

# Rangwala Specification

In computational science, reproducibility requires that researchers make code and data available to others so that the data can be analyzed in a similar manner as in the original publication. Code must be available to be distributed, data must be accessible in a readable format, and a platform must be available for widely distributing the data and code. In addition, both data and code need to be licensed permissively enough so that others can reproduce the work without a substantial legal burden. Implementing Reproducible Research covers many of the elements necessary for conducting and distributing reproducible research. It explains how to accurately reproduce a scientific result. Divided into three parts, the book discusses the tools, practices, and dissemination platforms for ensuring reproducibility in computational science. It describes: Computational tools, such as Sweave, knitr, VisTrails, Sumatra, CDE, and the Declaratron system Open source practices, good programming practices, trends in open science, and the role of cloud computing in reproducible research Software and methodological platforms, including open source software packages, RunMyCode platform, and open access journals Each part presents contributions from leaders who have developed software and other products that have advanced the field. Supplementary material is available at [www.ImplementingRR.org](http://www.ImplementingRR.org).

"This 10-volume compilation of authoritative, research-based articles contributed by

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thousands of researchers and experts from all over the world emphasized modern issues and the presentation of potential opportunities, prospective solutions, and future directions in the field of information science and technology"--Provided by publisher. Facing the threats posed by dedicated suicide bombers who have access to modern technology for mass destruction and who intend to cause maximum human suffering and casualties, democratic governments have hard choices to make. The premise of this book is that for intelligence organizations in democratic states to be able to face up to the challenges of global terrorism, they must think outside the box and utilize all of their resources effectively and creatively. To overcome the enemy, we must also secure the peace. Winning the hearts and minds of the terrorists' pool of potential recruits will be essential to cutting off the supply of suicide bombers. This book therefore addresses not only the question of how intelligence organizations can improve their efficacy in preempting terrorist outrages, but also the wider issue of removing the forces that sustain global terrorism as a scourge of the twenty-first century. The general public in the target countries and recruiting grounds must also be persuaded that—despite their rhetoric—the terrorists are not engaged in a holy war. Intelligence services of various countries need to find convincing evidence to prove this point. But it is up to governments, civil society, and the media in different parts of the world to work together if the evidence unearthed by national intelligence services is to be accepted by the general public. Unless the emotional or quasi-religious appeal of the global terrorists can be removed, the simple

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arrest of bin Laden and his close associates—or even the destruction of Al Qaeda as an organization--will not be sufficient to prevent others from rising to replace them.

The two-volume set LNCS 5592 and 5593 constitutes the refereed proceedings of the International Conference on Computational Science and Its Applications, ICCSA 2009, held in Seoul, Korea, in June/July, 2009. The two volumes contain papers presenting a wealth of original research results in the field of computational science, from foundational issues in computer science and mathematics to advanced applications in virtually all sciences making use of computational techniques. The topics of the fully refereed papers are structured according to the five major conference themes: computational methods, algorithms and scientific applications, high performance technical computing and networks, advanced and emerging applications, as well as information systems and information technologies. Moreover, submissions from more than 20 workshops and technical sessions contribute to this publication. These cover topics such as geographical analysis, urban modeling, spatial statistics, wireless and ad hoc networking, logical, scientific and computational aspects of pulse phenomena in transitions, high-performance computing and information visualization, sensor network and its applications, molecular simulations structures and processes, collective evolutionary systems, software engineering processes and applications, molecular simulations structures and processes, internet communication security, security and privacy in pervasive computing environments, and mobile communications.

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This book presents the proceedings of the International Conference on Health, Safety, Fire, Environment, and Allied Sciences (HSFEA 2016). The book highlights the latest developments in the field of science and technology aimed at improving health and safety in the workplace. The volume comprises content from leading scientists, engineers, and policy makers. The papers included in this volume look at identifying the limitations of the existing approaches and open new avenues for future research. The book also looks at the accident and work-health records, specifically in Asian countries, and discusses measures to improve the Asian standards and implementation issues with regards to workplace health and safety. The contents of this volume will be of interest to researchers, practitioners, and policy makers alike.

About five to six years ago, the words 'packaging and manufacturing' started to be used together to emphasize that we have to make not only a few but thousands or even millions of packages which meet functional requirements. The aim of this book is to provide the much needed reviews and in-depth discussions on the advanced topics surrounding packaging and manufacturing. The first chapter gives a comprehensive review of manufacturing challenges in electronic packaging based on trends predicted by different resources. Almost all the functional specifications have already been met by technologies demonstrated in laboratories. However, it would take tremendous efforts to implement these technologies for mass production or flexible manufacturing. The topics crucial to this implementation are discussed in the following chapters: Chapter 2:

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Challenges in solder assembly technologies; Chapter 3: Testing and characterization; Chapter 4: Design for manufacture and assembly of electronic packages; Chapter 5: Process modeling, optimization and control in electronics manufacturing; and Chapter 6: Integrated manufacturing system for printed circuit board assembly. The electronics-based products are very competitive and becoming more and more application-specific. Their packages should fulfill cost, speed, power, weight, size, reliability and time-to-market requirements. More importantly, the packages should be manufacturable in mass or flexible production lines. These chapters are excellent references for professionals who need to meet the challenge through design and manufacturing improvements. This book will also introduce students to the critical issues for competitive design and manufacturing in electronic packaging.

This book presents selected examples of digitalization in the age of digital change. It is divided into two sections: “Digital Innovation,” which features new technologies that stimulate and enable new business opportunities; and “Digital Business Transformation,” comprising business and management concepts that employ specific technological solutions for their practical implementation.

Combining new insights from research, teaching and management, including digital transformation, e-business, knowledge representation, human-computer interaction, and business optimization, the book highlights the breadth of

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research as well as its meaningful and relevant transfer into practice. It is intended for academics seeking inspiration, as well as for leaders wanting to tap the potential of the latest trends to take society and their business to the next level.

This book provides a complete and comprehensive guide to Pyomo (Python Optimization Modeling Objects) for beginning and advanced modelers, including students at the undergraduate and graduate levels, academic researchers, and practitioners. Using many examples to illustrate the different techniques useful for formulating models, this text beautifully elucidates the breadth of modeling capabilities that are supported by Pyomo and its handling of complex real-world applications. In the third edition, much of the material has been reorganized, new examples have been added, and a new chapter has been added describing how modelers can improve the performance of their models. The authors have also modified their recommended method for importing Pyomo. A big change in this edition is the emphasis of concrete models, which provide fewer restrictions on the specification and use of Pyomo models. Pyomo is an open source software package for formulating and solving large-scale optimization problems. The software extends the modeling approach supported by modern AML (Algebraic Modeling Language) tools. Pyomo is a flexible, extensible, and portable AML that

is embedded in Python, a full-featured scripting language. Python is a powerful and dynamic programming language that has a very clear, readable syntax and intuitive object orientation. Pyomo includes Python classes for defining sparse sets, parameters, and variables, which can be used to formulate algebraic expressions that define objectives and constraints. Moreover, Pyomo can be used from a command-line interface and within Python's interactive command environment, which makes it easy to create Pyomo models, apply a variety of optimizers, and examine solutions.

Wireless Sensor Networks came into prominence around the start of this millennium motivated by the omnipresent scenario of small-sized sensors with limited power deployed in large numbers over an area to monitor different phenomenon. The sole motivation of a large portion of research efforts has been to maximize the lifetime of the network, where network lifetime is typically measured from the instant of deployment to the point when one of the nodes has expended its limited power source and becomes in-operational - commonly referred as first node failure. Over the years, research has increasingly adopted ideas from wireless communications as well as embedded systems development in order to move this technology closer to realistic deployment scenarios. In such a rich research area as wireless sensor networks, it is difficult if not impossible to

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provide a comprehensive coverage of all relevant aspects. In this book, we hope to give the reader with a snapshot of some aspects of wireless sensor networks research that provides both a high level overview as well as detailed discussion on specific areas.

Despite the large volume of publications devoted to neural networks, fuzzy logic, and evolutionary programming, few address the applications of computational intelligence in design and manufacturing. Computational Intelligence in Manufacturing Handbook fills this void as it covers the most recent advances in this area and state-of-the-art applications. This comprehensive handbook contains an excellent balance of tutorials and new results, that allows you to: obtain current information understand technical details assess research potentials, and define future directions of the field Manufacturing applications play a leading role in progress, and this handbook gives you a ready reference to guide you easily through these developments.

Due to the resultant health consequences and considerable increase in prevalence, obesity has become a major worldwide health problem. “Obesity and Lipotoxicity” is a comprehensive review of the recent researches to provide a better understanding of the lipotoxicity-related mechanisms of obesity and the potential for the development of new treatment strategies. This book overviews

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the biochemical pathways leading to obesity-related metabolic disorders that occur subsequent to lipotoxicity. Chapters examine the deleterious effects of nutrient excess at molecular level including the cellular and molecular aspects of breast cancer, resistance to leptin, insulin, adiponectin, and interconnection between the circadian clock and metabolic pathways during high-fat feeding. "Lipotoxicity and Obesity" will be a useful resource for clinicians and basic science researchers, such as biochemists, toxicologists, immunologists, nutritionists, adult and pediatric endocrinologists, cardiologists, as well as students who are thought in this field.

Geotechnics for Transportation Infrastructure Recent Developments, Upcoming Technologies and New Concepts Springer

The central theme of this text is to provide information on individual anomalies et to connect these anomalies to the malformation syndromes et associated problems, primarily through the use of differential diagnostic tables.

This Book Primarily Written To Meet The Needs Of Practicing Engineers In A Large Variety Of Industries Where Reciprocating Machines Are Used, Although All Of The Material Is Suitable For College Undergraduate Level Design Engineering Courses. It Is Expected That The Reader Is Familiar With Basic To Medium Level Calculus Offered At The College Undergraduate Level. The First Chapter Of The Book Deals With Classical

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Vibration Theory, Starting With A Single Degree Of Freedom System, To Develop Concepts Of Damping, Response And Unbalance. The Second Chapter Deals With Types And Classification Of Reciprocating Machines, While The Third Chapter Discusses Detail-Design Aspects Of Machine Components. The Fourth Chapter Introduces The Dynamics Of Slider And Cranks Mechanism, And Provides Explanation Of The Purpose And Motion Of Various Components. The Fifth Chapter Looks Into Dynamic Forces Created In The System, And Methods To Balance Gas Pressure And Inertia Loads. The Sixth Chapter Explains The Torsional Vibration Theory And Looks At The Different Variables Associated With It. Chapter Seven Analyzes Flexural Vibrations And Lateral Critical Speed Concepts, Together With Journal Bearings And Their Impact On A Rotating System. Advanced Analytical Techniques To Determine Dynamic Characteristics Of All Major Components Of Reciprocating Machinery Are Presented In Chapter Eight. Methods To Mitigate Torsional Vibrations In A Crankshaft Using Absorbers Are Analyzed In Close Detail. Various Mechanisms Of Flexural Excitation Sources And Their Response On A Rotor-Bearing System Are Explored. Stability Of A Rotor And Different Destabilizing Mechanisms Are Also Included In This Chapter. Techniques In Vibration Measurement And Balancing Of Reciprocating And Rotating Systems Are Presented In Chapter Nine. Chapter Ten Looks At Computational Fluid Dynamics Aspects Of Flow Through Intake And Exhaust Manifolds, As Well As Fluid Flow Induced Component Vibrations. Chapter Eleven Extends This Discussion To

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Pressure Pulsations In Piping Attached To Reciprocating Pumps And Compressors. Chapter Twelve Considers The Interaction Between The Structural Dynamics Of Components And Noise, Together With Methods To Improve Sound Quality. Optimized Design Of Components Of Reciprocating Machinery For Specified Parameters And Set Target Values Is Investigated At Length In Chapter Thirteen. Practicing Engineers Interested In Applying The Theoretical Model To Their Own Operating System Will Find Case Histories Shown In Chapter Fourteen Useful.

This volume constitutes the refereed proceedings of the 5th International Conference on Contemporary Computing, IC3 2010, held in Noida, India, in August 2011. The 42 revised full papers presented together with 7 short papers were carefully reviewed and selected from 162 submissions. The papers are organized in topical sections on: algorithm; applications; systems (hardware and software); biomedical informations; poster papers.

"This book "quality of service" in organizations, offering fundamental knowledge on the subject, describing the significance of network management and the integration of knowledge to demonstrate how network management is related to QoS in real applications"--Provided by publisher.

This book constitutes the proceedings of the 15th International Conference on Research Challenges in Information Sciences, RCIS 2021, which was planned to take place in Limassol, Cyprus, but had to change to an online event due to the COVID-19

pandemic. The conference took place virtually during May 11-14, 2021. It focused on the special theme "Information Science and Global Crisis". The scope of RCIS is summarized by the thematic areas of information systems and their engineering; user-oriented approaches; data and information management; business process management; domain-specific information systems engineering; data science; information infrastructures, and reflective research and practice. The 29 full papers and 6 work-in-progress papers presented in this volume were carefully reviewed and selected from 99 submissions. They were organized in topical sections named: Business and Industrial Processes, Information Security and Risk Management, Data and Information Management, Domain-specific Information Systems Engineering, User-Centered Approaches, Data Science and Decision Support, and Information Systems and Their Engineering. The volume also contains 13 poster and demo papers, and 4 doctoral consortium papers. In addition, two-page summaries of tutorials and research project papers can be found in the back matter.

With a specific focus on the needs of the designers and engineers in industrial settings, *The Mechanical Systems Design Handbook: Modeling, Measurement, and Control* presents a practical overview of basic issues associated with design and control of mechanical systems. In four sections, each edited by a renowned expert, this book answers diverse questions fundamental to the successful design and implementation of mechanical systems in a variety of applications. Manufacturing addresses design and

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control issues related to manufacturing systems. From fundamental design principles to control of discrete events, machine tools, and machining operations to polymer processing and precision manufacturing systems. Vibration Control explores a range of topics related to active vibration control, including piezoelectric networks, the boundary control method, and semi-active suspension systems. Aerospace Systems presents a detailed analysis of the mechanics and dynamics of tensegrity structures Robotics offers encyclopedic coverage of the control and design of robotic systems, including kinematics, dynamics, soft-computing techniques, and teleoperation. Mechanical systems designers and engineers have few resources dedicated to their particular and often unique problems. The Mechanical Systems Design Handbook clearly shows how theory applies to real world challenges and will be a welcomed and valuable addition to your library.

Due to an increase in the wide-range of chemicals in petrochemical processing industries, as well as frequency of use, there has been a steady rise in flammability problems and other hazards. Hazardous Area Classification in Petroleum and Chemical Plants: A Guide to Mitigating Risk outlines the necessities of explosion protection in oil, gas and chemical industries, and discusses fire and occupancy hazards, extinguishing methods, hazard identification, and classification of materials. This book addresses these issues and concerns and presents a simple hazard identification system to help offset future problems. It offers information on the hazards of various materials and their level of severity as it relates to fire prevention, exposure, and control. The system provides an alerting signal and on-the-spot

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information to help protect lives in an industrial plant or storage location during fire emergencies. Understanding the hazard helps to ensure that the process equipment is properly selected, installed, and operated to provide a safe operating system. This text also includes a summary of the rules, methods, and requirements for fighting a fire, introduces various hazard identification systems. • Includes a summary of the rules, methods, and requirements needed to extinguish a fire • Introduces various hazard identification systems • Includes concepts for layout and spacing of equipment in process plants The book serves as resource for plant design engineers as well as plant protection and safety personnel in planning for effective firefighting operations.

This book provides conceptual underpinnings for relating artificial intelligence (AI) to operation research (OR). It includes tutorials on basic AI tools and techniques with thorough reference lists, as well as suggestive examples that connect AI and OR in various ways.

The most up-to-date single reference on ketene chemistry for the practicing researcher Ketenes are valued by both practicing organic synthetic chemists and pharmaceutical researchers for their ease of preparation, high reactivity, and versatility of use. Ketenes, Second Edition is an updated version of the premier resource on this important class of compounds, and features a comprehensive, self-contained guide to all aspects of ketene chemistry, including: \* Types of ketenes \* Theoretical studies \* Thermochemistry \* Ketene preparation \* Reactions, including mechanisms and synthetic applications \* Spectroscopy and physical properties While retaining much of the vital information presented in the original text, the Second Edition covers all advances made from 1995 to the present, including updates from the literature; over 1,000 new references; and new sections on cycloaddition reactions, ketenes from esters, ketene reactions

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using polymer supports, and oxoquinone methides.

The escalating demand for ubiquitous computing along with the complementary and flexible natures of Radio Frequency Identification (RFID) and Wireless Sensor Networks (WSNs) have sparked an increase in the integration of these two dynamic technologies. Although a variety of applications can be observed under development and in practical use, there

This edited volume presents selected contributions from the International Conference on Experimental Vibration Analysis of Civil Engineering Structures held in San Diego, California in 2017 (EVACES2017). The event brought together engineers, scientists, researchers, and practitioners, providing a forum for discussing and disseminating the latest developments and achievements in all major aspects of dynamic testing for civil engineering structures, including instrumentation, sources of excitation, data analysis, system identification, monitoring and condition assessment, in-situ and laboratory experiments, codes and standards, and vibration mitigation.

Automation is a predominant objective in the development of modern and advanced manufacturing production. Automatic Supervision in Manufacturing (ASM) addresses unavoidable disturbances occurring during production. Its application results in the unmanned functioning of manufacturing systems through comprehensive and reliable supervision.

Automatic Supervision in Manufacturing is a collection of contributions written by specialists in the field from Europe and the USA. It deals with the concept of automatic supervision, the classification of supervisory systems and their functions. This publication will be of great interest to researchers and engineers in the areas of production and manufacturing.

**Histoplasma and Histoplasmosis** is a book on epidemiology, diagnosis, and

treatment of histoplasmosis. It is an all-inclusive source of knowledge for both specialist and non-specialist mycologists at various levels of training or work experience. Through collaborative efforts of the authors and the editor, this book provides up-to-date information on the global distribution of histoplasmosis, an updated estimation of the burden of histoplasmosis in Asia, and recent advances in laboratory diagnosis and treatment of histoplasma and histoplasmosis. This volume is an invaluable source of knowledge for trainees and practitioners alike. This book constitutes the refereed proceedings of the 27th International Conference on Computer Safety, Reliability, and Security, SAFECOMP 2008, held in Newcastle upon Tyne, UK, in September 2008. The 32 revised full papers presented together with 3 keynote papers and a panel session were carefully reviewed and selected from 115 submissions. The papers are organized in topical sections on software dependability, resilience, fault tolerance, security, safety cases, formal methods, dependability modelling, as well as security and dependability.

Definitions, Concepts and Scope of Engineering Asset Management, the first volume in this new review series, seeks to minimise ambiguities in the subject matter. The ongoing effort to develop guidelines is shaping the future towards the creation of a body of knowledge for the management of engineered physical

assets. Increasingly, industry practitioners are looking for strategies and tactics that can be applied to enhance the value-creating capacities of new and installed asset systems. The new knowledge-based economy paradigm provides imperatives to combine various disciplines, knowledge areas and skills for effective engineering asset management. This volume comprises selected papers from the 1st, 2nd, and 3rd World Congresses on Engineering Asset Management, which were convened under the auspices of ISEAM in collaboration with a number of organisations, including CIEAM Australia, Asset Management Council Australia, BINDT UK, and Chinese Academy of Sciences, Beijing University of Chemical Technology, China. Definitions, Concepts and Scope of Engineering Asset Management will be of interest to researchers in engineering, innovation and technology management, as well as to managers, planners and policy-makers in both industry and government.

This book gathers the lecture notes of courses given at Session CVII of the summer school in physics, entitled "Current Trends in Atomic Physics" and held in July, 2016 in Les Houches, France. Atomic physics provides a paradigm for exploring few-body quantum systems with unparalleled control. In recent years, this ability has been applied in diverse areas including condensed matter physics, high energy physics, chemistry and ultra-fast phenomena as well as foundational

aspects of quantum physics. This book addresses these topics by presenting developments and current trends via a series of tutorials and lectures presented by international leading investigators.

This book presents selected papers from the International Symposium on Geotechnics for Transportation Infrastructure (ISGTI 2018). The research papers cover geotechnical interventions for the diverse fields of policy formulation, design, implementation, operation and management of the different modes of travel, namely road, air, rail and waterways. This book will be of interest to academic and industry researchers working in transportation geotechnics, as also to practicing engineers, policy makers, and civil agencies.

The contributions in this book present an overview of cutting edge research on natural gas which is a vital component of world's supply of energy. Natural gas is a combustible mixture of hydrocarbon gases, primarily methane but also heavier gaseous hydrocarbons such as ethane, propane and butane. Unlike other fossil fuels, natural gas is clean burning and emits lower levels of potentially harmful by-products into the air. Therefore, it is considered as one of the cleanest, safest, and most useful of all energy sources applied in variety of residential, commercial and industrial fields. The book is organized in 25 chapters that cover various aspects of natural gas research: technology, applications, forecasting, numerical

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simulations, transport and risk assessment.

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