Free ebook Labview advanced tutorial Copy

LabView LabVIEW Advanced LabVIEW Labs LabVIEW advanced LabVIEW for Everyone Digital Signal Processing System-Level Design Using LabVIEW LabVIEW for Data Acquisition Analog Electronics with LabVIEW Digital Signal Processing System Design Digital Signal Processing Laboratory Signals and Systems Analysis In Biomedical Engineering Industrial Instrumentation and Control Systems Advanced Computational Methods in Energy, Power, Electric Vehicles, and Their Integration Electric Machines for Smart Grids Applications Interaksi Arduino & LabVIEW New Trends in Software Methodologies, Tools and Techniques LabVIEW Graphical Programming LabView 8,20 Entorno Gráfico de Programación Advanced Telescope and Instrumentation Control Software Learning with LabVIEW 6i LabVIEW Learning with LabVIEW 2009 LabVIEW Signal Processing LabVIEW Graphical Programming Advances in Control Education 2003 (ACE 2003) Sensors, Transducers, & LabVIEW Writing Software Documentation Non-Invasive Instrumentation and Measurement in Medical Diagnosis Announcer Advanced Materials & Processes Basic Concepts of LabVIEW 4 Mechatronics NASA Tech Briefs Science Education Modern Instrumentation for Scientists and Engineers □□ LabVIEW□□ Power System Fault Diagnosis Controllo ed elaborazione numerica dei segnali con Labview Multiple Access Techniques for 5G Wireless Networks and Beyond Анализ на изображения в експерименталната токсикология

LabView 2017-12-19 whether seeking deeper knowledge of labview s capabilities or striving to build enhanced vis professionals know they will find everything they need in labview advanced programming techniques now accompanied by labview 2011 this classic second edition focusing on labview 8 0 delves deeply into the classic features that continue to make labview one of the most popular and widely used graphical programming environments across the engineering community the authors review the front panel controls the standard state machine template drivers the instrument i o assistant error handling functions hyperthreading and express vis it covers the introduction of the shared variables function in labview 8 0 and explores the labview project view the chapter on activex includes discussion of the microsofttm net framework and new examples of programming in labview using net numerous illustrations and step by step explanations provide hands on guidance reviewing labview 8 0 and accompanied by the latest software labview advanced programming techniques second edition remains an indispensable resource to help programmers take their labview knowledge to the next level visit the crc website to download accompanying software

LabVIEW 2000-08-10 the graphical nature of labview makes it ideal for test and measurement applications and its use brings significant improvements in productivity over conventional programming languages however comprehensive treatments of the more advanced topics have been scattered and difficult to find until now labview advanced programming techniques of

Advanced LabVIEW Labs 1999 advanced labview labs provides a structured introduction to labview based laboratory skills the book can be used as a stand alone tutorial or as a college level instructional lab text the reader learns the labview programming language while writing meaningful programs that explore useful data analysis techniques numerical integration and differentiation least squares curve fitting fast fourier transform and the mechanics of computer based experimentation using national instruments daq and gpib boards during the course of the book the reader constructs and investigates the proper usage of several computer based instruments including a digitizing oscilloscope spectrum analyzer and pid temperature control system as well as learns to control an instrument through the general purpose interface bus

LabVIEW advanced 2006 the 1 step by step guide to labview now completely updated for labview 8 master labview 8 with the industry s friendliest most intuitive tutorial labview for everyone third edition top labview experts jeffrey travis and jim kring teach labview the easy way through carefully explained step by step examples that give you reusable code for your own projects this brand new third edition has been fully revamped and expanded to reflect new features and techniques introduced in labview 8 you ll find two new chapters plus dozens of new topics including project explorer autotool xml event driven programming error handling regular expressions polymorphic vis timed structures advanced reporting and much more certified labview developer cld candidates will find callouts linking to key objectives on ni s newest exam making this book a more valuable study tool than ever not just what to do why to do it use labview to build your own virtual workbench master labview s foundations wiring creating editing and debugging vis using controls and indicators working with data structures and much more learn the art and best practices of effective labview development new streamline development with labview express vis new acquire data with ni daqmx and the labview daqmx vis new discover design patterns for error handling control structures state machines queued messaging and more new create sophisticated user interfaces with tree and tab controls drag and drop subpanels and more whatever your application whatever your role whether you ve used labview or not labview for everyone third edition is the fastest easiest way to get the results you re after

LabVIEW for Everyone 2006 labview laboratory virtual instrumentation engineering workbench developed by national instruments is a graphical programming environment its ease of use allows engineers and students to streamline the creation of code visually leaving time traditionally spent on debugging for true comprehension of dsp this book is perfect for practicing engineers as well as hardware and software technical managers who are familiar with dsp and are involved in system level design with this text authors kehtarnavaz and kim have also provided a valuable resource for students in conventional engineering courses the integrated lab exercises create an interactive experience which supports development of the hands on skills essential for learning to navigate the labview program digital signal processing system level design using labview is a comprehensive tool that will greatly accelerate the dsp learning process its thorough examination of labview leaves no question unanswered labview is the program that will demystify dsp and this is the book that will show you how to master it a graphical programming approach labview to dsp system level design dsp implementation of appropriate components of a labview designed system providing system level hands on experiments for dsp lab or project courses

Digital Signal Processing System-Level Design Using LabVIEW 2011-04-01 the practical succinct labview data acquisition tutorial for every professional no matter how much labview experience you have this compact tutorial gives you core skills for producing virtually any data acquisition daq application input and output designed for every engineer and scientist

labview for data acquisition begins with quick start primers on both labview and daq and builds your skills with extensive code examples and visual explanations drawn from bruce mihura s extensive experience teaching labview to professionals includes extensive coverage of daq specific programming techniques real world techniques for maximizing accuracy and efficiency the 10 most common labview daq development problems with specific solutions addresses simulation debugging real time issues and network distributed systems preventing unauthorized changes to your labview code an overview of transducers for a wide variety of signals non ni alternatives for hardware and software labview for data acquisition includes an extensive collection of real world labview applications lists of labview tips and tricks coverage of non ni software and hardware alternatives and much more whatever data acquisition application you need to create this is the book to start and finish with related website the accompanying website includes an evaluation version of labview and key labview code covered in the book

LabVIEW for Data Acquisition 2001-06-26 projects include many program files in labview mathcad and spice which professionals would not have time to create on their own labview allows engineers to turn their desktop into the instrument analog circuit design is still vital in building communications devices the addition of labview makes this process more precise and time efficientthis book presents a study of analog electronics it consists of theory and closely coupled experiments which are based entirely on computer based data acquisition using labview the topics included treat many of the relevant aspects of basic modern electronics

Analog Electronics with LabVIEW 2002 digital signal processing system design combines textual and graphical programming to form a hybrid programming approach enabling a more effective means of building and analyzing dsp systems the hybrid programming approach allows the use of previously developed textual programming solutions to be integrated into labview s highly interactive and visual environment providing an easier and quicker method for building dsp systems this book is an ideal introduction for engineers and students seeking to develop dsp systems in quick time features the only dsp laboratory book that combines textual and graphical programming 12 lab experiments that incorporate c matlab code blocks into the labview graphical programming environment via the mathscripting feature lab experiments covering basic dsp implementation topics including sampling digital filtering fixed point data representation frequency domain processing interesting applications using the hybrid programming approach such as a software defined radio system a 4 qam modem and a cochlear implant simulator the only dsp project book that combines textual and graphical programming 12 lab projects that incorporate matlab code blocks into the labview graphical programming environment via the mathscripting feature interesting applications such as the design of a cochlear implant simulator and a software defined radio system

Digital Signal Processing System Design 2011-08-29 field programmable gate arrays fpgas are increasingly becoming the platform of choice to implement dsp algorithms this book is designed to allow dsp students or dsp engineers to achieve fpga implementation of dsp algorithms in a one semester dsp laboratory course or in a short design cycle time based on the labview fpga module features the first dsp laboratory book that uses the fpga platform instead of the dsp platform for implementation of dsp algorithms incorporating introductions to labview and vhdl lab experiments covering fpga implementation of basic dsp topics including convolution digital filtering fixed point data representation adaptive filtering frequency domain processing hardware fpga implementation applications including wavelet transform software defined radio and mp3 player website providing downloadable labview fpga codes

Digital Signal Processing Laboratory 2010 the first edition of this text based on the author s 30 years of teaching and research on neurosensory systems helped biomedical engineering students and professionals strengthen their skills in the common network of applied mathematics that ties together the diverse disciplines that comprise this field updated and revised to include new materia

Signals and Systems Analysis In Biomedical Engineering 2016-04-19 this volume covers the topics of instrument design and measurement theory reliability of instruments and fault diagnosis precision instruments and computer vision automation instruments electrical and electronic instruments and equipment sensors and their application control technologies and applications fluid power transmission and control mechatronics modeling analysis and simulation artificial intelligence industrial robots and automation automotive control systems intelligent traffic control cad cam cae cim optoelectronic technology embedded systems communication technology and network security software development and mathematical modeling computer applications in industry and engineering the internet

Industrial Instrumentation and Control Systems 2012-12-13 the three volume set ccis 761 ccis 762 and ccis 763 constitutes the thoroughly refereed proceedings of the international conference on life system modeling and simulation lsms 2017 and of the international conference on intelligent computing for sustainable energy and environment icsee 2017 held in

nanjing china in september 2017 the 208 revised full papers presented were carefully reviewed and selected from over 625 submissions the papers of this volume are organized in topical sections on biomedical signal processing computational methods in organism modeling medical apparatus and clinical applications bionics control methods algorithms and apparatus modeling and simulation of life systems data driven analysis image and video processing advanced fuzzy and neural network theory and algorithms advanced evolutionary methods and applications advanced machine learning methods and applications intelligent modeling monitoring and control of complex nonlinear systems advanced methods for networked systems control and analysis of transportation systems advanced sliding mode control and applications advanced analysis of new materials and devices computational intelligence in utilization of clean and renewable energy resources intelligent methods for energy saving and pollution reduction intelligent methods in developing electric vehicles engines and equipment intelligent computing and control in power systems modeling simulation and control in smart grid and microgrid optimization methods computational methods for sustainable environment

Advanced Computational Methods in Energy, Power, Electric Vehicles, and Their Integration 2017-09-01 in this book highly qualified scientists present their recent research motivated by the importance of electric machines it addresses advanced studies for high speed electrical machine design mechanical design of rotors with surface mounted permanent magnets design of motor drive for brushless dc motor single phase motors for household applications battery electric propulsion systems for competition racing applications robust diagnosis by observer using the bond graph approach a dc motor simulator based on virtual instrumentation start up of a pid fuzzy logic embedded control system for the speed of a dc motor using labview advanced control of the permanent magnet synchronous motor and optimization of fuzzy logic controllers by particle swarm optimization to increase the lifetime in power electronic stages

Electric Machines for Smart Grids Applications 2018-12-12 buku yang sudah jadul 2012 mengenai bagaimana menghubungkan arduino dengan labview melalui komunikasi serial dan firmata lifa siapa tahu bermanfaat

Interaksi Arduino & LabVIEW 2022-06-27 software is the essential enabling means for science and the new economy it helps us to create a more reliable flexible and robust society but software often falls short of our expectations current methodologies tools and techniques remain expensive and are not yet sufficiently reliable while many promising approaches have proved to be no more than case by case oriented methods this book contains extensively reviewed papers from the thirteenth international conference on new trends in software methodology tools and techniques somet 14 held in langkawi malaysia in september 2014 the conference provides an opportunity for scholars from the international research community to discuss and share research experiences of new software methodologies and techniques and the contributions presented here address issues ranging from research practices and techniques and methodologies to proposing and reporting solutions for global world business the emphasis has been on human centric software methodologies end user development techniques and emotional reasoning for an optimally harmonized performance between the design tool and the user topics covered include the handling of cognitive issues in software development to adapt it to the user s mental state and intelligent software design in software utilizing new aspects on conceptual ontology and semantics reflected on knowledge base system models this book provides an opportunity for the software science community to show where we are today and where the future may take us

New Trends in Software Methodologies, Tools and Techniques 2014-08-29 cd rom contains virtual instruments examples built in the book links to ni online catalog

LabVIEW Graphical Programming 2001 el libro trata sobre la última versión 8 20 más las versiones anteriores consta de la supervisión y el apoyo de national instruments españa va acompañado de un cd con ejemplos prácticos y ejercicios de cada capítulo también contiene la última versión de evaluación de labview 8 20 altamente pedagógico con teoría acompañada de ejemplos prácticos en cada uno de los temas tratados muy útil tanto para el estudiante como para el profesional consta de 15 capítulos y tres partes introducción entorno estructuras y tipos de datos adquisición de datos y comunicaciones y programación avanzada Índice i introducciÓn 1 introducción a labview entorno 2 estructuras 3 tipos de datos ii adquisiciÓn y comunicaciones 4 manejo de ficheros 5 comunicación serie 6 bus de comunicaciones gpib 7 adquisición de datos 8 protocolos de comunicación tcp y udp 9 acceso remoto vi server y comunicaciones avanzadas iii programaciÓn avanzada 10 sincronización y multihilo 11 modelos de programación 12 código externo 13 optimización del interfaz 14 optimización del código 15 otras plataformas

LabView 8,20 Entorno Gráfico de Programación 2007-02-28 defined as the science about the development of an embryo from the fertilization of the ovum to the fetus stage embryology has been a mainstay at universities throughout the world for many years throughout the last century embryology became overshadowed by experimental based genetics and cell

biology transforming the field into developmental biology which replaced embryology in biology departments in many universities major contributions in this young century in the fields of molecular biology biochemistry and genomics were integrated with both embryology and developmental biology to provide an understanding of the molecular portrait of a development cell that new integrated approach is known as stem cell biology it is an understanding of the embryology and development together at the molecular level using engineering imaging and cell culture principles and it is at the heart of this seminal book stem cells and regenerative medicine from molecular embryology to tissue engineering is completely devoted to the basic developmental cellular and molecular biological aspects of stem cells as well as their clinical applications in tissue engineering and regenerative medicine it focuses on the basic biology of embryonic and cancer cells plus their key involvement in self renewal muscle repair epigenetic processes and therapeutic applications in addition it covers other key relevant topics such as nuclear reprogramming induced pluripotency and stem cell culture techniques using novel biomaterials a thorough introduction to stem cell biology this reference is aimed at graduate students post docs and professors as well as executives and scientists in biotech and pharmaceutical companies

Advanced Telescope and Instrumentation Control Software 2000 a one of a kind book that connects the labview programming language with data acquisition and analysis the hands on approach includes ample practice exercises and provides a practical and direct way to learn write and use programs for the purpose of collecting and analyzing human performance data key topics includes cd rom disk containing ready to use virtual instruments the manual shows users how to build and run basic and more advanced computer programs within the flexible graphical framework of labview for anyone interested in applying labview programming language to the movement sciences

Learning with LabVIEW 6i 2001 learning with labview 2009 introduces students to the basics of labview programming and relates those concepts to real applications in academia and industry with labview students can design graphical programming solutions to their homework problems and laboratory experiments

LabVIEW 2001 get results fast with labview signal processing this practical guide to labview signal processing and control system capabilities is designed to help you get results fast you ll understand labview s extensive analysis capabilities and learn to identify and use the best labview tool for each application you ll review classical dsp and other essential topics including control system theory curve fitting and linear algebra along the way you ll use labview s tools to construct practical applications that illuminate arbitrary waveform generation aliasing signal separation and their effects the separation of two signals close in frequency but differing in amplitudes predicting the cost of producing a product in multiple quantities noise removal in biomedical applications determination of system stability and design linear state feedback the accompanying website contains the complete labview fds evaluation version including analysis library relevant elements of the g math toolkit and complete demos of several other important products including the digital filter design toolkit and the signal processing suite whether you re a professional or student labview represents an extraordinary opportunity to streamline signal processing and control systems projects and this book is all you need to get started

Learning with LabVIEW 2009 2010 labview is an award winning programming language that allows engineers to create virtual instruments on their desktop this new edition details the powerful features of labview 8 0 written in a highly accessible and readable style labview graphical programming illustrates basic labview programming techniques building up to advanced programming concepts new to this edition is study material for the clad and cld exams

LabVIEW Signal Processing 1998-06-03 advances in control education 2003 the 6th ifac symposium on advances in control education was an international forum for scientists and practitioners involved in the field of control education to present their latest research results and ideas the symposium also aimed to disseminate knowledge and experience in alternative methods and approaches in education in addition to three plenary lectures and the technical visit the symposium included 12 regular sessions and panel discussion session on the topic web with or without technical sessions concentrated on new software tools in control education especially on the role of interaction in control engineering education web based systems and remote laboratories and on laboratory experiments presents and illustrates new approaches to the effective utilisation of new software tools in control engineering education identifies the important role remote laboratories play in the development of control education

LabVIEW Graphical Programming 2006-07-17 please provide

Advances in Control Education 2003 (ACE 2003) 2004-02-04 part of the new allyn bacon series in technical communication writing software documentation features a step by step strategy to writing and describing procedures this task oriented book is designed to support both college students taking a course and professionals working in the field teaching apparatus includes complete programs for students to work on and a full set of project tracking forms as well as a broad range of examples including windows style pages and screens

and award winning examples from stc competitions

Sensors, Transducers, & LabVIEW 1999 non invasive instrumentation and measurement in medical diagnosis second edition discusses nimd as a rapidly growing interdisciplinary field the contents within this second edition text is derived from professor robert b northrop s experience teaching for over 35 years in the biomedical engineering department at the university of connecticut the text focusses on the instruments and procedures which are used for non invasive medical diagnosis and therapy highlighting why nimd is the preferred procedure whenever possible to avoid the risks and expenses associated with surgically opening the body surface this second edition also covers a wide spectrum of nimd topics including x ray bone densitometry by the dexa method tissue fluorescence spectroscopy optical interferometric measurement of nanometer tissue displacements laser doppler velocimetry pulse oximetry and applications of raman spectroscopy in detecting cancer to name a few this book is intended for use in an introductory classroom course on non invasive medical instrumentation and measurements taken by juniors seniors and graduate students in biomedical engineering it will also serve as a reference book for medical students and other health professionals intrigued by the topic practicing physicians nurses physicists and biophysicists interested in learning state of the art techniques in this critical field will also find this text valuable non invasive instrumentation and measurement in medical diagnosis second edition concludes with an expansive index bibliography as well as a comprehensive glossary for future reference and reading

Writing Software Documentation 1998 appropriate for any course which uses labview 4 may also have potential in continuing education and industry training programs labview is an interactive hands on object oriented software environment that supports simulation data acquisition gpib interface for instrument control as well as control and communication application this workbook outlines the capabilities of labview 4 and walks the beginning user step by step through each of the software s features most exercises and applications are generic and suitable for use in any course that teaches or uses labview

Non-Invasive Instrumentation and Measurement in Medical Diagnosis 2017-10-23 1 computer integration of electro mechanical systems mixed systems integration mechanical structure sensors and actuators computer monitoring and control 2 sensor modeling sensors and transducers temperature sensing thermocouples strain stress and force measurement using strain gauges piezoelectric strain sensors and accelerometers analog position measurement potentiometers digital position measurement optical encoders velocity measurement tachometers problems 3 actuators modeling direct current motors stepper motors hydraulic motors piezoelectric actuators problems 4 interfacing computer interface requirements operational amplifiers signal conditioning digital to analog conversion analog to digital conversion power amplifiers and actuator drives problems 5 mixed dynamic systems modeling and simulation overview of system modeling block diagrams and state space modeling object oriented modeling signal and power transmission virtual prototyping and hardware in the loop experimentation neural network models problems 6 data acquisition and virtual instrumentation computer based monitoring and control labview programming for virtual instrumentation matlab data acquisition toolbox data analysis tools signal generation digital signal processing for the fourier transform signal spectrum smoothing windows digital filters problems 7 real time monitoring and control pc based and embedded microcontrollers solutions for real time applications digital signal processors for real time applications labview real time data acquisition and control mathworks tools for real time data acquisition and control embedded single chip computers for system integration problems 8 laboratory experiments for mechatronics overview interfacing sensors and actuators using labview matlab sound acquisition and fft advanced monitoring and control experiments problems references index

Announcer 2003 produced principally for unit eme144 science education 1 offered by the faculty of education s school of scientific and developmental studies in education in deakin university s open campus program campus program

Advanced Materials & Processes 1993-07 this modern presentation comprehensively addresses the principal issues in modern instrumentation but without attempting an encyclopaedic reference it covers the most important topics in electronics sensors measurements and acquisition systems and will be an indispensable reference for readers in a wide variety of disciplines

Basic Concepts of LabVIEW 4 1998 □□□□□□□□□□ □□□□□□□□ labview□□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

Mechatronics 2002 power system fault diagnosis a wide area measurement based intelligent approach is a comprehensive overview of the growing interests in efficient diagnosis of power system faults to reduce outage duration and revenue losses by expediting the restoration process this book illustrates intelligent fault diagnosis schemes for power system networks at both transmission and distribution levels using data acquired from phasor measurement units it presents the power grid modeling fault modeling feature extraction

processes and various fault diagnosis techniques including artificial intelligence techniques in steps the book also incorporates uncertainty associated with line parameters fault information resistance and inception angle load demand renewable energy generation and measurement noises provides step by step modeling of power system networks distribution and transmission and faults in matlab simulink and real time digital simulator rtds platforms presents feature extraction processes using advanced signal processing techniques discrete wavelet and stockwell transforms and an easy to understand optimal feature selection method illustrates comprehensive results in the graphical and tabular formats that can be easily reproduced by beginners highlights various utility practices for fault location in transmission networks distribution systems and underground cables

NASA Tech Briefs 1994 this book presents comprehensive coverage of current and emerging multiple access random access and waveform design techniques for 5g wireless networks and beyond a definitive reference for researchers in these fields the book describes recent research from academia industry and standardization bodies the book is an all encompassing treatment of these areas addressing orthogonal multiple access and waveform design non orthogonal multiple access noma via power code and other domains and orthogonal non orthogonal and grant free random access the book builds its foundations on state of the art research papers measurements and experimental results from a variety of sources

Science Education 1996 РЕЦЕНЗИЯ на монографията Анализ на изображения в експерименталната токсикология от гл ас Йордан Иванов Йорданов дф Монографичният труд на гл ас доктор Йордан Йорданов на тема Анализ на изображения в експерименталната токсикология се появява в период от развитието на науката и технологиите в който въпросите за коректната обработка на големи масиви от данни съдържателната им интерпретация и поставянето на получените знания в служба на научния прогрес и нуждите на обществото е изключително актуален Трудът представя темата и структурата на изследването по разбираем и логичен начин като оптимално комбинира теоретични знания и практически наблюдения Той започва с анализ на специфичните особености които имат цифровите изображения и по специално биоизображенията отнасящи се до биологични обекти Анализът обосновава нуждата от интелигентен подход в обработката им за да бъде извлечена най съдържателната информация Това въведение естествено довежда до формулиране на целта на монографията която найобщо би могла да се определи така да предостави базови теоретични знания и практически умения по приложението на методите за анализ на цифрови изображения в неклиничните токсикологични проучвания В съответствие с целта следва представяне на теоретичните основи с акцент върху свойствата на цифровите изображения видовете операции и методите прилагани при обработката им Систематичният обзор последователно извежда селекцията на най значимите публикации по темата с акцент върху анализ на биоизображения в областта на експерименталната токсикология Представени са и основни подходи при анализ на биоизображения по собствени резултати на автора в панел от различни токсикологични изследвания Целевата група читатели на монографичния труд са всички изследователи които се интересуват от обработка на биоизображения Те могат да бъдат напълно удовлетворени от съдържанието на монографията тъй като в нея са събрани и обобщени наличните в момента методи софтуерни продукти със свободен и безплатен достъп обучителни ресурси и техники които текущо са разпръснати в различни източници или фрагментирано представени в книги дисертации публикации и интернет източници Считам че монографията запълва една съществена празнина в нашия научен книжен електронен пазар и по такъв начин би насърчила употребата на методите за анализ на изображения сред по широк кръг от изследователи и особено сред онези от тях които работят в биомедицинската сфера Следва да се подчертае силно интердисциплинарният характер на труда който обединява познания в няколко научни области физика математика биология медицина информатика и др В същото време той се явява своеобразен хибрид между базови теоретични познания и ценни практически съвети което го прави особено полезен за работещите в полето на биологията и медицината и които имат интерес към темата по анализ на изображения По долу се спирам по подробно върху някои от основните точки в изложението на представения монографичен труд Авторът последователно описва основните стъпки при анализ на изображения вкл биоизображения по конкретно генерирането на изображения предварителната им обработка същинския анализ извличането на информация в подходящ формат интерпретацията на получената информация и формулирането на изводи за релевантните характеристики на обектите в изображението Всяка от тези стъпки е анализирана като са очертани основните операции и алгоритми за съответната стъпка Усвоени в дълбочина и описани са голям брой софтуерни разработки за анализ на изображения които са критично анализирани от гл т на тяхната приложимост при обработка на биоизображения За да постигне това авторът е изследвал използването им и по такъв начин е придобил ценен практически опит който обаче не би бил постижим без разбирането на същностните алгоритми и процеси които са имплементирани в съответните софтуерни продукти и които той адресира в изложението си Отделено е специално внимание и на много актуалния напоследък изкуствен интелект artificial intelligence ai проследявайки неговите възможности и

ограничения в специфичната за анализ на изображения област Представени са дълбоките невронни мрежи като инструмент на ai и един от найуспешните методи за обработка на големи масиви от данни характерни за биоизображенията Прави впечатление критичният поглед на автора по отношение на обучителните методи и невъзможността им да прогнозират класифицират обекти ако те не са били представени в обучителната група данни на модела както и трудностите в интерпретацията на изходните резултати поради липсата на наблюдение върху процеса на обучение За яснота той екстраполира тезипроблеми върху биологични обекти с което адаптира изложението към изследваната тема Особено ценна част в монографията е систематичният обзор който насочва описаните преди него теоретични методологични основи към придобиването на обективна представа за приложенията на методите за анализ на биоизображения в експерименталните токсикологични изследвания Последните се отнасят до тясната експертиза на автора и са крайната му цел в обработката и анализа на биоизображения В обзора той се базира на обективна научно проверена информация достъпна чрез core collection на библиографската информационна система of science wos Авторът се възползва от възможностите които дава wos за да реализира няколко нива на селекция на публикациите позволяващи му да извлече най съотносимата към интересуващия го обект научна библиография Забележителна е селекцията която тръгва от почти 2 млн заглавия и се свежда след серията от филтри до около 700 и след допълнителен анализ до около 80 най значими публикации по експериментална токсикология интегрираща анализи на изображения Извършен е задълбочен анализ на тези публикации по отношение на обектите и методите на изследване на токсичност и са очертани тези от тях които определят найсъвременните тенденции в полето Проведена е класификация по няколко критерия като вид изследвани вещества токсикологични дисциплини експериментална моделна система вид биомаркер техника за заснемане и др Като цяло систематичният обзор е едно оригинално конструирано и аналитично изследване което заслужава да бъде публикувано като самостоятелна статия за да стане достояние на по широка читателска аудитория В монографията е включена и глава насочваща към собствените изследвания на автора свързана с разработването на подходи за анализ на биоизображения Изложението е логично конструирано като започва от подбора на подходящ софтуер анализиран от гл т на неговата достъпност функционална структура адекватност за изследвания обект наличен интерфейс програмни езици и библиотеки управление на инфраструктура и др Самостоятелно е разгледан софтуер за дълбоко обучение в съответствие с най съвременните тенденции на използване на ai Списъкът от анализирани софтуери е наистина внушителен и разкрива задълбоченото изучаване от автора на техните качества и ограничения Цитирани са добри практики и е направен анализ на често срещани грешки очертани са основните тенденции и перспективи в развитието на специализиран за обработка на изображения софтуер препоръки за избора му както и възможността за използване на ai базирани текстови редактори чатботове за избор на най подходящ софтуер В същия раздел е представена батерия от методи за анализ на изображения в експерименталната токсикология като собствени разработки на автора по отношение на а определяне на конфлуентност на монослой в двумерни клетъчни култури б идентифициране на окръглени клетки с апоптотична морфология в тест за миграция чрез надраскване на монослой г кометен тест д анализ на интензитет и тъканно разпределение на имунохистохимични маркери е анализ на навлизането на флуоресцентни молекули в резистентни туморни клетки Всичките шест разработки са в различни апликации на анализ и обработка на биоизображения Те илюстрират как разработените подходи базирани на изложените в монографията теоретични основи и добри практики разкриват възможност за извличане на полезна и съдържателна информация от изследваните биоизображения Част от тези изследвания са публикувани за други това предстои Достойнство на труда е наличието на възможност за свободен достъп на описаните изследвания чрез qr код доподдържана от автора репозитория създадена на github com Монографията е написана на ясен професионално издържан език и обхваща най съвременните публикации в областта Обемът й е 264 страници и включва 50 фигури 5 таблици и 405 литературни източника В заключение оценявам високо цялостната научна и практическа стойност на монографията и считам че тя представлява принос към българската научна школа в областта а авторът й оценявам като пионер сред анализаторите на биоизображения у нас В раздела на систематичния обзор касаещ географското разпределение на публикациите по темата на анализ на изображения с токсикологична тематика прави впечатление отсъствието на страната ни от списъка на страните с обща публикационна активност Вярвам че настоящата монография ще стимулира работещите у нас в областта на експерименталната токсикология интегрираща методи за анализ на изображения и ще доведе до появата и трайното присъствие на страната ни на световната карта на изследователите в тази област Чл кор проф Илза Константинова Пъжева дбн

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