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Microfluidic Methods for Molecular Biology
Springer Nature

This edited volume is brought out from the contributions of the research papers presented in the International Conference on Data Science and Business Analytics (ICDSBA-2017), which was held during September 23-25 2017 in ChangSha, China. As we all know, the field of data science and business analytics is emerging at the intersection of the fields of mathematics, statistics, operations research, information systems, computer science and engineering. Data science and business analytics is an interdisciplinary field about processes and systems to extract knowledge or insights from data. Data science and business analytics employ techniques and theories drawn from many fields including signal processing, probability models, machine learning, statistical learning, data mining, database, data engineering, pattern

recognition, visualization, descriptive analytics, predictive analytics, prescriptive analytics, uncertainty modeling, big data, data warehousing, data compression, computer programming, business intelligence, computational intelligence, and high performance computing among others. The volume contains 55 contributions from diverse areas of Data Science and Business Analytics, which has been categorized into five sections, namely: i) Marketing and Supply Chain Analytics; ii) Logistics and Operations Analytics; iii) Financial Analytics. iv) Predictive Modeling and Data Analytics; v) Communications and Information Systems Analytics. The readers shall not only receive the theoretical knowledge about this upcoming area but also cutting edge applications of this domains. International Conference on Mobile Computing and Sustainable Informatics Springer

Concurrent and parallel systems are intrinsic to the technology which underpins almost every aspect of our lives today. This book presents the combined post-proceedings for two important conferences on concurrent and parallel systems: Communicating Process Architectures 2017, held in Sliema, Malta, in August 2017, and Communicating Process Architectures 2018, held in Dresden, Germany, in August 2018. CPA 2017: Fifteen papers were accepted for presentation and publication, they cover topics including mathematical theory, programming languages, design and support tools, verification, and multicore infrastructure and applications ranging from supercomputing to embedded. A workshop on domain-specific concurrency skeletons and the abstracts of eight fringe presentations reporting on new ideas, work in progress or interesting thoughts associated with concurrency are also included in these proceedings. CPA 2018: Eighteen papers were accepted for presentation and publication, they cover topics including mathematical theory, design and programming language and support tools, verification, multicore run-time infrastructure, and applications at all levels from supercomputing to embedded. A workshop on translating CSP-based languages to common programming languages and the abstracts of four fringe presentations on work in progress, new ideas, as well as demonstrations and concerns that certain common practices in concurrency are harmful are also included in these proceedings. The book will be of interest to all those whose work involves concurrent and parallel systems.

Advances in Communication, Devices and Networking Simon and Schuster

Sophisticated networking and communications capabilities that were previously the sole domain of mainframes, PCs, and workstations are now becoming mandatory in the realm of

smaller embedded microcontrollers. However, documentation, standards, and design information is scattered among many sources and is difficult to find. In this practical book, popular columnist and embedded designer Fred Eady is your guide and advisor. He pulls together all the necessary design background and details and shows you how to use today's affordable microcontrollers for powerful communications and networking applications such as local area networks and embedded internet. Using working code examples and schematics, Eady steers you through the basics using two popular microcontroller families, PIC and Atmel. Included are a wealth of detailed design examples for:

- RS-232 firmware and hardware
- Microcontroller USARTs
- The I2C bus
- Ethernet implementation
- Embedded internet implementation
- Wireless links

Sample source code is provided and thoroughly explained for all the application examples. The accompanying CD-ROM contains the example code as well as a searchable ebook version of the text, to help you get up to speed quickly. You could spend days or even weeks pulling

together all the information that Eady has assembled in this one indispensable reference. * The only source that pulls together difficult-to-find design information, and teaches step-by-step how to use it to create powerful networking applications * Includes fully functional examples of microcontroller hardware and firmware * Companion cd-rom includes all schematics and code utilized in the book

Recent Challenges in Science, Engineering and Technology McGraw Hill Professional
Designing Constructionist Futures MIT Press
Making Makers John Wiley & Sons
Information Control Problems in

Manufacturing 2006 contains the Proceedings of the 12th IFAC Symposium on Information Control Problems in Manufacturing (INCOM'2006). This symposium took place in Saint Etienne, France, on May 17-19 2006. INCOM is a tri-annual event of symposia series organized by IFAC and it is promoted by the IFAC Technical Committee on Manufacturing Plant Control. The purpose of the symposium INCOM'2006 was to offer a forum to present the state-of-the-art in international research and development work, with special emphasis on the applications of optimisation methods, automation

and IT technologies in the control of manufacturing plants and the entire supply chain within the enterprise. The symposium stressed the scientific challenges and issues, covering the whole product and processes life cycle, from the design through the manufacturing and maintenance, to the distribution and service. INCOM'2006 Technical Program also included a special event on Innovative Engineering Techniques in Healthcare Delivery. The application of engineering and IT methods in medicine is a rapidly growing field with many opportunities for innovation. The Proceedings are composed of 3

volumes: Volume 1 - Information Systems, Control & Interoperability
Volume 2 - Industrial Engineering
Volume 3 - Operational Research *
3-volume set, containing 362 carefully reviewed and selected papers * presenting the state-of-the-art in international research and development in Information Control problems in Manufacturing Designing Constructionist Futures Springer Nature
A diverse group of scholars redefine constructionism--introduced by Seymour Papert in 1980--in light of new technologies and theories. Constructionism, first introduced by

Seymour Papert in 1980, is a framework for learning to understand something by making an artifact for and with other people. A core goal of constructionists is to respect learners as creators, to enable them to engage in making meaning for themselves through construction, and to do this by democratizing access to the world's most creative and powerful tools. In this volume, an international and diverse group of scholars examine, reconstruct, and evolve the constructionist paradigm in light of new technologies and theories. Smart Intelligent Computing and Applications Quarry Books

To succeed in science and tech fields today, girls don't have to change who they are. A girl who combines her natural talents, interests, and dreams with STEM skills has a greater shot at a career she loves and a salary she deserves. The authors present compelling research in a conversational, accessible style and provide specific advice and takeaways for each stage of schooling from elementary school through college, followed by comprehensive STEM resources. This isn't a book about raising competitive, test-acing girls in lab coats; this is about raising happy, confident girls who realize the world

of opportunities before them. Electronics World Springer WHIP UP SOME FIENDISHLY FUN PICAXE MICROCONTROLLER DEVICES "Ron has worked hard to explain how the PICAXE system operates through simple examples, and I'm sure his easy-to-read style will help many people progress with their PICAXE projects." --From the Foreword by Clive Seager, Revolution Education Ltd. This wickedly inventive guide shows you how to program, build, and debug a variety of PICAXE microcontroller projects. PICAXE Microcontroller Projects for the Evil Genius gets you started with programming and

I/O interfacing right away, and then shows you how to develop a master processor circuit. From "Hello, World!" to "Hail, Octavius!" All the projects in Part I can be accomplished using either an M or M2 class PICAXE processor, and Part II adds 20X2-based master processor projects to the mix. Part III culminates in the creation of Octavius--a sophisticated robotics experimentation platform featuring a 40X2 master processor and eight breadboard stations which allow you to develop intelligent peripherals to augment Octavius' functioning. The only limit is your imagination! PICAXE Microcontroller Projects for

the Evil Genius: Features step-by-step instructions and helpful photos and illustrations Allows you to customize each project for your purposes Offers all the programs in the book free for download Removes the frustration factor--all required parts are listed, along with sources Build these and other devious devices: Simple mini-stereo jack adapter USBS-PA3 PICAXE programming adapter Power supply Three-state digital logic probe 20X2 master processor circuit TV-R input module 8-bit parallel 16X2 LCD board Serialized 16X2 LCD Serialized 4X4 matrix keypad SPI 4-digit LED display Countdown	timer Programmable, multi-function peripheral device and operating system Octavius--advanced robotics experimentation platform L298 dual DC motor controller board Each fun, inexpensive Evil Genius project includes a detailed list of materials, sources for parts, schematics, and lots of clear, well-illustrated instructions for easy assembly. The larger workbook-style layout and convenient two-column format make following the step-by-step instructions a breeze. Make Great Stuff! TAB, an imprint of McGraw-Hill Professional, is a leading publisher of DIY technology books for makers, hackers, and electronics
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hobbyists.

Nuts & Volts Springer

This book constitutes the refereed proceedings of the Workshops held at the 8th IFIP WG 12.5

International Conference on Artificial Intelligence Applications and Innovations, AIAI 2012, in Halkidiki, Greece, in September 2012. The book includes a total of 66 interesting and innovative research papers from the following 8 workshops: the Second Artificial Intelligence Applications in Biomedicine Workshop (AIAB 2012), the First AI in Education Workshop: Innovations and Applications (AleIA 2012), the

Second International Workshop on Computational Intelligence in Software Engineering (CISE 2012), the First Conformal Prediction and Its Applications Workshop (COPA 2012), the First Intelligent Innovative Ways for Video-to-Video Communication in Modern Smart Cities Workshop (IIVC 2012), the Third Intelligent Systems for Quality of Life Information Services Workshop (ISQL 2012), the First Mining Humanistic Data Workshop (MHDW 2012), and the First Workshop on Algorithms for Data and Text Mining in Bioinformatics (WADTMB 2012).

Intelligent Communication, Control and

Devices Springer

The significant objective of this edited book is to bridge the gap between smart manufacturing and big data by exploring the challenges and limitations. Companies employ big data technology in the manufacturing field to acquire data about the products. Manufacturing companies could gain a deep business insight by tracking customer details, monitoring fuel consumption, detecting product defects, and supply chain management. Moreover, the convergence of smart manufacturing and big data analytics currently suffers due to data privacy concern, short of qualified personnel, inadequate investment, long-term storage management of high-quality data. The technological advancement makes the data storage more accessible, cheaper and the convergence of these technologies seems

to be more promising in the recent era.

This book identified the innovative challenges in the industrial domains by integrating heterogeneous data sources such as structured data, semi-structures data, geo-spatial data, textual information, multimedia data, social networking data, etc. It promotes data-driven business modelling processes by adopting big data technologies in the manufacturing industry. Big data analytics is emerging as a promising discipline in the manufacturing industry to build the rigid industrial data platforms. Moreover, big data facilitates process automation in the complete lifecycle of product design and tracking. This book is an essential guide and reference since it synthesizes interdisciplinary theoretical concepts, definitions, and models, involved in smart manufacturing domain. It also provides

real-world scenarios and applications, making it accessible to a wider interdisciplinary audience. Features The readers will get an overview about the smart manufacturing system which enables optimized manufacturing processes and benefits the users by increasing overall profit. The researchers will get insight about how the big data technology leverages in finding new associations, factors and patterns through data stream observations in real time smart manufacturing systems. The industrialist can get an overview about the detection of defects in design, rapid response to market, innovative products to meet the customer requirement which can benefit their per capita income in better way. Discusses technical viewpoints, concepts, theories, and underlying assumptions that are used in smart

manufacturing. Information delivered in a user-friendly manner for students, researchers, industrial experts, and business innovators, as well as for professionals and practitioners.

Human-Computer Interaction – INTERACT 2015 Springer Science & Business Media

This book presents the select proceedings of the International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2020). It provides a comprehensive overview of the various technical challenges faced, their systematic investigation, contemporary developments, and future perspectives in the domain of mechanical engineering. The book covers a wide array of topics including fluid flow

techniques, compressible flows, waste management and waste disposal, bio-fuels, renewable energy, cryogenic applications, computing in applied mechanics, product design, dynamics and control of structures, fracture and failure mechanics, solid mechanics, finite element analysis, tribology, nano-mechanics and MEMS, robotics, supply chain management and logistics, intelligent manufacturing system, rapid prototyping and reverse engineering, quality control and reliability, conventional and non-conventional machining, and ergonomics. This book can be useful for students and researchers interested in mechanical engineering and its allied fields. Maker Media, Inc.

Microcontroller Prototypes with Arduino and a 3D Printer Discover a complete treatment of microcomputer programming and application development with Arduino and 3D printers Microcontroller Prototypes with Arduino and a 3D Printer: Learn, Program, Manufacture delivers a comprehensive guide to learning microcontrollers that 's perfectly suited to educators, researchers, and manufacturers. The book provides readers with a seasoned expert 's perspective on the process of microcomputer programming and application development. Carefully designed and written example code and explanatory figures accompany the text, helping the reader fully understand and retain the concepts described within. The book focuses on demonstrating how to craft creative and innovative solutions in embedded systems

design by providing practical and illustrative methods and examples. An accompanying website includes functioning and tested source code and learning exercises and the book relies on freeware development tools for the creation of firmware and software code, 3D printed enclosures, and debugging. It allows the reader to work with modern sensors and collect sensor data to a host PC for offline analysis. Readers will also benefit from the inclusion of: A thorough introduction to the art of embedded computers, including their interdisciplinarity, TPACK analysis, and the impact of microcontroller technology on the maker industry An exploration of embedded programming with Arduino, including number representation and special-function codes and C common language reference A discussion of

hardware interfaces with the outside world, including digital pin interface, analog pin interface, UART serial interface, I2C, and SPI A treatment of sensors and data acquisition, including environmental measurements with Arduino Uno, orientation and motion detection with Teensy, gesture recognition with TinyZero, and color sensing with Micro:bit A variety of supplementary resources—including source codes and examples—hosted on an accompanying website to be maintained by the author: www.mikroct.com. Perfect for researchers and undergraduate students in electrical and electronic engineering or computer engineering, Microcontroller Prototypes with Arduino and a 3D Printer: Learn, Program, Manufacture will also earn a place in the libraries of hardware engineers, embedded system designers,

system engineers, and electronic engineers.

Artificial Intelligence Applications and Innovations Springer Nature

The book focuses on the integration of intelligent communication systems, control systems, and devices related to all aspects of engineering and sciences. It contains high-quality research papers presented at the 2nd international conference, ICICCD 2017, organized by the Department of Electronics, Instrumentation and Control Engineering of University of Petroleum and Energy Studies, Dehradun on 15 and 16 April, 2017. The volume broadly covers recent advances of intelligent communication, intelligent control and intelligent devices. The work presented in this book is original research work, findings and practical development experiences of

researchers, academicians, scientists and industrial practitioners.

PICAXE Microcontroller Projects for the Evil Genius Elsevier

The four-volume set LNAI 6276--6279 constitutes the refereed proceedings of the 14th International Conference on Knowledge-Based Intelligent Information and Engineering Systems, KES 2010, held in Cardiff, UK, in September 2010. The 272 revised papers presented were carefully reviewed and selected from 360 submissions. They present the results of high-quality research on a broad range of intelligent systems topics.

SME Technical Paper
ScholarlyEditions

In Practical AVR Microcontrollers, you ' ll learn how to use the AVR microcontroller to make your own nifty projects and gadgets. You ' ll start off with the basics in part one: setting up your development environment and learning how the "naked" AVR differs from the Arduino. Then you ' ll gain experience by building a few simple gizmos and learning how everything can be interconnected. In part two, we really get into the goodies: projects! Each project will show you exactly what software and hardware you need, and will provide enough detail that you can adapt it to your own needs and parts availability. Some of the projects you ' ll make: An illuminated secret panel A hallway lighting system with a

waterfall effect A crazy lightshow Visual effects gizmos like a Moire wheel and shadow puppets In addition, you'll design and implement some home automation projects, including working with wired and wireless setups. Along the way, you'll design a useable home automation protocol and look at a variety of hardware setups. Whether you ' re new to electronics, or you just want to see what you can do with an AVR outside of an Arduino, Practical AVR Microcontrollers is the book for you.

Information Control Problems in Manufacturing 2006 Chicago Review Press

This book provides practicing scientists and engineers a tutorial on the fundamental concepts and use of

microcontrollers. Today, microcontrollers, or single integrated circuit (chip) computers, play critical roles in almost all instrumentation and control systems. Most existing books are rewritten for undergraduate and graduate students taking an electrical and/or computer engineering course. Furthermore, these texts have been written with a particular model of microcontroller as the target discussion. These textbooks also require a requisite knowledge of digital design fundamentals. This textbook presents the fundamental concepts common to all microcontrollers. Our goals are to present the over-arching theory of microcontroller operation and to provide a detailed discussion on constituent subsystems available in most microcontrollers. With such goals, we envision that the theory discussed in this book can be readily applied to a wide variety of microcontroller technologies, allowing practicing scientists and engineers to become acquainted with basic concepts prior to beginning a design involving a specific microcontroller. We have found that the fundamental principles of a given microcontroller are easily transferred to other controllers. Although this is a relatively small book, it is packed with useful information for quickly coming up to speed on microcontroller concepts.

Functional safety of machine controls
Elsevier

This is a book for parents and other educators—both formal and informal, who are curious about the intersections of learning and making. Through stories, research, and data, it builds the case for why it is crucial to encourage today's youth to be

makers—to see the world as something they are actively helping to create. For those who are new to the Maker Movement, some history and introduction is given as well as practical advice for getting kids started in making. For those who are already familiar with the Maker Movement, this book provides biographical information about many of the “big names” and unsung heroes of the Maker Movement while also highlighting many of the attributes that make this a movement that so many people are passionate about.

Popular Science MIT Press

This book presents best selected papers presented at the 4th International Conference on Smart

Computing and Informatics (SCI 2020), held at the Department of Computer Science and Engineering, Vasavi College of Engineering (Autonomous), Hyderabad, Telangana, India. It presents advanced and multi-disciplinary research towards the design of smart computing and informatics. The theme is on a broader front which focuses on various innovation paradigms in system knowledge, intelligence and sustainability that may be applied to provide realistic solutions to varied problems in society, environment and industries. The scope is also extended towards the deployment of emerging computational and knowledge transfer approaches, optimizing solutions in

various disciplines of science, technology and health care.

Communicating Process Architectures
2017 & 2018 Springer

The EN ISO 13849-1 standard,

“ Safety of machinery – Safety-related parts of control systems ” , contains provisions governing the design of such parts. This report is an update of BGIA Report 2/2008e of the same name. It describes the essential subject-matter of the standard in its third, revised 2015 edition, and explains its application with reference to numerous examples from the fields of electromechanics, fluidics, electronics and programmable electronics, including control systems employing mixed technologies. The

standard is placed in its context of the essential safety requirements of the Machinery Directive, and possible methods for risk assessment are presented. Based upon this information, the report can be used to select the required Performance Level PLr for safety functions in control systems. The Performance Level PL which is actually attained is explained in detail. The requirements for attainment of the relevant Performance Level and its associated Categories, component reliability, levels of diagnostic coverage, software safety and measures for the prevention of systematic and common-cause failures are all discussed comprehensively. Background information is also

provided on implementation of the requirements in real-case control systems. Numerous example circuits show, down to component level, how Performance Levels a to e can be engineered in the selected technologies with Categories B to 4. The examples provide information on the safety principles employed and on components with well-tried safety functionality. Numerous literature references permit closer study of the examples provided. The report shows how the requirements of EN ISO 13849-1 can be implemented in engineering practice, and thus makes a contribution to consistent application and interpretation of the standard at national and international level.

Microcontroller Prototypes with Arduino and a 3D Printer Springer
The International Symposium on Experimental Robotics (ISER) is a series of bi-annual meetings which are organized in a rotating fashion around North America, Europe and Asia/Oceania. The goal of ISER is to provide a forum for research in robotics that focuses on novelty of theoretical contributions validated by experimental results. The meetings are conceived to bring together, in a small group setting, researchers from around the world who are in the forefront of experimental robotics research. This unique reference presents the latest advances across the various fields of robotics, with

ideas that are not only conceived conceptually but also explored experimentally. It collects robotics contributions on the current developments and new directions in the field of experimental robotics, which are based on the papers presented at the 14th ISER held on June 15-18, 2014 in Marrakech and Essaouira, Morocco. This present fourteenth edition of Experimental Robotics edited by M. Ani Hsieh, Oussama Khatib, and Vijay Kumar offers a collection of a broad range of topics in field and human-centered robotics.