales. The fundamental mechanisms of energy transport, redistribution and conversion occur at multiple scales. The driving mechanisms often include energy accumulation, free-energy-excited relaxation processes, dissipation and self-organization. The plasma processes associated with energy conversion, transport and self-organization, such as magnetic reconnection, instabilities, linear and nonlinear waves, wave-particle interactions, dynamo processes, turbulence, heating, diffusion and convection represent fundamental physical effects. They demonstrate similar dynamical behavior in near-Earth space, on the Sun, in the heliosphere and in astrophysical environments. 'Multi-scale Dynamical Processes in Space and Astrophysical Plasmas' presents the proceedings of the International Astrophysics Forum Alpbach 2011. The contributions discuss the latest advances in the exploration of dynamical behavior in space plasmas environments, including comprehensive approaches to theoretical, experimental and numerical aspects. The book will appeal to researchers and students in the fields of physics, space and astrophysics, solar physics, geophysics and planetary science.

5th International Conference, ICR 2020, St Petersburg, Russia, October 7-9, 2020, Proceedings Springer Nature

This proceedings book brings together the leading innovations and achievements by leading professionals. It acts as a forum for engineers, scientists, researchers, managers and students from academia and industry to present and discuss progress being made in research and application of computer-aided process engineering.

27th International Conference, MMM 2021, Prague, Czech Republic, June 22–24, 2021, Proceedings, Part I PHI Learning Pvt. Ltd.

The use of micro / nanotechnology in cell and tissue engineering, and especially for cell and tissue preservation, is at the peak of its activity now, with scientific output expected to continue growing in the coming years.Micro and nanotechnologies have induced paradigm shifts in many scientific fields, and as featured in this edited volume, they are having important impact in the field of cryomedicine. The book gives an overview of the recent progress in implementing multiscale (micro and nanoscale) technologies to improve the outcome of various cryomedical applications including cryosurgery, cryopreservation, lyopreservation and to understand the fundamental engineering and science underpinning the applications.This is the first book that will provide both an introductory and in-depth account of applying the multiscale technologies in cryomedicine.

1st International Conference on Advances in Mineral Resources Management and Environmental Geotechnology Springer

Medical imaging has provided countless new ways for researchers and clinicians to investigate their patients and research subjects. However, challenges and inefficiencies remain in the way these modalities are run and work with each other. The goal of this work is to leverage advanced fabrication techniques to develop hardware tools that address these challenges by both allowing for multiscale imaging across modalities and making standard imaging procedures more efficient and safer to conduct. Specifically, challenges in multiscale imaging are addressed in vitro through the development of a bioreactor for combined magnetic resonance spectroscopy and fluorescence lifetime imaging microscopy. Challenges in multiscale imaging are addressed in vivo through the development of mammary imaging windows and a pilot study testing them with a murine model of breast cancer. Finally, inefficiencies in standard imaging and calibration procedures are addressed through the development and testing of four novel imaging phantoms, including a preclinical MRI phantom, a preclinical PET calibration phantom, a clinical PET calibration phantom and a preclinical PET phantom for partial volume corrections. Novel hardware is only as good as its accessibility to end users and other developers. Therefore, a secondary goal of this work is to make accessible as many tools as possible for the easy recreation of any piece of hardware presented. Detailed part drawings of each custom part, files necessary for fabrication of components and descriptions and procedures of their use are all included. Finally, many of these tools have been published, creating an open record of their development and encouraging their future use and iteration.

Pattern Recognition and Computer Vision Springer Science & Business Media

This book constitutes the refereed proceedings of the 12th International Workshop on Breast Imaging, IWDM 2014, held in Gifu City, Japan, in June/July 2014. The 24 revised full papers and 73 revised poster papers presented together with 6 invited talks were carefully reviewed and selected from 122 submissions. The papers are organized in topical sections on screening outcomes, ultrasound, breast density, imaging physics, CAD, tomosynthesis and ICT and image processing.

Advanced Imaging Spectroscopy and Chemical Sensing in Archaeometry and Archaeological Forensics Springer Science & Business Media

This book introduces readers to innovative bio-inspired computing techniques for image processing applications. It demonstrates how a significant drawback of image processing – not providing the simultaneous benefits of high accuracy and less complexity – can be overcome, proposing bio-inspired methodologies to help do so. Besides computing techniques, the book also sheds light on the various application areas related to image processing, and weighs the pros and cons of specific methodologies. Even though several such methodologies are available, most of them do not provide the

simultaneous benefits of high accuracy and less complexity, which explains their low usage in connection with practical imaging applications, such as the medical scenario. Lastly, the book illustrates the methodologies in detail, making it suitable for newcomers to the field and advanced researchers alike.

Image and Graphics Technologies and Applications MDPI

This book constitutes the proceedings of the 5th International Conference on Interactive Collaborative Robotics, ICR 2020, held in St. Petersburg, Russia, in October 2020. The 31 papers presented were carefully reviewed and selected from 62 submissions. Challenges of human-robot interaction, robot control and behavior in social robotics and collaborative robotics, as well as applied robotic and cyber-physical systems are mainly discussed in the papers.