

Quantitative System Performance Computer System Analysis Using Queuing Network Models

In the past ten years or so, software architecture has emerged as a central notion in the development of complex software systems. Software architecture is now accepted in the software engineering research and development community as a manageable and meaningful abstraction of the system under development and is applied throughout the software development life cycle, from requirements analysis and validation, to design and down to code and execution level. This book presents the tutorial lectures given by leading authorities at the Third International School on Formal Methods for the Design of Computer, Communication and Software Systems, SFM 2003, held in Bertinoro, Italy, in September 2003. The book is ideally suited for advanced courses on software architecture as well as for ongoing education of software engineers using formal methods in their day-to-day professional work.

Poor performance is one of the main quality-related shortcomings that cause software projects to fail. Thus, the need to address performance concerns early during the software development process is fully acknowledged, and there is a growing interest in the research and software industry communities towards techniques, methods and tools that permit to manage system performance concerns as an integral part of software engineering. Model-based software performance analysis introduces performance concerns in the scope of software modeling, thus allowing the developer to carry on performance analysis throughout the software lifecycle. With this book, Cortellessa, Di Marco and Inverardi provide the cross-knowledge that allows developers to tackle software performance issues from the very early phases of software development. They explain the basic concepts of performance analysis and describe the most representative methodologies used to annotate and transform software models into performance models. To this end, they go all the way from performance primers through software and performance modeling notations to the latest transformation-based methodologies. As a result, their book is a self-contained reference text on software performance engineering, from which different target groups will benefit: professional software engineers and graduate students in software engineering will learn both basic concepts of performance modeling and new methodologies; while performance specialists will find out how to investigate software performance model building.

Computer system performance evaluation is a key discipline for the understanding of the behavior and limitations of large scale computer systems and networks. This volume provides an overview of the milestones and major developments of the field. The contributions to the book include many of the principal leaders from industry and academia with a truly international coverage, including several IEEE and ACM Fellows, two Fellows of the US National Academy of Engineering and a Fellow of the European Academy, and a former President of the Association of Computing Machinery.

High Performance Computing is an integrated computing environment for solving large-scale computational demanding problems in science, engineering and business. Newly emerging areas of HPC applications include medical sciences, transportation, financial operations and advanced human-computer interface such as virtual reality. High performance computing includes computer hardware, software, algorithms, programming tools and environments, plus visualization. The book addresses several of these key components of high performance technology and contains descriptions of the state-of-the-art computer architectures, programming and software tools and innovative applications of parallel computers. In addition, the book includes papers on heterogeneous network-based computing systems and scalability of parallel systems. The reader will find information and data relative to the two main thrusts of high performance computing: the absolute computational performance and that of providing the most cost effective and affordable computing for science, industry and business. The book is recommended for technical as well as management oriented individuals.

Advanced Information Systems Engineering

Quantitative Evaluation of Systems

Software Performance and Scalability

Computing Handbook, Third Edition

Computer Systems Performance Evaluation and Prediction

Model-Based Software Performance Analysis

Measurement, Modelling and Evaluation of Computing Systems

An overview of queueing network modelling. Conducting a modelling study. Fundamental laws. General analytic technique. Bounds on performance. Models with one job class. Models with multiple job classes. Flow equivalence and hierarchical modelling. Representing specific subsystems. Memory. Disk I/O. Processors. Parameterization. Existing systems. Evolving systems. Proposed systems. Perspective. Using queueing network modelling software. Appendices. Constructing a model from RMF data. An implementation of single class, exact MVA. An implementation of multiple class, exact MVA. Load dependent service centers. Index.

Model-based development methods, and supporting technologies, can provide the techniques and tools needed to address the dilemma between reducing system development costs and time, and developing increasingly complex systems. This book provides the information needed to understand and apply model-drive engineering (MDE) and model-drive architecture (MDA) approaches to the development of embedded systems. Chapters, written by experts from academia and industry, cover topics relating to MDE practices and methods, as well as emerging MDE technologies.

Much of the writing is based on the presentations given at the Summer School " MDE for Embedded Systems " held at Brest, France, in September 2004.

Computing Handbook, Third Edition: Computer Science and Software Engineering mirrors the modern taxonomy of computer science and software engineering as described by the Association for Computing Machinery (ACM) and the IEEE Computer Society (IEEE-CS). Written by established leading experts and influential young researchers, the first volume of this popular handbook examines the elements involved in designing and implementing software, new areas in which computers are being used, and ways to solve computing problems. The book also explores our current understanding of software engineering and its effect on the practice of software development and the education of software professionals. Like the second volume, this first volume describes what occurs in research laboratories, educational institutions, and public and private organizations to advance the effective development and use of computers and computing in today ' s world.

Research-level survey articles provide deep insights into the computing discipline, enabling readers to understand the principles and practices that drive computing education, research, and development in the twenty-first century.

This book constitutes the thoroughly refereed post-proceedings of the 7th International Conference on High Performance Computing for Computational Science, VECPAR 2006, held in Rio de Janeiro, Brazil, in June 2006. The 44 revised full papers presented together with one invited paper and 12 revised workshop papers cover Grid computing, cluster computing, numerical methods, large-scale simulations in Physics, and computing in Biosciences.

Optimizing HPC Applications with Intel Cluster Tools

New Frontiers in Quantitative Methods in Informatics

CCPI, CGWS, HeteroPar, HiBB, HPCVirt, HPPC, HPSS, MDGS, ProPer, Resilience, UCHPC, VHPC, Bordeaux, France, August 29 -- September 2, 2011, Revised Selected Papers, Part II

Quantifying and Predicting the Influence of Execution Platform on Software Component Performance

Modeling, Evaluation, Applications

Performance Evaluation of Computer and Communication Systems

Modelling Techniques and Tools. 7th International Conference, Vienna, Austria, May 3 - 6, 1994. Proceedings

This book constitutes the refereed proceedings of the 7th Workshop on New Frontiers in Quantitative Methods in Informatics, InfQ 2017, held in Venice, Italy, in December 2017. The 11 revised full papers and the one revised short paper presented were carefully reviewed and selected from 22 submissions. The papers are organized in topical sections on networking and mobile applications; applications of quantitative modeling; big data processing and IoT; theory, methods and tools for quantitative analysis.

Under today's shortened fiscal horizons and contracted time-to-market schedules, traditional approaches to capacity planning are seen by management as inflating production schedules. In the face of relentless pressure to get things done faster, this book facilitates rapid forecasting of capacity requirements, based on opportunistic use of available performance data and tools so that management insight is expanded but production schedules are not. The book introduces such concepts as an iterative cycle of improvement called "The Wheel of Capacity Planning," and Virtual Load Testing, which provides a highly cost-effective method for assessing application scalability.

Practical, real-world solutions are given to potential problems covering the entire system life cycle. This book describes how to map real-life systems (databases, data centers, and e-commerce applications) into analytic performance models. The authors elaborate upon these models and use them to help the reader better understand performance issues.

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Quantitative Evaluation of Computing and Communication Systems

Model Driven Engineering for Distributed Real-Time Embedded Systems 2009

Stochastic Discrete Event Systems

8th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation, Performance Tools '95, 8th GI/ITG Conference on Measuring, Modelling and Evaluating Computing and Communication Systems, MMB '95Heidelberg, Germany, Septem

Probability, Stochastic Processes, and Queueing Theory

Computer Systems and Software Engineering: Concepts, Methodologies, Tools, and Applications

Computer Capacity Planning by Example

Stochastic discrete-event systems (SDES) capture the randomness in choices due to activity delays and the probabilities of decisions. This book delivers a comprehensive overview on modeling with a quantitative evaluation of SDES. It presents an abstract model class for SDES as a pivotal unifying result and details important model classes. The book also includes nontrivial examples to explain real-world applications of SDES.

Initially, computer systems performance analyses were carried out primarily because of limited resources. Due to ever increasing functional complexity of computational systems and user requirements, performance engineering continues to play a major role in software development. This book assesses the state of the art in performance engineering. Besides revised chapters drawn from two workshops on performance engineering held in 2000, additional chapters were solicited in order to provide complete coverage of all relevant aspects. The first part is devoted to the relation between software engineering and performance engineering; the second part focuses on the use of models, measures, and tools; finally, case studies with regard to concrete technologies are presented. Researchers, professional software engineers, and advanced students interested in performance analysis will find this book an indispensable source of information and reference.

This book constitutes the proceedings of the 11th International Conference on Quantitative Evaluation of Systems, QEST 2014, held in Florence, Italy, in September 2014. The 24 full papers and 5 short papers included in this volume were carefully reviewed and selected from 61 submissions. They are organized in topical sections named: Kronecker and product form methods; hybrid systems; mean field/population analysis; models and tools; simulation; queueing, debugging and tools; process algebra and equivalences; automata and Markov process theory; applications, theory and tools; and probabilistic model checking.

The era of seemingly unlimited growth in processor performance is over: single chip architectures can no longer overcome the performance limitations imposed by the power they consume and the heat they generate. Today, Intel and other semiconductor firms are abandoning the single fast processor model in favor of multi-core microprocessors--chips that combine two or more processors in a single package. In the fourth edition of Computer Architecture, the authors focus on this historic shift, increasing their coverage of multiprocessors and exploring the most effective ways of achieving parallelism as the key to unlocking the power of multiple processor architectures. Additionally, the new edition has expanded and updated coverage of design topics beyond processor performance, including power, reliability, availability, and dependability. CD System Requirements PDF Viewer The CD material includes PDF documents that you can read with a PDF viewer such as Adobe, Acrobat or Adobe Reader. Recent versions of Adobe Reader for some platforms are included on the CD. HTML Browser The navigation framework on this CD is delivered in HTML and JavaScript. It is recommended that you install the latest version of your favorite HTML browser to view this CD. The content has been verified under Windows XP with the following browsers: Internet Explorer 6.0, Firefox 1.5; under Mac OS X (Panther) with the following browsers: Internet Explorer 5.2, Firefox 1.0.6, Safari 1.3; and under Mandriva Linux 2006 with the following browsers: Firefox 1.0.6, Konqueror 3.4.2, Mozilla 1.7.11. The content is designed to be viewed in a browser window that is at least 720 pixels wide. You may find the content does not display well if your display is not set to at least 1024x768 pixel resolution. Operating System This CD can be used under any operating system that includes an HTML browser and a PDF viewer. This includes Windows, Mac OS, and most Linux and Unix systems. Increased coverage on achieving parallelism with multiprocessors. Case studies of latest technology from industry including the Sun Niagara Multiprocessor, AMD Opteron, and Pentium 4. Three review appendices, included in the printed volume, review the basic and intermediate principles the main text relies upon. Eight reference appendices, collected on the CD, cover a range of topics including specific architectures, embedded systems, application specific processors--some guest authored by subject experts.

Computer Performance Evaluation

12th European Workshop, EPEW 2015, Madrid, Spain, August 31 - September 1, 2015, Proceedings

High Performance Computing: Technology, Methods and Applications

Hunting Petaflops

11th International Conference, QEST 2014, Florence, Italy, September 8-10, 2014, Proceedings

19th International GI/ITG Conference, MMB 2018, Erlangen, Germany, February 26-28, 2018, Proceedings

4th International Conference CAiSE '92, Manchester, UK, May 12-15, 1992. Proceedings

Praise from the Reviewers: "The practicality of the subject in a real-world situation distinguishes this book from others available on the market." —Professor Behrouz Far, University of Calgary "This book could replace the computer organization texts now in use that every CS and CpE student must take. . . . It is much needed, well written, and thoughtful." —Professor Larry Bernstein, Stevens Institute of Technology A distinctive, educational text on software performance and scalability This is the first book to take a quantitative approach to the subject of software performance and scalability. It brings together three unique perspectives to demonstrate how your products can be optimized and tuned for the best possible performance and scalability: The Basics—introduces the computer hardware and software architectures that predetermine the performance and scalability of a software product as well as the principles of measuring the performance and scalability of a software product Queuing Theory—helps you learn the performance laws and queuing models for interpreting the underlying physics behind software performance and scalability, supplemented with ready-to-apply techniques for improving the performance and scalability of a software system API Profiling—shows you how to design more efficient algorithms and achieve optimized performance and scalability, aided by adopting an API profiling framework (perfBasic) built on the concept of a performance map for drilling down performance root causes at the API level Software Performance and Scalability gives you a specialized skill set that will enable you to design and build performance into your products with immediate, measurable improvements. Complemented with real-world case studies, it is an indispensable resource for software developers, quality and performance assurance engineers, architects, and managers. It is an ideal text for university courses related to computer and software performance evaluation and can also be used to supplement a course in computer organization or in queuing theory for upper-division and graduate computer science students.

Sets out the fundamental techniques used in analyzing and understanding the performance of computer systems.

This book constitutes the proceedings of the 15th International Conference on Quantitative Evaluation Systems, QEST 2018, held in Beijing, China, in September 2018. The 24 full papers presented were carefully reviewed and selected from 51 submissions. The papers cover topics in the field of quantitative evaluation and verification of computer systems and networks through stochastic models and measurements emphasizing two frontier topics in research: quantitative information flow for security and industrial formal methods.

To solve performance problems in modern computing infrastructures, often comprising thousands of servers running hundreds of applications, spanning multiple tiers, you need tools that go beyond mere reporting. You need tools that enable performance analysis of application workflow across the entire enterprise. That's what PDQ (Pretty Damn Quick) provides. PDQ is an open-source performance analyzer based on the paradigm of queues. Queues are ubiquitous in every computing environment as buffers, and since any application architecture can be represented as a circuit of queueing delays, PDQ is a natural fit for analyzing system performance. Building on the success of the first edition, this considerably expanded second edition now comprises four parts. Part I contains the foundational concepts, as well as a new first chapter that explains the central role of queues in successful performance analysis. Part II provides the basics of queueing theory in a highly intelligible style for the non-mathematician; little more than high-school algebra being required. Part III presents many practical examples of how PDQ can be applied. The PDQ manual has been relegated to an appendix in Part IV, along with solutions to the exercises contained in each chapter. Throughout, the Perl code listings have been newly formatted to improve readability. The PDQ code and updates to the PDQ manual are available from the author's web site at www.perfdynamics.com

Formal Methods for Software Architectures

Computer Architecture

Advances, Standards, Applications and Perspectives

Computer System Performance Modeling in Perspective

15th International Conference, MODELS 2012, Innsbruck, Austria, September 30 -- October 5, 2012, Proceedings

Concepts, Methodologies, Tools, and Applications

Quantitative System Performance

This book constitutes thoroughly refereed post-conference proceedings of the workshops of the 17th International Conference on Parallel Computing, Euro-Par 2011, held in Bordeaux, France, in August 2011. The papers of these 12 workshops CCPI, CGWS, HeteroPar, HiBB, HPCVirt, HPPC, HPSS HPCF, PROPER, CCPI, and VHPC focus on promotion and advancement of all aspects of parallel and distributed computing. The performance of software components depends on several factors, including the execution platform on which the software components run. To simplify cross-platform performance prediction in relocation and sizing scenarios, a novel approach is introduced in this thesis which separates the application performance profile from the platform performance profile. The approach is evaluated using transparent instrumentation of Java applications and with automated benchmarks for Java Virtual Machines.

We will occasionally footnote a portion of text with a "***", to indicate Notes on the that this portion can be initially bypassed. The reasons for bypassing a Text portion of the text include: the subject is a special topic that will not be referenced later, the material can be skipped on first reading, or the level of mathematics is higher than the rest of the text. In cases where a topic is self-contained, we opt to collect the material into an appendix that can be read by students at their leisure. The material in the text cannot be fully assimilated until one makes it Notes on "their own" by applying the material to specific problems. Self-discovery Problems is the best teacher and although they are no substitute for an inquiring mind, problems that explore the subject from different viewpoints can often help the student to think about the material in a uniquely personal way. With this in mind, we have made problems an integral part of this work and have attempted to make them interesting as well as informative.

This book constitutes the refereed proceedings of the Third European Performance Engineering Workshop, EPEW 2006, held in Budapest, Hungary in June 2006. The 16 revised full papers presented were carefully reviewed and selected from 40 submissions. The papers are organized in topical sections on stochastic process algebra, workloads and benchmarks, theory of stochastic processes, formal dependability and performance evaluation, as well as queues, theory and practice.

Performance Modeling for Computer Architects

A Tribute to the Work of Professor Kenneth C. Sevcik

7th Workshop, InfQ 2017, Venice, Italy, December 4, 2017, Revised Selected Papers

Computer System Analysis Using Queueing Network Models

Third European Performance Engineering Workshop, EPEW 2006, Budapest, Hungary, June 21-22, 2006, Proceedings

Analyzing Computer System Performance with Perl::PDQ

Measuring Computer Performance

This monograph-like state-of-the-art survey presents the history, the key ideas, the success stories, and future challenges of performance evaluation and demonstrates the impact of performance evaluation on a variety of different areas through case studies in a coherent and comprehensive way. Leading researchers in the field have contributed 19 cross-reviewed topical chapters competently covering the whole range of performance evaluation, from theoretical and methodological issues to applications in numerous other fields. Additionally, the book contains one contribution on the role of performance evaluation in industry and personal accounts of four pioneering researchers describing the genesis of breakthrough results. The book will become a valuable source of reference and indispensable reading for anybody active or interested in performance evaluation.

Computer system performance evaluation is a key discipline for the understanding of the behavior and limitations of large scale computer systems and networks. This volume provides an overview of the milestones and major developments of the field. The contributions to the book include many of the principal leaders from industry and academia with a truly international coverage, including several IEEE and ACM Fellows, two Fellows of the US National Academy of Engineering and a Fellow of the European Academy, and a former President of the Association of Computing Machinery. Contents: Ken Sevcik as an Advisor and Mentor (E Lazowska et al.) Shadow Servers and Priority Scheduling (J P Buzen) On the Chronology of Dynamic Allocation Index Policies: The Pioneering Work of K C Sevcik (E Coffman) Operational Analysis (P J Denning) Function Approximation by Random Neural Networks with a Bounded Number of Layers (E Gelenbe et al.) The Achilles' Heel of Computer Performance Modeling and the Model Building Shield (V De Nitto Person è & G Lazeolla) Wireless Network Simulation: Towards a Systematic Approach (S K Tripathi et al.) Location- and Power-Aware Protocols for Wireless Networks with Asymmetric Links (G Wang et al.) Multi-Threaded Servers with High Service Time Variation for Layered Queueing Networks (G Franks et al.) Quantiles of Sojourn Times (P G Harrison & W J Knottenbelt) Asymptotic Solutions for Two Non-Stationary Problems in Internet Reliability (Y Kogan & G Choudhury) Burst Loss Probabilities in an OBS Network with Dynamic Simultaneous Link

Possession (T Battestilli & H Perros) Stochastic Analysis of Resource Allocation in Parallel Processing Systems (M S Squillante) Periodic Task Cluster Scheduling in Distributed Systems (H Karatza) Readership: Graduate students, Internet engineers, computer scientists, system engineers, and computer designers. Also suitable for use in professional development seminars in computers and networks. Keywords: Computer Networks; Distributed Systems; Performance Analysis of Computer Systems; Performance Control and Optimization; System Performance Evaluation; Analytic Models; Simulation Methods

Optimizing HPC Applications with Intel® Cluster Tools takes the reader on a tour of the fast-growing area of high performance computing and the optimization of hybrid programs. These programs typically combine distributed memory and shared memory programming models and use the Message Passing Interface (MPI) and OpenMP for multi-threading to achieve the ultimate goal of high performance at low power consumption on enterprise-class workstations and compute clusters. The book focuses on optimization for clusters consisting of the Intel® Xeon processor, but the optimization methodologies also apply to the Intel® Xeon Phi™ coprocessor and heterogeneous clusters mixing both architectures. Besides the tutorial and reference content, the authors address and refute many myths and misconceptions surrounding the topic. The text is augmented and enriched by descriptions of real-life situations. This book constitutes the refereed proceedings of the 12th European Workshop on Computer Performance Engineering, EPEW 2015, held in Madrid, Spain, in August/September 2015. The 19 papers presented in this volume were carefully reviewed and selected from 39 submissions. They were organized in topical sections named: applications; modelling techniques, software performance, and simulation techniques.

Formal Methods and Stochastic Models for Performance Evaluation

A Quantitative Approach

7th International School on Formal Methods for the Design of Computer, Communication, and Software Systems, SFM 2007, Bertinoro, Italy, May 8-June 2, 2007, Advanced Lectures

A Tactical Approach to Planning for Highly Scalable Applications and Services

Performance by Design

Performance Engineering

High Performance Computing for Computational Science - VECPAR 2006

Professionals in the interdisciplinary field of computer science focus on the design, operation, and maintenance of computational systems and software. Methodologies and tools of engineering are utilized alongside computer applications to develop efficient and precise information databases. Computer Systems and Software Engineering: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on trends, techniques, and uses of various technology applications and examines the benefits and challenges of these computational developments. Highlighting a range of pertinent topics such as utility computing, computer security, and information systems applications, this multi-volume book is ideally designed for academicians, researchers, students, web designers, software developers, and practitioners interested in computer systems and software engineering.

Much of a software architect's life is spent designing software systems to meet a set of quality requirements. General software quality attributes include scalability, security, performance or reliability. Quality attribute requirements are part of an application's non-functional requirements, which capture the many facets of how the functional requirements of an application are achieved. Understanding, modeling and continually evaluating quality attributes throughout a project lifecycle are all complex engineering tasks which continue to challenge the software engineering scientific community. While we search for improved approaches, methods, formalisms and tools that are usable in practice and can scale to large systems, the complexity of the applications that the software industry is challenged to build is ever increasing. Thus, as a research community, there is little opportunity for us to rest on our laurels, as our innovations that address new aspects of system complexity must be deployed and validated. To this end the 5th International Conference on the Quality of Software Architectures (QoSA) 2009 focused on architectures for adaptive software systems. Modern software systems must often reconfigure their structure and behavior to respond to continuous changes in requirements and in their execution environment. In these settings, quality models are helpful at an architectural level to guide systematic model-driven software development strategies by evaluating the impact of competing architectural choices.

As humanity approaches the 3rd millennium, the sustainability of our present way of life becomes more and more questionable. New paradigms for the long-term coevolution of nature and civilization are urgently needed in order to avoid intolerable and irreversible modifications of our planetary environment. Earth System Analysis is a new scientific enterprise that tries to perceive the earth as a whole, a unique system which is to be analyzed with methods ranging from nonlinear dynamics to macroeconomic modelling. This book, resulting from an international symposium organized by the Potsdam Institute, has 2 aims: first, to integrate contributions from leading researchers and scholars from around the world to provide a multifaceted perspective of what Earth System Analysis is all about, and second, to outline the scope of the scientific challenge and elaborate the general formalism for a well-defined transdisciplinary discourse on this most fascinating issue.

This book constitutes the proceedings of the 19th International GI/ITG Conference on Measurement, Modelling and Evaluation of Computing Systems, MMB 2018, held in Erlangen, Germany, in February 2018. The 16 full papers, 4 PhD track papers, and 9 tool papers presented in this volume were carefully reviewed and selected from 42 submissions. They are dealing with performance and dependability evaluation techniques for computer and communication systems and its related fields.

The Mathematics of Computer Performance Modeling

Formal Methods for Performance Evaluation

State of the Art and Current Trends

Guerrilla Capacity Planning

15th International Conference, QEST 2018, Beijing, China, September 4-7, 2018, Proceedings

Readings in Computer Architecture

7th International Conference, Rio de Janeiro, Brazil, June 10-13, 2006, Revised Selected and Invited Papers

As computers become more complex, the number and complexity of the tasks facing the computer architect have increased. Computer performance often depends in complex way on the design parameters and intuition that must be supplemented by performance studies to enhance design productivity. This book introduces computer architects to computer system performance models and shows how they are relatively simple, inexpensive to implement, and sufficiently accurate for most purposes. It discusses the development of performance models based on queuing theory and probability. The text also shows how they are used to provide quick approximate calculations to indicate basic performance tradeoffs and narrow the range of parameters to consider when determining system configurations. It illustrates how performance models can demonstrate how a memory system is to be configured, what the cache structure should be, and what incremental changes in cache size can have on the miss rate. A particularly deep knowledge of probability theory or any other mathematical field to understand the papers in this volume is not required.

This book constitutes the refereed proceedings of the 15th International Conference on Model Driven Engineering Languages and Systems, MODELS 2012, held in Innsbruck, Austria, in September/October 2012. The

50 papers presented in this volume were carefully reviewed and selected from a total of 181 submissions. They are organized in topical sections named: metamodels and domain specific modeling; models at runtime; model management; modeling methods and tools, consistency analysis, software product lines; foundations of modeling; static analysis techniques; model testing and simulation; model transformation; model matching, tracing and synchronization; modeling practices and experience; and model analysis.

Performance evaluation, reliability, and performability are key factors in the development and improvement of computer systems and computer networks. This volume contains the 25 accepted and invited papers presented at the 7th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation. The papers focus on new techniques and the extension of existing techniques for performance and reliability analysis. Tools to support performance and reliability modelling and measurement in all kinds of applications and environments are presented, and the practicability and generality of the approaches are emphasized. The volume summarizes the state of the art and points out future demands and challenges, and will interest both scientists and practitioners.

This book presents a set of 11 papers accompanying the lectures of leading researchers given at the 7th edition of the International School on Formal Methods for the Design of Computer, Communication and Software Systems, SFM 2007, held in Bertinoro, Italy in May/June 2007. SFM 2007 was devoted to formal techniques for performance evaluation and covered several aspects of the field.

Architectures for Adaptive Software Systems

Computer Performance Engineering

5th International Conference on the Quality of Software Architectures, QoSA 2009, East Stroudsburg, PA, USA, June 24-26, 2009 Proceedings

Euro-Par 2011: Parallel Processing Workshops

Joint Tutorial Papers of Performance '93 and Sigmetrics '93

Queueing Theory in Action

Performance Modeling and Design of Computer Systems

This book constitutes the proceedings of the 8th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation (Performance Tools '95) and of the 8th GI/ITG Conference on Measuring, Modelling and Evaluating Computing and Communication Systems, MMB '95, held jointly in Heidelberg, Germany in September 1995. The volume presents 26 full refereed papers selected from a total of 86 submissions, together with two invited contributions. The scope of the papers includes measurement- and model-based approaches for quantitative systems assessment, reports on theoretical and methodological progress, and novel and improved assessment techniques and their tool implementations and applications.

Tackling the questions that systems designers care about, this book brings queueing theory decisively back to computer science. The book is written with computer scientists and engineers in mind and is full of examples from computer systems, as well as manufacturing and operations research. Fun and readable, the book is highly approachable, even for undergraduates, while still being thoroughly rigorous and also covering a much wider span of topics than many queueing books. Readers benefit from a lively mix of motivation and intuition, with illustrations, examples and more than 300 exercises – all while acquiring the skills needed to model, analyze and design large-scale systems with good performance and low cost. The exercises are an important feature, teaching research-level counterintuitive lessons in the design of computer systems. The goal is to train readers not only to customize existing analyses but also to invent their own.

This volume contains the complete set of tutorial papers presented at the 16th IFIP (International Federation for Information Processing) Working Group 7.3 International Symposium on Computer Performance Modelling, Measurement and Evaluation, and a number of tutorial papers presented at the 1993 ACM (Association for Computing Machinery) Special Interest Group METRICS Conference on Measurement and Modeling of Computer Systems. The principal goal of the volume is to present an overview of recent results in the field of modeling and performance evaluation of computer and communication systems. The wide diversity of applications and methodologies included in the tutorials attests to the breadth and richness of current research in the area of performance modeling. The tutorials may serve to introduce a reader to an unfamiliar research area, to unify material already known, or simply to illustrate the diversity of research in the field. The extensive bibliographies guide readers to additional sources for further reading.

Offering a carefully reviewed selection of over 50 papers illustrating the breadth and depth of computer architecture, this text includes insightful introductions to guide readers through the primary sources.

A Tribute to the Work of Prof Kenneth C Sevcik

Third International School on Formal Methods for the Design of Computer, Communication and Software Systems: Software Architectures, SFM 2003, Bertinoro, Italy, September 22-27, 2003, Advanced Lectures

Performance Evaluation: Origins and Directions

Computer Science and Software Engineering

A Practitioner's Guide

Model Driven Engineering Languages and Systems