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## Acces PDF Implementation Of Image Fusion Techniques Using Fpga

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**Applied Reconfigurable Computing 12th International Symposium, ARC 2016 Mangaratiba, RJ, Brazil, March 22-24, 2016 Proceedings** Springer This book constitutes the refereed proceedings of the 12th International Symposium on Applied Reconfigurable Computing, ARC 2016, held in Rio de Janeiro, Brazil, in March 2016. The 20 full papers presented in this volume were carefully reviewed and selected from 47 submissions. They are organized in topical headings named: video and image processing; fault-tolerant systems; tools and architectures; signal processing; and multicore systems. In addition, the book contains 3 invited papers and 8 poster papers on funded RD running and completed projects. **Sensors and Image Processing Proceedings of CSI 2015** Springer This volume comprises the select proceedings of the annual convention of the Computer Society of India. Divided into 10 topical volumes, the proceedings present papers on state-of-the-art research, surveys, and succinct reviews. The volumes cover diverse topics ranging from communications networks to big data analytics, and from system architecture to cyber security. This volume focuses on Sensors and Image Processing. The contents of this book will be useful to researchers and students alike. **Field Programmable Gate Arrays (FPGAs) II** *BoD - Books on Demand* This Edited Volume Field Programmable Gate Arrays (FPGAs) II is a collection of reviewed and relevant research chapters, offering a comprehensive overview of recent developments in the field of Computer and Information Science. The book comprises single chapters authored by various researchers and edited by an expert active in the Computer and Information Science research area. All chapters are complete in itself but united under a common research study topic. This publication aims at providing a thorough overview of the latest research efforts by international authors on Computer and Information Science, and open new possible research paths for further novel developments. **Handbook of Research on Advanced Concepts in Real-Time Image and Video Processing** *IGI Global* Technological advancements have created novel applications for image and video processing. With these developments, real-world processing problems can be solved more easily. The Handbook of Research on Advanced Concepts in Real-Time Image and Video Processing is a pivotal reference source for the latest research findings on the design, realization, and deployment of image and video processing systems meant for real-time environments. Featuring extensive coverage on relevant areas such as feature detection, reconfigurable computing, and stream processing, this publication is an ideal resource for academics, researchers, graduate students, and technology developers. **Image Processing Using FPGAs** *MDPI* This book presents a selection of papers representing current research on using field programmable gate arrays (FPGAs) for realising image processing algorithms. These papers are reprints of papers selected for a Special Issue of the Journal of Imaging on image processing using FPGAs. A diverse range of topics is covered, including parallel soft processors, memory management, image filters, segmentation, clustering, image analysis, and image compression. Applications include traffic sign recognition for autonomous driving, cell detection for histopathology, and video compression. Collectively, they represent the current state-of-the-art on image processing using FPGAs. **Fifth recent advances in quantitative remote sensing** *Universitat de València* The Fifth International Symposium on Recent Advances in Quantitative Remote Sensing was held in Torrent, Spain from 18 to 22 September 2018. It was sponsored and organized by the Global Change Unit (GCU) from the Image Processing Laboratory (IPL), University of Valencia (UVEG), Spain. This Symposium addressed the scientific advances in quantitative remote sensing in connection with real applications. Its main goal was to assess the state of the art of both theory and applications in the analysis of remote sensing data, as well as to provide a forum for researcher in this subject area to exchange views and report their latest results. In this book 89 of the 262 contributions presented in both plenary and poster sessions are arranged according to the scientific topics selected. The papers are ranked in the same order as the final programme. **Information and Communication Technology for Intelligent Systems (ICTIS 2017) - Volume 1** Springer This volume includes 74 papers presented at ICTIS 2017: Second International Conference on Information and Communication Technology for Intelligent Systems. The conference was held on 25th and 26th March 2017, in Ahmedabad, India and organized jointly by the Associated Chambers of Commerce and Industry of India (ASSOCHAM) Gujarat Chapter, the G R Foundation, the Association of Computer Machinery, Ahmedabad Chapter and supported by the Computer Society of India Division IV - Communication and Division V - Education and Research. The papers featured mainly focus on information and communications technology (ICT) for computation, algorithms and data analytics. The fundamentals of various data analytics and algorithms discussed are useful to researchers in the field. **Image Processing and Communications Challenges 4** Springer Science & Business Media This textbook collects a series of research papers in the area of Image Processing and Communications which not only introduce a summary of current technology but also give an outlook of potential feature problems in this area. Image Processing and Communications have undergone an impressive development. Recent evolutions in this area have led to a pervasive spread in many areas of human life and have become such a critical component in contemporary science and technology. The book is divided into two parts. The first part contains recent research results in image processing, whilst the second part contains recent research results in communications. **Emerging Technology in Modelling and Graphics Proceedings of IEM Graph 2018** Springer The book covers cutting-edge and advanced research in modelling and graphics. Gathering high-quality papers presented at the First International Conference on Emerging Technology in Modelling and Graphics, held from 6 to 8 September 2018 in Kolkata, India, it addresses topics including: image processing and analysis, image segmentation, digital geometry for computer imaging, image and security, biometrics, video processing, medical imaging, and virtual and augmented reality. **International Conference on Cognitive based Information Processing and Applications (CIPA 2021) Volume 2** Springer Nature This book contains papers presented at the International Conference on Cognitive based Information Processing and Applications (CIPA) held during August 21, 2021, online conference (since COVID 19), which is divided into a 2-volume book. The papers in the second volume represent the various technological advancements in network information processing, graphics and image processing, medical care, machine learning, smart cities. It caters to postgraduate students, researchers, and practitioners specializing and working in the area of cognitive-inspired computing and information processing. **A Selection of Image Processing Techniques From Fundamentals to Research Front** CRC Press A Selection of Image Processing Techniques: From Fundamentals to Research Front focuses on seven commonly used image-processing techniques. These are de-noising, de-blurring, repairing, de-fogging, reconstruction from projection, watermarking, and super-resolution. This book is suitable for readers who do not have a complete foundation in the principles of image technology but need to use image techniques to solve specific tasks in particular applications. Hence, elementary knowledge for further study is provided, allowing the reader to discover suitable techniques for solving practical problems and to learn the latest developments in a specific domain. This book offers readers a three-step strategy toward problem solving: first, essential principles, then, a detailed explanation, and finally, a discussion of practical and working techniques for specific tasks. Throughout, the author highlights materials pertaining to the newest developments and trends of the technologies. **Second International Conference on Image Processing and Capsule Networks ICIPCN 2021** Springer Nature This book includes the papers presented in 2nd International Conference on Image Processing and Capsule Networks [ICIPCN 2021]. In this digital era, image processing plays a significant role in wide range of real-time applications like sensing, automation, health care, industries etc. Today, with many technological advances, many state-of-the-art techniques are integrated with image processing domain to enhance its adaptiveness, reliability, accuracy and efficiency. With the advent of intelligent technologies like machine learning especially deep learning, the imaging system can make decisions more and more accurately. Moreover, the application of deep learning will also help to identify the hidden information in volumetric images. Nevertheless, capsule network, a type of deep neural network, is revolutionizing the image processing domain; it is still in a research and development phase. In this perspective, this book includes the state-of-the-art research works that integrate intelligent techniques with image processing models, and also, it reports the recent advancements in image processing techniques. Also, this book includes the novel tools and techniques for deploying real-time image processing applications. The chapters will briefly discuss about the intelligent image processing technologies, which leverage an authoritative and detailed representation by delivering an enhanced image and video recognition and adaptive processing mechanisms, which may clearly define the image and the family of image processing techniques and applications that are closely related to the humanistic way of thinking. **Digital Image Watermarking Theoretical and Computational Advances** CRC Press The Book presents an overview of newly developed watermarking techniques in various independent and hybrid domains Covers the basics of digital watermarking, its types, domain in which it is implemented and the application of machine learning algorithms onto digital watermarking Reviews hardware implementation of watermarking Discusses optimization problems and solutions in watermarking with a special focus on bio-inspired algorithms Includes a case study along with its MATLAB code and simulation results **Recent Trends in Signal and Image Processing ISSIP 2020** Springer Nature This book gathers selected papers presented at the Third International Symposium on Signal and Image Processing (ISSIP 2020), organized by the Department of Information Technology, RCC Institute of Information Technology, Kolkata, during March 18-19, 2020. It presents fascinating, state-of-the-art research findings in the field of signal and image processing. It includes conference papers covering a wide range of signal processing applications involving filtering, encoding, classification, segmentation, clustering, feature extraction, denoising, watermarking, object recognition, reconstruction and fractal analysis. It addresses various types of signals, such as image, video, speech, non-speech audio, handwritten text, geometric diagram, ECG and EMG signals; MRI, PET and CT scan images; THz signals; solar wind speed signals (SWS); and photoplethysmogram (PPG) signals, and demonstrates how new paradigms of intelligent computing, like quantum computing, can be applied to process and analyze signals precisely and effectively. **Proceedings of the 5th International Conference on Frontiers in Intelligent Computing: Theory and Applications FICTA 2016, Volume 2** Springer The book is a collection of high-quality peer-reviewed research papers presented at International Conference on Frontiers of Intelligent Computing: Theory and applications (FICTA 2016) held at School of Computer Engineering, KIIT University, Bhubaneswar, India during 16 - 17 September 2016. The book aims to present theories, methodologies, new ideas, experiences, applications in all areas of intelligent computing and its applications to various engineering disciplines like computer science, electronics, electrical, mechanical engineering, etc. **Advanced Techniques in Multimedia Watermarking: Image, Video and Audio Applications Image, Video and Audio Applications** *IGI Global* "This book introduces readers to state-of-art research in multimedia watermarking in the different disciplines of watermarking, addressing the different aspects of advanced watermarking research: modeling and theoretical analysis, advanced embedding and extraction techniques, software and hardware implementations, and performance evaluations of watermarking systems"--Provided by publisher. **Proceedings of the International Conference on ISMAC in Computational Vision and Bio-Engineering 2018 (ISMAC-CVB)** Springer These are the proceedings of the International Conference on ISMAC-CVB, held in Palladam, India, in May 2018. The book focuses on research to design new analysis paradigms and computational solutions for quantification of information provided by object recognition, scene understanding of computer vision and different algorithms like convolutional neural networks to allow computers to recognize and detect objects in images with unprecedented accuracy and to even understand the relationships between them. The proceedings treat the convergence of ISMAC in Computational Vision and Bioengineering technology and includes ideas and techniques like 3D sensing, human visual perception, scene understanding, human motion detection and analysis, visualization and graphical data presentation and a very wide range of sensor modalities in terms of

surveillance, wearable applications, home automation etc. ISMAC-CVB is a forum for leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of computational vision and bioengineering.

**Integrated Imaging and Vision Techniques for Industrial Inspection Advances and Applications** Springer This pioneering text/reference presents a detailed focus on the use of machine vision techniques in industrial inspection applications. An internationally renowned selection of experts provide insights on a range of inspection tasks, drawn from their cutting-edge work in academia and industry, covering practical issues of vision system integration for real-world applications. Topics and features: presents a comprehensive review of state-of-the-art hardware and software tools for machine vision, and the evolution of algorithms for industrial inspection; includes in-depth descriptions of advanced inspection methodologies and machine vision technologies for specific needs; discusses the latest developments and future trends in imaging and vision techniques for industrial inspection tasks; provides a focus on imaging and vision system integration, implementation, and optimization; describes the pitfalls and barriers to developing successful inspection systems for smooth and efficient manufacturing process.

**Innovative Simulation Systems** Springer This monograph provides comprehensive guidelines on the current and future trends of innovative simulation systems. In particular, their important components, such as augmented reality and unmanned vehicles are presented. The book consists of three parts. Each part presents good practices, new methods, concepts of systems and new algorithms. Presented challenges and solutions are the results of research and conducted by the contributing authors. The book describes and evaluates the current state of knowledge in the field of innovative simulation systems. Throughout the chapters there are presented current issues and concepts of systems, technology, equipment, tools, research challenges and current, past and future applications of simulation systems. The book is addressed to a wide audience: academic staff, representatives of research institutions, employees of companies and government agencies as well as students and graduates of technical universities in the country and abroad. The book can be a valuable source of information for constructors and developers of innovative simulation systems and their components. Scientists and researchers involved in mechanics, control algorithms, image processing, computer vision or data fusion can find many valuable suggestions and solutions.

**Design for Embedded Image Processing on FPGAs** John Wiley & Sons Dr Donald Bailey starts with introductory material considering the problem of embedded image processing, and how some of the issues may be solved using parallel hardware solutions. Field programmable gate arrays (FPGAs) are introduced as a technology that provides flexible, fine-grained hardware that can readily exploit parallelism within many image processing algorithms. A brief review of FPGA programming languages provides the link between a software mindset normally associated with image processing algorithms, and the hardware mindset required for efficient utilization of a parallel hardware design. The design process for implementing an image processing algorithm on an FPGA is compared with that for a conventional software implementation, with the key differences highlighted. Particular attention is given to the techniques for mapping an algorithm onto an FPGA implementation, considering timing, memory bandwidth and resource constraints, and efficient hardware computational techniques. Extensive coverage is given of a range of low and intermediate level image processing operations, discussing efficient implementations and how these may vary according to the application. The techniques are illustrated with several example applications or case studies from projects or applications he has been involved with. Issues such as interfacing between the FPGA and peripheral devices are covered briefly, as is designing the system in such a way that it can be more readily debugged and tuned. Provides a bridge between algorithms and hardware Demonstrates how to avoid many of the potential pitfalls Offers practical recommendations and solutions Illustrates several real-world applications and case studies Allows those with software backgrounds to understand efficient hardware implementation Design for Embedded Image Processing on FPGAs is ideal for researchers and engineers in the vision or image processing industry, who are looking at smart sensors, machine vision, and robotic vision, as well as FPGA developers and application engineers. The book can also be used by graduate students studying imaging systems, computer engineering, digital design, circuit design, or computer science. It can also be used as supplementary text for courses in advanced digital design, algorithm and hardware implementation, and digital signal processing and applications. Companion website for the book: [www.wiley.com/go/bailey/fpga](http://www.wiley.com/go/bailey/fpga)

**Advances in Micro-Electronics, Embedded Systems and IoT Proceedings of Sixth International Conference on Microelectronics, Electromagnetics and Telecommunications (ICMEET 2021), Volume 1** Springer Nature This book discusses the latest developments and outlines future trends in the fields of microelectronics, electromagnetics and telecommunication. It contains original research works presented at the International Conference on Microelectronics, Electromagnetics and Telecommunication (ICMEET 2021), held in Bhubaneswar, Odisha, India during 27 - 28 August 2021. The papers were written by scientists, research scholars and practitioners from leading universities, engineering colleges and R&D institutes from all over the world and share the latest breakthroughs in and promising solutions to the most important issues facing today's society.

**Cloud-Based M-Health Systems for Vein Image Enhancement and Feature Extraction: Emerging Research and Opportunities** Emerging Research and Opportunities IGI Global Vein-based biological systems are highly useful for identification purposes since they cannot be stolen, duplicated, or washed out. These systems present opportunities in networking and cloud-based and internet of things systems as a more specific and accurate method of identification. However, while the concept is novel, the execution remains imperfect, and the current techniques to drive positive identification must be honed before implementation. Cloud-Based M-Health Systems for Vein Image Enhancement and Feature Extraction: Emerging Research and Opportunities is an essential publication that examines the design and development of new digital identification tools. Featuring coverage of a broad range of topics including performance evaluation, algorithms, and design architecture, this book is ideally designed for clinicians, healthcare providers, programmers, software developers, doctors, academicians, researchers, and students.

**Image Feature Detectors and Descriptors Foundations and Applications** Springer This book provides readers with a selection of high-quality chapters that cover both theoretical concepts and practical applications of image feature detectors and descriptors. It serves as reference for researchers and practitioners by featuring survey chapters and research contributions on image feature detectors and descriptors. Additionally, it emphasizes several keywords in both theoretical and practical aspects of image feature extraction. The keywords include acceleration of feature detection and extraction, hardware implantations, image segmentation, evolutionary algorithm, ordinal measures, as well as visual speech recognition.

**Advanced Classification Techniques for Healthcare Analysis** IGI Global Medical and information communication technology professionals are working to develop robust classification techniques, especially in healthcare data/image analysis, to ensure quick diagnoses and treatments to patients. Without fast and immediate access to healthcare databases and information, medical professionals' success rates and treatment options become limited and fall to disastrous levels. Advanced Classification Techniques for Healthcare Analysis provides emerging insight into classification techniques in delivering quality, accurate, and affordable healthcare, while also discussing the impact health data has on medical treatments. Featuring coverage on a broad range of topics such as early diagnosis, brain-computer interface, metaheuristic algorithms, clustering techniques, learning schemes, and mobile telemedicine, this book is ideal for medical professionals, healthcare administrators, engineers, researchers, academicians, and technology developers seeking current research on furthering information and communication technology that improves patient care.

**Artificial Intelligence Techniques for Satellite Image Analysis** Springer Nature The main objective of this book is to provide a common platform for diverse concepts in satellite image processing. In particular it presents the state-of-the-art in Artificial Intelligence (AI) methodologies and shares findings that can be translated into real-time applications to benefit humankind. Interdisciplinary in its scope, the book will be of interest to both newcomers and experienced scientists working in the fields of satellite image processing, geo-engineering, remote sensing and Artificial Intelligence. It can be also used as a supplementary textbook for graduate students in various engineering branches related to image processing.

**Ambient Communications and Computer Systems RACCCS 2017** Springer This book includes high-quality, peer-reviewed papers from the International Conference on Recent Advancement in Computer, Communication and Computational Sciences (RACCCS-2017), held at Aryabhata College of Engineering & Research Center, Ajmer, India on September 2-3, 2017, presenting the latest developments and technical solutions in computational sciences. Data science, data- and knowledge engineering require networking and communication as a backbone and have a wide scope of implementation in engineering sciences. Keeping this ideology in mind, the book offers insights that reflect the advances in these fields from upcoming researchers and leading academicians across the globe. Covering a variety of topics, such as intelligent hardware and software design, advanced communications, intelligent computing technologies, advanced software engineering, the web and informatics, and intelligent image processing, it helps those in the computer industry and academia use the advances of next-generation communication and computational technology to shape real-world applications.

**Advances in Image and Data Processing Using VLSI Design Smart vision systems. Volume 1** VLSI is a well-established field of research that ignited the modern computing revolution. Serving as a guide to future developments, this book provides a framework for design, modeling concepts, and application of Image Processing based systems using VLSI design techniques.

**Image and Graphics Technologies and Applications 14th Conference on Image and Graphics Technologies and Applications, IGTA 2019, Beijing, China, April 19-20, 2019, Revised Selected Papers** Springer This book constitutes the refereed proceedings of the 14th Conference on Image and Graphics Technologies and Applications, IGTA 2019, held in Beijing, China in April, 2019. The 66 papers presented were carefully reviewed and selected from 152 submissions. They provide a forum for sharing progresses in the areas of image processing technology: image analysis and understanding; computer vision and pattern recognition; big data mining, computer graphics and VR, as well as image technology applications.

**Mechatronics 2013 Recent Technological and Scientific Advances** Springer Science & Business Media Mechatronics, as the integrating framework of mechanical engineering, electrical engineering, computer technology, control engineering and automation forms a crucial part in the design, manufacture and maintenance of a wide range of engineering products and processes. The mechatronics itself changes rapidly in last decade, from original mixture of subfields into original approach in engineering as a technical discipline. The book you are holding is aimed to help the reader to orient in this evolving field of science and technology. "Mechatronics 2013: Recent Technological and Scientific Advances" is the fourth volume following the previous editions in 2007, 2009 and 2011, providing the comprehensive and accessible coverage of advances in mechatronics presented on the 10th International Conference Mechatronics 2013, hosted this year at the Brno University of Technology, Czech Republic. The contributions, that passed the thorough review process, give an insight into current trends in research and development among Mechatronics 2013 contributing countries, with paper topics covering design and modeling of mechatronic systems, control and automation, signal processing, robotics and others, keeping in mind the innovation benefits of mechatronics design approach, leading to the development, production and daily use of machines and devices possessing a certain degree of computer based intelligence.

**Advances in Soft Computing and Machine Learning in Image Processing** Springer This book is a collection of the latest applications of methods from soft computing and machine learning in image processing. It explores different areas ranging from image segmentation to the object recognition using complex approaches, and includes the theory of the methodologies used to provide an overview of the application of these tools in image processing. The material has been compiled from a scientific perspective, and the book is primarily intended for undergraduate and postgraduate science, engineering, and computational mathematics students. It can also be used for courses on artificial intelligence, advanced image processing, and computational intelligence, and is a valuable resource for researchers in the evolutionary computation, artificial intelligence and image processing communities.

**Assistive Technology from Adapted Equipment to Inclusive Environments AAATE 2009** IOS Press The concept of Assistive Technology is moving away from adopting the most appropriate devices to overcome the limitations of users, to the designing and setting up of total environments in which people can live, supported by suitable services and additional support devices integrated within the environment. These two perspectives are deeply intertwined, both from technological and social points of view, and the relationship between them currently represent the primary challenge for the field of Assistive Technology. This publication covers the proceedings of the 10th European Conference of the Association for the Advancement of Assistive Technology in Europe (<http://www.aaate.net>), the organisation which stimulates the advancement of assistive technology for the benefit of people with disabilities, including elderly people. This conference seeks to bridge the gap between these two complementary approaches, providing an opportunity to clarify differences and common points, and better define future direction. Topics covered by the conference include: technological innovation in assistive technology; the need for multidisciplinary approaches; equipment interconnectivity and compatibility; cultural aspects and the acceptance of different approaches; and the role of Europe in building inclusion competence worldwide. Disability results not only from a person's intrinsic attributes but also from the context in which they live. This publication is a significant contribution to the advancement of inclusion for people living with a disability everywhere.

**Emerging Technologies in Data Mining and Information Security Proceedings of IEMIS 2020, Volume 3** Springer Nature This book features research papers presented at the International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020) held at the University of Engineering & Management, Kolkata, India, during July 2020. The book is organized in three volumes and includes high-quality research work by academicians and industrial experts in the field of computing and communication, including full-length papers, research-in-progress papers, and case studies related to all the areas of data mining, machine learning, Internet of things (IoT), and information security.

**Digital Video Processing for Engineers A Foundation for Embedded Systems Design** Newnes Any device or system with imaging functionality requires a digital video processing solution as part of its embedded system design.

Engineers need a practical guide to technology basics and design fundamentals that enables them to deliver the video component of complex projects. This book introduces core video processing concepts and standards, and delivers practical how-to guidance for engineers embarking on digital video processing designs using FPGAs. It covers the basic topics of video processing in a pictorial, intuitive manner with minimal use of mathematics. Key outcomes and benefits of this book for users include: understanding the concepts and challenges of modern video systems; architect video systems at a system level; reference design examples to implement your own high definition video processing chain; understand implementation trade-offs in video system designs. Video processing is a must-have skill for engineers working on products and solutions for rapidly growing markets such as video surveillance, video conferencing, medical imaging, military imaging, digital broadcast equipment, displays and countless consumer electronics applications. This book is for engineers who need to develop video systems in their designs but who do not have video processing experience. It introduces the fundamental video processing concepts and skills in enough detail to get the job done, supported by reference designs, step-by-step FPGA- examples, core standards and systems architecture maps. Written by lead engineers at Altera Corp, a top-three global developer of digital video chip (FPGA) technology.

**Robotic Systems Applications, Control and Programming** *BoD - Books on Demand* This book brings together some of the latest research in robot applications, control, modeling, sensors and algorithms. Consisting of three main sections, the first section of the book has a focus on robotic surgery, rehabilitation, self-assembly, while the second section offers an insight into the area of control with discussions on exoskeleton control and robot learning among others. The third section is on vision and ultrasonic sensors which is followed by a series of chapters which include a focus on the programming of intelligent service robots and systems adaptations.

**Basics of Computational Geophysics** *Elsevier* Basics of Computational Geophysics provides a one-stop, collective resource for practitioners on the different techniques and models in geoscience, their practical applications, and case studies. The reference provides the modeling theory in an easy-to-read format that is verified with onsite models for specific regions and scenarios, including the use of big data and artificial intelligence. This book offers a platform whereby readers will learn theory, practical applications, and the comparison of real-world problems surrounding geomechanics, modeling and optimizations. Covers various advanced computational techniques for solving different problems in geophysics, including the use of Big Data and artificial intelligence. Includes case studies that provide examples surrounding practical applications. Provides an assessment of the capabilities of commercial software.

**Parallel and Distributed Computing: Applications and Technologies 5th International Conference, PDCAT 2004, Singapore, December 8-10, 2004, Proceedings** *Springer* The 2004 International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT 2004) was the 5th annual conference, and was held at the Marina Mandarin Hotel, Singapore on December 8-10, 2004. Since the inaugural PDCAT held in Hong Kong in 2000, the conference has become a major forum for scientists, engineers, and practitioners throughout the world to present the latest research, results, ideas, developments, techniques, and applications in all areas of parallel and distributed computing. The technical program was comprehensive and featured keynote speeches, technical paper presentations, and exhibitions showcased by industry vendors. The technical program committee was overwhelmed with submissions of papers for presentation, from countries worldwide. We received 242 papers and after reviewing them, based on stringent selection criteria, we accepted 173 papers. The papers in the proceedings focus on parallel and distributed computing viewed from the three perspectives of networking and architectures, software systems and technologies, and algorithms and applications. We acknowledge the great contribution from all of our local and international committee members and reviewers who devoted their time in the review process and provided valuable feedback for the authors. PDCAT 2004 could never have been successful without the support and assistance of several institutions and many people. We sincerely appreciate the support from the National Grid Office and IEEE, Singapore for technical co-sponsorship. The financial sponsorships from the industrial sponsors, Hewlett-Packard Singapore; IBM Singapore; Sun Microsystems; SANDZ Solutions; Silicon Graphics, and Advanced Digital Information Corporation, are gratefully acknowledged.

**FPGA-based Implementation of Signal Processing Systems** *John Wiley & Sons* Revised edition of: FPGA-based implementation of signal processing systems / Roger Woods ... [et al.]. 2008.

**Application of FPGA to Real-Time Machine Learning Hardware Reservoir Computers and Software Image Processing** *Springer* This book lies at the interface of machine learning - a subfield of computer science that develops algorithms for challenging tasks such as shape or image recognition, where traditional algorithms fail - and photonics - the physical science of light, which underlies many of the optical communications technologies used in our information society. It provides a thorough introduction to reservoir computing and field-programmable gate arrays (FPGAs). Recently, photonic implementations of reservoir computing (a machine learning algorithm based on artificial neural networks) have made a breakthrough in optical computing possible. In this book, the author pushes the performance of these systems significantly beyond what was achieved before. By interfacing a photonic reservoir computer with a high-speed electronic device (an FPGA), the author successfully interacts with the reservoir computer in real time, allowing him to considerably expand its capabilities and range of possible applications. Furthermore, the author draws on his expertise in machine learning and FPGA programming to make progress on a very different problem, namely the real-time image analysis of optical coherence tomography for atherosclerotic arteries.

**Mathematical and Engineering Methods in Computer Science 10th International Doctoral Workshop, MEMICS 2015, Telč, Czech Republic, October 23-25, 2015, Revised Selected Papers** *Springer* This volume contains the post-conference proceedings of the 10th Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, MEMICS 2015, held in Telč, Czech Republic, in October 2015. The 10 thoroughly revised full papers were carefully selected out of 25 submissions and are presented together with 3 invited papers. The topics covered include: security and safety, bioinformatics, recommender systems, high-performance and cloud computing, and non-traditional computational models (quantum computing, etc.).

**bioinformatics, recommender systems, high-performance and cloud computing, and non-traditional computational models (quantum computing, etc.).**

**Guidance Information Processing Methods in Airborne Optical Imaging Seeker** *Springer* This book covers all main aspects of guidance information processing technologies for airborne optical imaging seekers, including theoretical models; image pre-processing; automatic target detection, recognition and tracking; and embedded real-time processing systems. The book is divided into three major sections: firstly, a theoretical model for optical-seeker information processing is introduced; then information processing methods are presented, including target modeling, online image pre-processing, typical surface fixed-target detection and recognition, and moving-target detection and recognition; lastly, embedded real-time processing systems are introduced, including new system architectures, image processing ASIC/SoC design, embedded real-time operating systems, system implementation aspects, and system testing and evaluation technologies. The book offers a unique and valuable resource, helping readers understand both fundamental and advanced information processing technologies employed in airborne optical imaging seekers.