Software Systems Development A Gentle Introduction

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Concurrent Design of Products, Manufacturing Processes and Systems - Ben Wang 1999-01-27
Methods presented involve the use of simulation and modeling tools and virtual workstations in conjunction with a design environment. This allows a diverse group of researchers, manufacturers, and suppliers to work within a comprehensive network of shared knowledge. The design environment consists of engineering workstations and servers and a suite of simulation, quantitative, computational, analytical, qualitative and experimental tools. Such a design environment will allow the effective and efficient integration of complete product design, manufacturing process design, and customer satisfaction predictions. This volume enables the reader to create an integrated concurrent engineering design and analysis infrastructure through the use of virtual workstations and servers; provide remote, instant sharing of engineering data and resources for the development of a product, system, mechanism, part, business and/or process, and develop applications fully compatible with international CAD/CAM/CAE standards for product representation and modeling.
Touch of Class - Bertrand Meyer 2009-08-28
This text combines a practical, hands-on approach to programming with the introduction of sound theoretical support focused on teaching the construction of high-quality software. A major feature of the book is the use of Design by Contract.
The Construction of Formal Specifications - John G. Turner 1994
Introducing two widely-used approaches to the formal specification of software systems, this book considers VDM and the algebraic approach. In each case, the emphasis is intuitive, rather than mathematical and shows the reader how to construct a formal specification from the first principles by using general procedures that can be followed each time. Familiar applications are referred to throughout and examples, small case studies and problems accompany each chapter. The two approaches are brought together in one large joint case study at the end of the book, as well as a section comparing and contrasting them.
Data Management: a gentle introduction - Bas van Gils 2020-03-03
The overall objective of this book is to show that data management is an exciting and valuable capability that is worth time and effort. More specifically it aims to achieve the following goals: 1. To give a "gentle" introduction to the field of DM by explaining and illustrating its core concepts, based on a mix of theory, practical

frameworks such as TOGAF, ArchiMate, and DMBOK, as well as results from real-world assignments. 2. To offer guidance on how to build an effective DM capability in an organization.This is illustrated by various use cases, linked to the previously mentioned theoretical exploration as well as the stories of practitioners in the field. The primary target groups are: busy professionals who "are actively involved with managing data". The book is also aimed at (Bachelor's/ Master's) students with an interest in data management. The book is industry-agnostic and should be applicable in different industries such as government, finance, telecommunications etc. Typical roles for which this book is intended: data governance office/ council, data owners, data stewards, people involved with data governance (data governance board), enterprise architects, data architects, process managers, business analysts and IT analysts. The book is divided into three main parts: theory, practice, and closing remarks. Furthermore, the chapters are as short and to the point as possible and also make a clear distinction between the main text and the examples. If the reader is already familiar with the topic of a chapter, he/she can easily skip it and move on to the next.

Sizing and Estimating Software in Practice - Stephen Treble 1995

Software Systems Development - John R. Carter 2002
Rather than focusing on a specific software title, the authors explain the theories which are true for any system, and so provide a solid and structured background for aspiring software developers to build upon. With a new design and new features within the text, the book is now even easier to follow and the examples and exercises have also been restructured to improve the knowledge flow to the student. The accessible approach to systems analysis and design is suitable for computer science students on any introductory course, or for those coming from other disciplines with an interest in software development. The 'just-a-line' case study which runs throughout the book takes a clear line from systems design, through development to implementation and release and provides coverage of project management

techniques and testing and crisis management. The book is supported by an Online Learning Centre with many resources for students and lecturers. - The well-established and highly regarded presentation and writing style is clear and compelling for both the student and the lecturer. - There are many examples and exercises, especially in areas often found challenging, like normalisation. -
Software System Development - Carol Britton 2005-10-01
System engineers and software developers alike will find this book's toolbox approach provides the most accessible introduction to software development. Taking the reader step by step through the software development process, this guide combines the theoretical and practical aspects of both traditional structured analysis techniques and more recent approaches such as CASE tools and formal notations.

Object-oriented Systems Development - Carol Britton 2000
This is an introductory text, a successor volume to the authors' previous book Software System Development. A Gentle Introduction. It follows the software development process, from requirements capture to implementation, using an object-oriented approach. The book takes a practical viewpoint on developing software using object-oriented techniques. It provides the reader with a basic understanding of object-oriented concepts without getting lost in technical detail. It outlines standard object-oriented modelling techniques and illustrates them with a variety of examples and exercises, using Java as the language of implementation. A number of case studies are introduced and developed and the mapping from the design models to the implementation code is carefully traced. Software development is a skill that has to be learned by practice. Through their teaching, the authors have found that what students need is clear, practical guidelines, supported by a large number of graded examples and exercises. This was the approach taken in the authors'||''' previous book, which has proved to be popular and effective. Many current books on this topic are very theoretical and lack the practical dimension that is so important in the learning process. This book is designed as a first text for introductory

undergraduate and conversion MSc O-O courses.

An Introduction to Systems Analysis Techniques - Mark Lejk 1998
This book has been written by two lecturers who have been teaching systems analysis techniques to students for a number of years. Not only have they been active practitioners with first hand knowledge of the techniques described, but have also developed effective ways of getting their message across to students from a wide variety of backgrounds. The book is based on the way they teach, and comes across in an easy, friendly and accessible style. It lays a firm foundation in analysis and is suitable for a wide range of undergraduate courses.The techniques introduced include spray and tree diagrams, data flow diagrams, data modelling, normalisation and entity life histories. The approach throughout is to introduce the techniques by the use of step-by-step worked examples.

Building Enterprise Systems with ODP - Peter F. Linington 2011-09-06
The Reference Model of Open Distributed Processing (RM-ODP) is an international standard that provides a solid basis for describing and building widely distributed systems and applications in a systematic way. It stresses the need to build these systems with evolution in mind by identifying the concerns of major stakeholders and then expressing the design as a series of linked viewpoints. Although RM-ODP has been a standard for more than ten years, many practitioners are still unaware of it. Building Enterprise Systems with ODP: An Introduction to Open Distributed Processing offers a gentle pathway to the essential ideas that constitute ODP and shows how these ideas can be applied when designing and building challenging systems. It provides an accessible introduction to the design principles for software engineers and enterprise architects. The book also explains the benefits of using viewpoints to produce simpler and more flexible designs and how ODP can be applied to service engineering, open enterprise, and cloud computing. The authors include guidelines for using the Unified Modeling LanguageTM (UML) notation and for structuring and writing system specifications. They elucidate how this fits into the model-driven engineering tool chain via approaches,

such as Model-Driven Architecture® (MDA). They also demonstrate the power of RM-ODP for the design and organization of complex distributed IT systems in e-government, e-health, and energy and transportation industries. All concepts and ideas in the book are illustrated through a single running example that describes the IT support needed by a medium-sized company as it grows and develops. Complete UML models and more are available at http://theodpbook.lcc.uma.es/

Generative and Transformational Techniques in Software Engineering IV - Ralf Lämmel 2013-01-03
This tutorial volume includes revised and extended lecture notes of six long tutorials, five short tutorials, and one peer-reviewed participant contribution held at the 4th International Summer School on Generative and Transformational Techniques in Software Engineering, GTTSE 2011. The school presents the state of the art in software language engineering and generative and transformational techniques in software engineering with coverage of foundations, methods, tools, and case studies.

Concurrency, Graphs and Models - Pierpaolo Degano 2008-06-03
This Festschrift volume, pubished in honor of Ugo Montanari on the occasion of his 65th birthday, contains 43 papers, written by friends and colleagues, all leading scientists in their own right, who congregated at a celebratory symposium held on June 12, 2008, in Pisa. The volume consists of seven sections, six of which are dedicated to the main research areas to which Ugo Montanari has contributed: Graph Transformation; Constraint and Logic Programming; Software Engineering; Concurrency; Models of Computation; and Software Verification. Each of these six sections starts with an introductory paper giving an account of Ugo Montanari's contribution to the area and describing the papers in the section. The final section consists of a number of papers giving a laudation of Ugo Montanari's numerous achievements.

Software Engineering for Multi-Agent Systems III - Ricardo Choren 2011-03-30
This book presents a coherent and well-balanced survey of recent advances in software

engineering approaches to the design and analysis of realistic large-scale multi-agent systems (MAS). The chapters included are devoted to various techniques and methods used to cope with the complexity of real-world MAS. The power of agent-based software engineering is illustrated using examples that are representative of successful applications. The 16 thoroughly reviewed and revised full papers are organized in topical sections on agent methodologies and processes, requirements engineering and software architectures, modeling languages, and dependability and coordination. Most of the papers were initially presented at the 3rd International Workshop on Software Engineering for Large-Scale Multi-agent Systems, SELMAS 2004, held in Edinburgh, UK in May 2004 in association with ICSE 2004. Other papers were invited to complete coverage of all relevant aspects.

Introducing Specification Using Z - Bryan Ratcliff 1994
Offering an introduction to formal specification using the Z notation, this practical text makes use of a series of case studies, of varying complexity, to illustrate the construction of good specifications in Z. These case studies serve to describe the most frequently used features of Z, the relevant discrete mathematics and the various techniques used. The text also includes an introduction to specification validation, theorem proving and refinement. The importance of formal methods within software engineering is stressed throughout and there are a large number of exercises with solutions.

Developing and Evaluating Security-Aware Software Systems - Khan, Khaled M. 2012-11-30
"This book provides innovative ideas and methods on the development, operation, and maintenance of secure software systems and highlights the construction of a functional software system and a secure system simultaneously"--Provided by publisher.

Reverse Engineering and Software Maintenance - Kevin Lano 1994

Capturing Client Requirements in Construction Projects - John M. Kamara 2002
The adoption of the methodology outlined in this book allows clients to clearly define and communicate their requirements and expectations for a given project to construction industry professionals.

Software Tools and Techniques for Electronic Engineers - Keith Jobes 1994

New Trends in Software Methodologies, Tools and Techniques - Hamido Fujita 2005
Presents trends and theories in the direction in which we believe software science and engineering may develop to transform the role of software and science in information society. This series contributes to elaborate on such trends and related academic research studies and development.

Scaling Scrum Across Modern Enterprises - Cecil Rupp 2020-08-31
Establish business agility in your organization by applying industry-proven scaling strategies from popular Scrum frameworks such as Scrum of Scrums (SoS), Scrum@Scale, Nexus, Large-Scale Scrum (LeSS), Disciplined Agile, and SAFe Key FeaturesLearn how to be Agile at scale by implementing best practicesUnderstand how Lean-Agile practices are incorporated in Disciplined Agile and the Scaled Agile Framework (SAFe)Customize Scrum and Lean-Agile practices to support portfolio and large product development needsBook Description Scaled Scrum and Lean-Agile practices provide essential strategies to address large and complex product development challenges not addressed in traditional Scrum. This Scrum/Lean-Agile handbook provides a comprehensive review and analysis of industry-proven scaling strategies that enable business agility on an enterprise scale. Free of marketing hype or vendor bias, this book helps you decide which practices best fit your situation. You'll start with an introduction to Scrum as a lightweight software development framework and then explore common approaches to scaling it for more complex development scenarios. The book will then guide you through systems theory, lean development, and the application of holistic thinking to more complex software and system development activities. Throughout, you'll learn how to support multiple teams working in collaboration to develop large and complex products and explore how to manage cross-team integration, dependency, and synchronization

issues. Later, you'll learn how to improve enterprise operational efficiency across value creation and value delivery activities, before discovering how to align product portfolio investments with corporate strategies. By the end of this Scrum book, you and your product teams will be able to get the most value out of Agile at scale, even in complex cyber-physical system development environments. What you will learnUnderstand the limitations of traditional Scrum practicesExplore the roles and responsibilities in a scaled Scrum and Lean-Agile development environmentTailor your Scrum approach to support portfolio and large product development needsApply systems thinking to evaluate the impacts of changes in the interdependent parts of a larger development and delivery systemScale Scrum practices at both the program and portfolio levels of managementUnderstand how DevOps, test automation, and CI/CD capabilities help in scaling Scrum practicesWho this book is for Executives, product owners, Scrum masters, development team members, and other stakeholders who need to learn how to scale Agile to support large, complex projects and large enterprise portfolios and programs will find this book useful. A basic understanding of the values and principles of Agile and the Scrum-based framework for Agile development practices is required before you get started with this Agile Scrum book.

System Development - Michael Bronzite 2012-12-06
A study of one of the key issues in the design and development of IT systems: the fact that the bulk of system development projects undertaken will fail to meet originally defined objectives. Using a number of case studies, the book analyses the reasons for this poor performance and provides readers with a pattern of well-defined failure mechanisms which are especially relevant to large, long-term projects. With these established, it then generates a set of planning procedures and corporate guidelines which will substantially reduce the impact and probability of financial and performance disasters in future projects.

Semantics of Specification Languages (SoSL) - Derek J. Andrews 2012-12-06
SoSL was the first International Workshop on Semantics of Specification Languages, held from 25-27 October 1993 in Utrecht, the Netherlands. The workshop was organized by the Department of Philosophy of Utrecht University with financial support from the Nationale Faciliteit Informatica of the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), and under the auspices of the British Computer Society'S specialist group in Formal Aspects of Computing Science (BCS FACS). The concern of the workshop was the semantics of specification languages, and the issues closely related to this area, such as type checking and the justification of proof rules and proof obligations. Its aim was the exchange of problems and ideas in this field of formal methods, and the identification of common programs of work for further investigation. The program of SoSL consisted of 3 invited lectures presenting the developments of the semantics of 3 major specification languages. Furthermore, there were 16 presentations of submitted papers. This volume provides a direct account of the workshop. It contains 3 papers that match the invited lectures and the 16 selected papers. The editors want to thank all those who have contributed to the workshop; the Program Committee and the referees for selecting the contributed papers, the invited speakers for their interesting talks, the Organizing Committee for all their efforts, and of course the participants. We have the feeling that the workshop was worthwhile and should be repeated.

Proceedings of the 2012 International Conference on Information Technology and Software Engineering - Wei Lu 2012-11-06
Proceedings of the 2012 International Conference on Information Technology and Software Engineering presents selected articles from this major event, which was held in Beijing, December 8-10, 2012. This book presents the latest research trends, methods and experimental results in the fields of information technology and software engineering, covering various state-of-the-art research theories and approaches. The subjects range from intelligent computing to information processing, software engineering, Web, unified modeling language (UML), multimedia, communication technologies, system identification, graphics and visualizing, etc. The proceedings provide a major

interdisciplinary forum for researchers and engineers to present the most innovative studies and advances, which can serve as an excellent reference work for researchers and graduate students working on information technology and software engineering. Prof. Wei Lu, Dr. Guoqiang Cai, Prof. Weibin Liu and Dr. Weiwei Xing all work at Beijing Jiaotong University.

Advances in Artificial Intelligence - Jacques Wainer 1995-09-27
Invited papers; knowledge representation and automated reasoning; tutoring systems; machine learning; neural networks; distributed AI; knowledge acquisition and knowledge bases; posters.

Formal Methods for Multicore Programming - Marco Bernardo 2015-05-06
This book presents 5 tutorial lectures given by leading researchers at the 15th edition of the International School on Formal Methods for the Design of Computer, Communication and Software Systems, SFM 2015, held in Bertinoro, Italy, in June 2015. SFM 2015 was devoted to multicore programming and covered topics such as concurrency and coordination mechanisms, architecture and memory models and type systems.

Introduction to Information Science - David Bawden 2015-06-10
This landmark textbook takes a whole subject approach to Information Science as a discipline. Introduced by leading international scholars and offering a global perspective on the discipline, this is designed to be the standard text for students worldwide. The authors' expert narrative guides you through each of the essential building blocks of information science offering a concise introduction and expertly chosen further reading and resources. Critical topics covered include: foundations: - concepts, theories and historical perspectives - organising and retrieving information - information behaviour, domain analysis and digital literacies - technologies, digital libraries and information management - information research methods and informetrics - changing contexts: information society, publishing, e-science and digital humanities - the future of the discipline. Readership: Students of information science, information and knowledge management, librarianship, archives and records management

worldwide. Students of other information-related disciplines such as museum studies, publishing, and information systems and practitioners in all of these disciplines.

Database Design Made Easy: Effective Relational Database Design For Ordinary People - M. Clinton Jones 2014

e-Technologies and Networks for Development - Jim James Yonazi 2011-07-18
This book constitutes the proceedings of the First International Conferences on e-Technologies and Networks for Development, ICeND 2011, held in Dar-es-Salaam, Tanzania, in August 2011. The 29 revised full papers presented were carefully reviewed and selected from 90 initial submissions. The papers address new advances in the internet technologies, networking, e-learning, software applications, Computer Systems, and digital information and data communications technologies - as well technical as practical aspects.

A Student Guide to Object-Oriented Development - Carol Britton 2004-08-21
A Student Guide to Object-Oriented Development is an introductory text that follows the software development process, from requirements capture to implementation, using an object-oriented approach. The book uses object-oriented techniques to present a practical viewpoint on developing software, providing the reader with a basic understanding of object-oriented concepts by developing the subject in an uncomplicated and easy-to-follow manner. It is based on a main worked case study for teaching purposes, plus others with password-protected answers on the web for use in coursework or exams. Readers can benefit from the authors' years of teaching experience. The book outlines standard object-oriented modelling techniques and illustrates them with a variety of examples and exercises, using UML as the modelling language and Java as the language of implementation. It adopts a simple, step by step approach to object-oriented development, and includes case studies, examples, and exercises with solutions to consolidate learning. There are 13 chapters covering a variety of topics such as sequence and collaboration diagrams; state diagrams; activity diagrams; and implementation diagrams. This book is an ideal reference for

students taking undergraduate introductory/intermediate computing and information systems courses, as well as business studies courses and conversion masters' programmes. Adopts a simple, step by step approach to object-oriented development Includes case studies, examples, and exercises with solutions to consolidate learning Benefit from the authors' years of teaching experience

An Introduction to Formal Specification with Z and VDM - Deri Sheppard 1995
Formal methods emphasize the correct and efficient development of software. This text puts formal specification in the context of traditional methods of software development, including object-orientation, introducing these concepts and the necessary discrete maths, before moving on to look at both Z and VDM in depth, using the case study of a drinks dispensing machine.

Software Engineering Metrics: Measures and validations - Martin Shepperd 1993
A compendium of articles by the world's leading authorities on software metrics. Topics range from design, specification, and validation to more advanced topics such as automated measurement systems.

Software Engineering for Resilient Systems - Anatoliy Gorbenko 2013-09-12
This book constitutes the refereed proceedings of the 5th International Workshop on Software Engineering for Resilient Systems, SERENE 2013, held in Kiev, Ukraine, in October 2013. The 13 revised full papers were carefully reviewed and selected from 21 submissions. The papers are organized in topical sections on resilient software and design, rigorous reasoning, applications, concepts, and analysis.

Provably Correct Systems - Jifeng He 1995

Concurrent Systems - Michael Gerard Hinchey 1995
Techniques based on formal methods, such as the language of CSP (Communicating Sequential Processes) have proven to be the most successful means of conquering complexity in the specification of concurrent, embedded, real-time and distributed systems.

System Requirements Engineering - Pericles Loucopoulos 1995
System Requirements Engineering presents a balanced view of the issues, concepts, models, techniques and tools found in requirements engineering research and practice. Requirements engineering is presented from business, behavioural and software engineering perspectives and a general framework is established at the outset. This book considers requirements engineering as a combination of three concurrent and interacting processes: eliciting knowledge related to a problem domain, ensuring the validity of such knowledge and specifying the problem in a formal way. Particular emphasis is given to requirements elicitation techniques and there is a fully integrated treatment of the development of requirements specifications through enterprise modelling, functional requirements and non-functional requirements.

Objects and Databases - Petr Kroha 1993
Written for applications programmers, software systems developers, and designers new to object technology, this book presents the major features of object-oriented database systems, addressing common problems and the latest solutions. It explains in detail how database technology can make use of fundamental object-oriented concepts such as data abstraction, encapsulation, inheritance and polymorphism.

A Gentle Introduction to Support Vector Machines in Biomedicine: Theory and methods - Alexander Statnikov 2011
Support Vector Machines (SVMs) are among the most important recent developments in pattern recognition and statistical machine learning. They have found a great range of applications in various fields including biology and medicine. However, biomedical researchers often experience difficulties grasping both the theory and applications of these important methods because of lack of technical background. The purpose of this book is to introduce SVMs and their extensions and allow biomedical researchers to understand and apply them in real-life research in a very easy manner. The book is to consist of two volumes: theory and methods (Volume 1) and cases studies (Volume 2).The proposed book follows the approach of ?programmed learning? whereby material is presented in short sections called ?frames?. Each frame consists of a very small amount of information to be learned, a multiple choice quiz, and answers to the quiz. The reader can

proceed to the next frame only after verifying the correct answers to the current frame.

Real-Time Systems Development - Rob Williams 2005-10-28
Real-Time Systems Development introduces computing students and professional programmers to the development of software for real-time applications. Based on the academic and commercial experience of the author, the book is an ideal companion to final year undergraduate options or MSc modules in the area of real-time systems design and implementation. Assuming a certain level of general systems design and programming experience, this text will extend students' knowledge and skills into an area of computing which has increasing relevance in a modern world of telecommunications and 'intelligent' equipment using embedded microcontrollers. This book takes a broad, practical approach in discussing real-time systems. It covers topics such as basic input and output; cyclic executives for bare hardware; finite state machines; task communication and synchronization; input/output interfaces; structured design for real-time systems; designing for multitasking; UML for real-time systems; object oriented approach to real-time systems; selecting languages for RTS development; Linux device drivers; and hardware/software co-design. Programming examples using GNU/Linux are included, along with a supporting website containing slides; solutions to problems; and software examples. This book will appeal to advanced undergraduate Computer Science students; MSc students; and, undergraduate software engineering and electronic engineering students. * Concise treatment delivers material in manageable sections * Includes handy glossary, references and practical exercises

based on familiar scenarios * Supporting website contains slides, solutions to problems and software examples

Recent Trends in Algebraic Development Techniques - Martin Wirsing 2003-11-24
This book constitutes the thoroughly refereed post-proceedings of the 16th International Workshop on Algebraic Development Techniques, WADT 2002, held at Frauenchiemsee, Germany in September 2002.The 20 revised full papers presented together with 6 invited papers were carefully improved and selected from 44 workshop presentations during two rounds of reviewing. The papers are devoted to topics like formal methods for system development, specification languages and methods, systems and techniques for reasoning about specifications, specification development systems, methods and techniques for concurrent, distributed, and mobile systems, and algebraic and co-algebraic methods.

A Gentle Introduction to Support Vector Machines in Biomedicine - Alexander Statnikov 2011-02-22
Support Vector Machines (SVMs) are among the most important recent developments in pattern recognition and statistical machine learning. They have found a great range of applications in various fields including biology and medicine. However, biomedical researchers often experience difficulties grasping both the theory and applications of these important methods because of lack of technical background. The purpose of this book is to introduce SVMs and their extensions and allow biomedical researchers to understand and apply them in real-life research in a very easy manner. The book is to consist of two volumes: theory and methods (Volume 1) and case studies (Volume 2).