

Pixl Chemistry November 2014

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Handbook of Computer Animation John Vince 2003 Written by specialists in teaching computer animation, this text addresses key international topics of computer animation, such as: mathematics, modelling, rendering, and compositing. Each chapter discusses a particular topic and how it is applied, including state-of-the-art techniques that are used in computer animation. The handbook provides a complete and up-to-date picture of computer animation and will be a valuable reference source for programmers, technical directors and animators in computer animation, computer games and special effects and also undergraduate and postgraduate students. The editor, John Vince, has written and edited over 20 books on computer graphics, computer animation and virtual reality.

Photonic Analog-to-Digital Conversion Barry L. Shoop 2001-03-27 Provides a comprehensive look at the application of photonic approaches to the problem of analog-to-digital conversion. It looks into the progress made to date, discusses present research, and presents a glimpse of potential future technologies.

Object Recognition M. Bennamoun 2001-12-12 Automatic object recognition is a multidisciplinary research area using concepts and tools from mathematics, computing, optics, psychology, pattern recognition, artificial intelligence and various other disciplines. The purpose of this research is to provide a set of coherent paradigms and algorithms for the purpose of designing systems that will ultimately emulate the functions performed by the Human Visual System (HVS). Hence, such systems should have the ability to recognise objects in two or three dimensions independently of their positions, orientations or scales in the image. The HVS is employed for tens of thousands of recognition events each day, ranging from navigation (through the recognition of landmarks or signs), right through to communication (through the recognition of characters or people themselves). Hence, the motivations behind the construction of recognition systems, which have the ability to function in the real world, is unquestionable and would serve industrial (e.g. quality control), military (e.g. automatic target recognition) and community needs (e.g. aiding the visually impaired). Scope, Content and Organisation of this Book This book provides a comprehensive, yet readable foundation to the field of object recognition from which research may be initiated or guided. It represents the culmination of research topics that I have either covered personally or in conjunction with my PhD students. These areas include image acquisition, 3-D object reconstruction, object modelling, and the matching of objects, all of which are essential in the construction of an object recognition system.

Electroluminescent Displays Yoshimasa A. Ono 1995 This book discusses recent developments in electroluminescent (EL) displays, in particular thin-film EL displays, which are all-solid emissive displays with fast response, wide viewing angle, high resolution, wide operating temperature ranges and good display qualities. First, the characteristics of four types of EL devices are presented, and the physics of ac thin-film EL devices are detailed, including ideal models, measuring and evaluation methods, high-field electronic transport and properties of phosphor materials. The book emphasizes recent developments in phosphor materials for color thin-film EL devices based on ZnS, SrS, CaS and CaGa₂S₄, and multicolor thin-film EL panels in four-panel structures. Other important features discussed are drive methods and reliability issues.

Parallel Algorithms for Regular Architectures Russ Miller 1996 Parallel-Algorithms for Regular Architectures is the first book to concentrate exclusively on algorithms and paradigms for programming parallel computers such as the hypercube, mesh, pyramid, and mesh-of-trees.

Wireless Video Communications Lajos Hanzo 2001-03-12 Bridging the gap between the video compression and communication communities, this unique volume provides an all-encompassing treatment of wireless video communications, compression, channel coding, and wireless transmission as a joint subject. WIRELESS VIDEO COMMUNICATIONS begins with relatively simple compression and information theoretical principles, continues through state-of-the-art and future concepts, and concludes with implementation-ready system solutions. This book's deductive presentation and broad scope make it essential for anyone interested in wireless communications. It systematically converts the lessons of Shannon's information theory into design principles applicable to practical wireless systems. It provides in a comprehensive manner "implementation-ready" overall system design and performance studies, giving cognizance to the contradictory design requirements of video quality, bit rate, delay, complexity error resilience, and other related system design aspects. Topics covered include information theoretical foundations block-based and convolutional channel coding very-low-bit-rate video codecs and multimode videophone transceivers high-resolution video coding using both proprietary and standard schemes CDMA/OFDM systems, third-generation and beyond adaptive video systems. WIRELESS VIDEO COMMUNICATIONS is a valuable reference for postgraduate researchers, system engineers, industrialists, managers and visual communications

practitioners.

Optical Superresolution Zeev Zalevsky 2004 The authors explore the ways to improve the classical resolution limits of an imaging system, and provide novel approaches for achieving better results than would otherwise be possible with current imaging technology. The book begins by presenting the theoretical foundations, background information, and terminology of super resolution, and then discusses methods and systems used to achieve the super resolution effect. Various approaches to dealing with and exceeding the limitations of the lens aperture, the pixel size of the camera, and the noise generated at the detector are presented and analyzed. The last chapter illustrates several industry-related examples and potential applications to real industrial electro-optical systems. This book is intended for graduate students or researchers in academia or industry, and anyone else looking to improve the performance of their electro-optical system design.

Scanning Probe Lithography Hyongsok T. Soh 2001-06-30 Scanning Probe Lithography (SPL) describes recent advances in the field of scanning probe lithography, a high resolution patterning technique that uses a sharp tip in close proximity to a sample to pattern nanometer-scale features on the sample. SPL is capable of patterning sub-30nm features with nanometer-scale alignment registration. It is a relatively simple, inexpensive, reliable method for patterning nanometer-scale features on various substrates. It has potential applications for nanometer-scale research, for maskless semiconductor lithography, and for photomask patterning. The authors of this book have been key players in this exciting new field. Calvin Quate has been involved since the beginning in the early 1980s and leads the research team that is regarded as the foremost group in this field. Hyongsok Tom Soh and Kathryn Wilder Guarini have been the members of this group who, in the last few years, have brought about remarkable series of advances in SPM lithography. Some of these advances have been in the control of the tip which has allowed the scanning speed to be increased from $\mu\text{m}/\text{second}$ to mm/second . Both non-contact and in-contact writing have been demonstrated as has controlled writing of sub-100 nm lines over large steps on the substrate surface. The engineering of a custom-designed MOSFET built into each microcantilever for individual current control is another notable achievement. Micromachined arrays of probes each with individual control have been demonstrated. One of the most intriguing new aspects is the use of directly-grown carbon nanotubes as robust, high-resolution emitters. In this book the authors concisely and authoritatively describe the historical context, the relevant inventions, and the prospects for eventual manufacturing use of this exciting new technology.

Observational Astrophysics Pierre Lena 1998-09-10 This second edition has been entirely restructured and almost doubled in size, in order to improve clarity and account for the great progress achieved in the field over the last 15 years. "This is not a handbook for observers. It is a broader reference for students, active researchers, and anyone who wants a detailed look at the tools of modern astronomy..." -PHYSICS TODAY

Imaging with Ionizing Radiations Kypros Kouris 1982

Discovering Wavelets Edward Aboufadel 1999-10-05 An accessible and practical introduction to wavelets With applications in image processing, audio restoration, seismology, and elsewhere, wavelets have been the subject of growing excitement and interest over the past several years. Unfortunately, most books on wavelets are accessible primarily to research mathematicians. Discovering Wavelets presents basic and advanced concepts of wavelets in a way that is accessible to anyone with only a fundamental knowledge of linear algebra. The basic concepts of wavelet theory are introduced in the context of an explanation of how the FBI uses wavelets to compress fingerprint images. Wavelet theory is further developed in the setting of function spaces. The book then moves on to present more advanced topics such as filters, multiresolution analysis, Daubechies' wavelets, and further applications. The book concludes with a series of projects and problems that introduce advanced topics and offer starting points for research. Sample projects that demonstrate real wavelet applications include image compression, a wavelet-based search engine, processing with Daubechies' wavelets, and more. Among the special features of Discovering Wavelets are: * Real-life, hands-on examples that involve actual wavelet applications * A companion Web site containing Pixel Images software and Maple files to be used with the projects in the book * Challenging problems that reinforce and expand on the ideas being developed * An appendix containing the linear algebra needed to understand wavelets as presented in the book

Tensor Voting Philippos Mordohai 2006-12-01 This lecture presents research on a general framework for perceptual organization that was conducted mainly at the Institute for Robotics and Intelligent Systems of the University of Southern California. It is not written as a historical recount of the work, since the sequence

of the presentation is not in chronological order. It aims at presenting an approach to a wide range of problems in computer vision and machine learning that is data-driven, local and requires a minimal number of assumptions. The tensor voting framework combines these properties and provides a unified perceptual organization methodology applicable in situations that may seem heterogeneous initially. We show how several problems can be posed as the organization of the inputs into salient perceptual structures, which are inferred via tensor voting. The work presented here extends the original tensor voting framework with the addition of boundary inference capabilities; a novel re-formulation of the framework applicable to high-dimensional spaces and the development of algorithms for computer vision and machine learning problems. We show complete analysis for some problems, while we briefly outline our approach for other applications and provide pointers to relevant sources.

Adobe Photoshop CS3 Andrew Faulkner 2007 This tutorial covers Adobe's Photoshop CS3, including the new file browser, non-square pixel support and much more. Easy to use project files on the CD-ROM provide the perfect complement to the text.

Silicon Optoelectronic Integrated Circuits Horst Zimmermann 2004-01-12 Explains the circuit design of silicon optoelectronic integrated circuits (OEICs), which are central to advances in wireless and wired telecommunications. The essential features of optical absorption are summarized, as is the device physics of photodetectors and their integration in modern bipolar, CMOS, and BiCMOS technologies. This information provides the basis for understanding the underlying mechanisms of the OEICs described in the main part of the book. In order to cover the topic comprehensively, Silicon Optoelectronic Integrated Circuits presents detailed descriptions of many OEICs for a wide variety of applications from various optical sensors, smart sensors, 3D-cameras, and optical storage systems (DVD) to fiber receivers in deep-sub- μm CMOS. Numerous detailed illustrations help to elucidate the material.

From Habitability to Life on Mars Nathalie A. Cabrol 2018-06-29 From Habitability to Life on Mars explores the current state of knowledge and questions on the past habitability of Mars and the role that rapid environmental changes may have played in the ability of prebiotic chemistry to transition to life. It investigates the role that such changes may have played in the preservation of biosignatures in the geological record and what this means for exploration strategies.

Throughout the book, the authors show how the investigation of terrestrial analogs to early Martian habitats under various climates and environmental extremes provide critical clues to understand where, what and how to search for biosignatures on Mars. The authors present an introduction to the newest developments and state-of-the-art remote and in situ detection strategies and technologies that are being currently developed to support the upcoming ExoMars and Mars 2020 missions. They show how the current orbital and ground exploration is guiding the selection for future landing sites. Finally, the book concludes by discussing the critical question of the implications and ethics of finding life on Mars.

Multimedia Mining Chabane Djeraba 2002-11-30 Multimedia Mining: A Highway to Intelligent Multimedia Documents brings together experts in digital media content analysis, state-of-art data mining and knowledge discovery in multimedia database systems, knowledge engineers and domain experts from diverse applied disciplines. Multimedia documents are ubiquitous and often required, if not essential, in many applications today. This phenomenon has made multimedia documents widespread and extremely large. There are tools for managing and searching within these collections, but the need for tools to extract hidden useful knowledge embedded within multimedia objects is becoming pressing and central for many decision-making applications. The tools needed today are tools for discovering relationships between objects or segments within multimedia document components, such as classifying images based on their content, extracting patterns in sound, categorizing speech and music, and recognizing and tracking objects in video streams.

Modern Design Technologies and Experiment for Advanced Manufacture and Industry Chien Hung Liu 2015-05-28 Collection of selected, peer reviewed papers from the 3rd International Conference on Engineering and Technology Innovation held in Kenting, Pingtung, Taiwan, R.O.C., October 31 – November 4, 2014. The 275 papers are grouped as follows: Chapter 1: Materials Processing Technologies and Analysis, Materials Engineering; Chapter 2: Advanced Design for Thermal and Mechanical Engineering; Chapter 3: Development and Technologies in Electrical and Electronic Engineering, Communication and Power Engineering Applications; Chapter 4: Control and Automation Technology, Mechatronics, Robotics for Manufacture and Industry; Chapter 5: Advanced Development for Information Technologies and Engineering, Networks and Software Applications, Data Acquisition and Processing, Intelligent Systems; Chapter 6: Modern Design for Green and Environmental Technologies, Energy-Saving Technologies, Structural and Civil Engineering, Applied Mechanics Applications; Chapter 7: Contemporary Development for Optical Engineering, Image Processing, Quality and Analysis, Measurement, Instrumentation and Detection Technologies Chapter 8: Innovation in Management and Design, Related Topics

Mars Science Laboratory John Grotzinger 2012-12-19 The Mars Science Laboratory is the latest and most advanced NASA roving vehicle to explore the surface of Mars. The Curiosity rover has landed in Gale crater and will explore this region assessing conditions on the surface that might be hospitable to life and paving the way for later even more sophisticated exploration of the surface. This book describes the mission, its exploration and scientific objectives, studies leading to the design of the mission and the instruments that accomplish the objectives of the mission. This book is aimed at all those engaged in Martian studies as well as those interested in the origin of life in other environments. It will be a valuable reference for anyone who uses data from the Mars Science Laboratory. Previously published in Space Science Reviews journal, Vol. 170/1-4, 2012.

Understanding and Applying Machine Vision, Second Edition, Revised and Expanded Nello Zeuch 2000-01-03 A discussion of applications of machine vision

technology in the semiconductor, electronic, automotive, wood, food, pharmaceutical, printing, and container industries. It describes systems that enable projects to move forward swiftly and efficiently, and focuses on the nuances of the engineering and system integration of machine vision technology.

Pattern Recognition with Neural Networks in C++ Abhijit S. Pandya 1995-10-17 The addition of artificial neural network computing to traditional pattern recognition has given rise to a new, different, and more powerful methodology that is presented in this interesting book. This is a practical guide to the application of artificial neural networks. Geared toward the practitioner, Pattern Recognition with Neural Networks in C++ covers pattern classification and neural network approaches within the same framework. Through the book's presentation of underlying theory and numerous practical examples, readers gain an understanding that will allow them to make judicious design choices rendering neural application predictable and effective. The book provides an intuitive explanation of each method for each network paradigm. This discussion is supported by a rigorous mathematical approach where necessary. C++ has emerged as a rich and descriptive means by which concepts, models, or algorithms can be precisely described. For many of the neural network models discussed, C++ programs are presented for the actual implementation. Pictorial diagrams and in-depth discussions explain each topic. Necessary derivative steps for the mathematical models are included so that readers can incorporate new ideas into their programs as the field advances with new developments. For each approach, the authors clearly state the known theoretical results, the known tendencies of the approach, and their recommendations for getting the best results from the method. The material covered in the book is accessible to working engineers with little or no explicit background in neural networks. However, the material is presented in sufficient depth so that those with prior knowledge will find this book beneficial. Pattern Recognition with Neural Networks in C++ is also suitable for courses in neural networks at an advanced undergraduate or graduate level. This book is valuable for academic as well as practical research.

Water Is... Nina Munteanu 2015-01 Part history, part science and part philosophy and spirituality, "Water Is..." combines personal journey with scientific discovery that explores water's many identities and ultimately our own. Written by internationally published author, teacher and limnologist Nina Munteanu.

Signal Processing for Computer Vision Gösta H. Granlund 1994-12-31 Signal Processing for Computer Vision is a unique and thorough treatment of the signal processing aspects of filters and operators for low-level computer vision. Computer vision has progressed considerably over recent years. From methods only applicable to simple images, it has developed to deal with increasingly complex scenes, volumes and time sequences. A substantial part of this book deals with the problem of designing models that can be used for several purposes within computer vision. These partial models have some general properties of invariance generation and generality in model generation. Signal Processing for Computer Vision is the first book to give a unified treatment of representation and filtering of higher order data, such as vectors and tensors in multidimensional space. Included is a systematic organisation for the implementation of complex models in a hierarchical modular structure and novel material on adaptive filtering using tensor data representation. Signal Processing for Computer Vision is intended for final year undergraduate and graduate students as well as engineers and researchers in the field of computer vision and image processing.

Liquid Crystal TV Displays E. Kaneko 1987-04-30 'Kaneko's work in the best manner is filling a gap in the present literature and will be a standard reference source for all people interested in LCD's.' Crystal Research and Technology, 1988

Design, Manufacturing and Measurement for Advanced Optics Xin Chen 2016-02-01 Selected, peer reviewed papers from the 4th Asia Pacific Conference on Optics Manufacture (APCOM 2014), November 9-11, 2014, Guangzhou, China

Sensors, Measurement, Intelligent Materials and Technologies III Yun Hae Kim 2015-03-09 Collection of selected, peer reviewed papers from the 2014 3rd International Conference on Sensors, Measurement and Intelligent Materials (ICSMIM 2014), November 25-26, 2014, Zhuhai, China. The 269 papers are grouped as follows: Chapter 1: Sensors and Materials for Sensors, their Applications; Chapter 2: Smart and Functional Materials and Technologies, Analysis, Design, Processing; Chapter 3: Remote Sensing and Telemetry Technology; Chapter 4: Intelligent Information and Expert Systems, Applications for Management and Product Design; Chapter 5: Algorithms, Computation Methods and their Applications; Chapter 6: Mathematical Methods and Modelling, Information Technologies in Industrial Engineering; Chapter 7: Data, Text, Sound, Image, Signal and Video Processing and Technologies, Data Acquisition, their Applications; Chapter 8: Testing, Detection, Measurement, Monitoring Technologies and Instruments; Chapter 9: Mechatronics, Industrial Robotics, Automation and Control Technology; Chapter 10: Computer Networks, Communication Technology and E-Commerce; Chapter 11: Modern Electronic, Circuit Technology, Electrical and Power Engineering; Chapter 12: Software Applications and Development.

The Pixel Eye Paul Levinson 2003-08-02 NYPD forensic detective Dr. Phil D'Amato's latest futuristic adventure pits personal loyalties against public responsibilities, safety against freedom, and the right to know against animal rights, all against a backdrop of a post 9/11 New York City.

Mars Leonard David (Space journalist) 2016 The next frontier in space exploration is Mars, the red planet--and human habitation of Mars isn't much farther off. Now the National Geographic Channel goes years fast-forward with "Mars," a six-part series documenting and dramatizing the next 25 years as humans land on and learn to live on Mars. This companion book to the series explores the science behind the mission and the challenges awaiting those brave individuals. Filled with vivid photographs taken on Earth, in space, and on Mars; arresting maps; and commentary from the world's top planetary scientists, this fascinating book will take you millions of miles away--and decades into the future--to our next home in the solar system.

Compressed Video Over Networks Ming-Ting Sun 2000-09-22 This volume details the essential elements for designing optimal end-to-end systems. It progresses from the fundamentals of both video compression and networking technologies to an extensive summary of the constant and continuous interaction between the fields. The work seeks to respond to the proliferation of networked digital video applications in daily life with in-depth analyses of technical problems and solutions.

Cumulated Index Medicus 1997

Parallel and Distributed Discrete Event Simulation Carl Tropper 2002 Discrete-event simulation has long been an integral part of the design process of complex engineering systems and the modelling of natural phenomena. Many of the systems that we seek to understand or control can be modelled as digital systems. In a digital model, we view the system at discrete instants of time, in effect taking snapshots of the system at these instants. For example, in a computer network simulation an event can be the sending of a message from one node to another node while in a VLSI logic simulation, the arrival of a signal at a gate may be viewed as an event. Digital systems such as computer systems are naturally susceptible to this approach. However, a variety of other systems may also be modelled this way. These include transportation systems such as air-traffic control systems, epidemiological models such as the spreading of a virus, and military war-gaming models. This book is representative of the advances in this field.

Measurement Technology and its Application III Prasad Yarlagadda 2014-06-10 Collection of selected, peer reviewed papers from the 2014 International Conference on Measurement, Instrumentation and Automation (ICMIA 2014), April 23-24, 2014, Shanghai, China. The 380 papers are grouped as follows: Chapter 1: Measurement Science, Methods and Techniques of Measurements, Chapter 2: Signal Acquisition and Data Processing Techniques, Chapter 3: Research and Design of Measurement Instruments, Chapter 4: Sensors Technology, Chapter 5: Image and Video Processing, Chapter 6: Artificial Intelligence, Optimization Algorithms and Computational Mathematics, Chapter 7: Mechatronics and Robotics, Chapter 8: Control and Automation of Industrial Objects, Chapter 9: Electronics, Integrated Systems and Power Electronics, Chapter 10: Communications Technology, Chapter 11: Computer Networks and Security, Chapter 12: Software Development and Application, Chapter 13: Computer and Information Technologies, Chapter 14: Materials, Mechanical Engineering and Manufacturing, Chapter 15: Fluid Power Transmission and Control, Chapter 16: Power Engineering, Chapter 17: Transportation, Chapter 18: Biomaterials and Sports Mechanics, Chapter 19: Engineering Education and Engineering Management

Data Fusion Methodology and Applications Marina Cocchi 2019-05-11 Data Fusion Methodology and Applications explores the data-driven discovery paradigm in science and the need to handle large amounts of diverse data. Drivers of this change include the increased availability and accessibility of hyphenated analytical platforms, imaging techniques, the explosion of omics data, and the development of information technology. As data-driven research deals with an inductive attitude that aims to extract information and build models capable of inferring the underlying phenomena from the data itself, this book explores the challenges and methodologies used to integrate data from multiple sources, analytical platforms, different modalities, and varying timescales. Presents the first comprehensive textbook on data fusion, focusing on all aspects of data-driven discovery Includes comprehensible, theoretical chapters written for large and diverse audiences Provides a wealth of selected application to the topics included

Understanding Magnetic Resonance Imaging Robert C. Smith 1997-11-20 Magnetic resonance imaging (MRI) is the most technically dependent imaging technique in radiology. To perform and interpret MRI studies correctly, an understanding of the basic underlying principles is essential. Understanding Magnetic Resonance Imaging explains the pulse sequences, imaging options, and coils used to produce MR images, providing a strong foundation for performing and interpreting imaging studies. The text is complemented by more than 100 figures and 25 photomicrographs illustrating the techniques discussed. Radiology residents, MR technologists, and radiologists should not be without Understanding Magnetic Resonance Imaging—the only single resource that explains all technical aspects of MRI, including recent advances, and presents all imaging options.

The Pattern Book Clifford A. Pickover 1995 Although the patterns are computer-generated, the book is informal and emphasis is on the fun that the true pattern lover finds in doing rather than in reading about the doing.

Mysterium Robert Charles Wilson 2010-08-31 In a top-secret government installation near the small town of Two Rivers, Michigan, scientists are investigating a mysterious object discovered several years earlier. Late one evening, the local residents observe strange lights coming from the laboratory. The next morning, they awake to find that their town was literally cut off from the rest of the world...and thrust into a new one! Soon the town is discovered by the bewildered leaders of this new world—at which point, the people of Two Rivers realize that they've arrived in a rigid theocracy. The authorities, known as the Bureau de la Covenance Religieuse, have ordered Linneth Stone, a young ethnologist, to analyze the arrivals and report her findings to the Lieutenant in charge. What Linneth finds will challenge the philosophical basis of her society and lead inexorably to a struggle for power centering on the mysterious object that Two Rivers' government scientists were studying when the town slipped between worlds. In Mysterium, Robert Charles Wilson "blends science, religion, philosophy and alternate history into an intelligent, compelling work of fiction" (Publishers Weekly). At the Publisher's request, this title is being sold without Digital Rights

Management Software (DRM) applied.

Vision and Voyages for Planetary Science in the Decade 2013–2022 National Research Council 2012-01-30 In recent years, planetary science has seen a tremendous growth in new knowledge. Deposits of water ice exist at the Moon's poles. Discoveries on the surface of Mars point to an early warm wet climate, and perhaps conditions under which life could have emerged. Liquid methane rain falls on Saturn's moon Titan, creating rivers, lakes, and geologic landscapes with uncanny resemblances to Earth's. Vision and Voyages for Planetary Science in the Decade 2013-2022 surveys the current state of knowledge of the solar system and recommends a suite of planetary science flagship missions for the decade 2013-2022 that could provide a steady stream of important new discoveries about the solar system. Research priorities defined in the report were selected through a rigorous review that included input from five expert panels. NASA's highest priority large mission should be the Mars Astrobiology Explorer Cacher (MAX-C), a mission to Mars that could help determine whether the planet ever supported life and could also help answer questions about its geologic and climatic history. Other projects should include a mission to Jupiter's icy moon Europa and its subsurface ocean, and the Uranus Orbiter and Probe mission to investigate that planet's interior structure, atmosphere, and composition. For medium-size missions, Vision and Voyages for Planetary Science in the Decade 2013-2022 recommends that NASA select two new missions to be included in its New Frontiers program, which explores the solar system with frequent, mid-size spacecraft missions. If NASA cannot stay within budget for any of these proposed flagship projects, it should focus on smaller, less expensive missions first. Vision and Voyages for Planetary Science in the Decade 2013-2022 suggests that the National Science Foundation expand its funding for existing laboratories and establish new facilities as needed. It also recommends that the program enlist the participation of international partners. This report is a vital resource for government agencies supporting space science, the planetary science community, and the public.

Parallel Supercomputing in SIMD Architectures R. Michael Hord 1990-04-30 Parallel Supercomputing in SIMD Architectures is a survey book providing a thorough review of Single-Instruction-Multiple-Data machines, a type of parallel processing computer that has grown to importance in recent years. It was written to describe this technology in depth including the architectural concept, its history, a variety of hardware implementations, major programming languages, algorithmic methods, representative applications, and an assessment of benefits and drawbacks. Although there are numerous books on parallel processing, this is the first volume devoted entirely to the massively parallel machines of the SIMD class. The reader already familiar with low order parallel processing will discover a different philosophy of parallelism—the data parallel paradigm instead of the more familiar program parallel scheme. The contents are organized into nine chapters, rich with illustrations and tables. The first two provide introduction and background covering fundamental concepts and a description of early SIMD computers. Chapters 3 through 8 each address specific machines from the first SIMD supercomputer (Illiad IV) through several contemporary designs to some example research computers. The final chapter provides commentary and lessons learned. Because the test of any technology is what it can do, diverse applications are incorporated throughout, leading step by step to increasingly ambitious examples. The book is intended for a wide range of readers. Computer professionals will find sufficient detail to incorporate much of this material into their own endeavors. Program managers and applications system designers may find the solution to their requirements for high computational performance at an affordable cost. Scientists and engineers will find sufficient processing speed to make interactive simulation a practical adjunct to theory and experiment. Students will find a case study of an emerging and maturing technology. The general reader is afforded the opportunity to appreciate the power of advanced computing and some of the ramifications of this growing capability.

Image Processing for Computer Graphics Jonas Gomes 1997 Image processing is a central theme in computer graphics. This book provides a modern introduction to both the underlying mathematics and the main concepts and techniques of the subject. It covers important modern techniques such as morphing and warping images as well as dithering, compositing, and other operations on images.

Open Source GIS Markus Neteler 2002-06-30 Open Source GIS: A GRASS GIS Approach was written for experienced GIS users, who want to learn GRASS, as well as for the Open Source software users who are GIS newcomers. Following the Open Source model of GRASS, the book includes links to sites where the GRASS system and on-line reference manuals can be downloaded and additional applications can be viewed. The project's website can be reached at <http://grass.itc.it> and a number of mirror sites worldwide. Open Source GIS: A GRASS GIS Approach, provides basic information about the use of GRASS from setting up the spatial database, through working with raster, vector and site data, to image processing and hands-on applications. This book also contains a brief introduction to programming within GRASS encouraging the new GRASS development. The power of computing within Open Source environment is illustrated by examples of the GRASS usage with other Open Source software tools, such as GSTAT, R statistical language, and linking GRASS to MapServer. Open Source GIS: A GRASS GIS Approach is designed to meet the needs of a professional audience composed of researchers and practitioners in industry and graduate level students in Computer Science and Geoscience.

3D Computer Graphics Sam Buss 2003-05-19 Table of contents