Lecture Notes Ecs 203 Basic Electrical Engineering

As the Web allows information sharing, discovery, aggregation, filtering and flow in an unprecedented manner, it also becomes very difficult to identify, reliably, the original source that produced an information item on the Web. Hence, provenance, i.e., the origin or source of something, is becoming an important concern, since it offers the means to verify data products, to infer their quality, to analyse the processes that led to them, and to decide whether they can be trusted. For instance, provenance enables the reproducibility of scientific results; provenance is necessary to track attribution and credit in curated databases; and, it is essential for reasoners to make trust judgements about the information they use over the Semantic Web. Since the emerging use of provenance in niche applications is undoubtedly demonstrating benefits, this survey contends that provenance can and should reliably be tracked and exploited on the Web. The Foundations for Provenance on the Web is aimed at anyone who discovers or publishes information on the Web, and who cares about its origin and its quality.Based on an analysis of literature, this survey puts forward the Open Provenance Vision, a visionary but pragmatic, integrative conceptual framework allowing the provenance of information to be expressed, tracked, and queried seamlessly, as it crosses information systems across the Web. Some foundational work has already resulted in significant advances in semantics, data models and systems, which can underpin this vision. However, some shortcomings inevitably exist and are discussed. For this vision to succeed, it requires a multi-disciplinary approach, since it requires contributions from many computer science sub-disciplines, but also other non technical fields given the human challenge that is anticipated.

Information retrieval is the science concerned with the effective and efficient retrieval of documents starting from their semantic content. It is employed to fulfill some information need from a large number of digital documents. Given the ever-growing amount of documents available and the heterogeneous data structures used for storage, information retrieval has recently faced and tackled novel applications. In this book, Melucci and Baeza-Yates present a wide-spectrum illustration of recent research results in advanced areas related to information retrieval. Readers will find chapters on e.g. aggregated search, digital advertising, digital libraries, discovery of spam and opinions, information retrieval in context, multimedia resource discovery, quantum mechanics applied to information retrieval, scalability challenges in web search engines, and interactive information retrieval evaluation. All chapters are written by well-known researchers, are completely self-contained and comprehensive, and are complemented by an integrated bibliography and subject index. With this selection, the editors provide the most up-to-date survey of topics usually not addressed in depth in traditional (text)books on information retrieval. The presentation is intended for a wide audience of people interested in information

retrieval: undergraduate and graduate students, post-doctoral researchers, lecturers, and industrial researchers.

TAPSOFT '89 is the Third International Joint Conference on Theory and Practice of Software Development held in Barcelona, Spain, March 13-17, 1989. The conference consissted of three parts: - Advanced Seminar on Foundations of Innovative Software Development - Colloquium on Trees in Algebra and Programming (CAAP '89) - Colloquium on Current Issues in Programming Languages (CCIPL) The TAPSOFT '89 Conference Proceedings are published in two volumes. The first volume includes the papers from CAAP plus the more theoretical ones of the invited papers. The second volume comprises the papers from CCIPL and the invited papers more relevant to current issues in programming languages.

The four-volume set LNCS 3043-3046 constitutes the refereed proceedings of the International Conference on Computational Science and its Applications, ICCSA 2004, held in Assisi, Italy in May 2004. The four volumes present a total of 460 revised reviewed papers selected from numerous submissions. The proceedings spans the whole range of computational science from foundational issues in computer science and mathematics to advanced applications in virtually all sciences making use of computational techniques. The four volumes give a unique account of recent results in the area.

This book presents four keynote speeches, eight invited papers and over a hundred papers selected from 180 submissions from more than 25 countries around the world. The contributions investigate applications of computational intelligence and multimedia in various areas, such as artificial intelligence, artificial neural networks, pattern recognition, evolutionary computations, logic synthesis, fuzzy logic, image processing, image retrieval, virtual reality, etc.

The papers included in this issue of ECS Transactions were originally presented in the symposium ¿Molten Salts and Ionic Liquids 16¿, held during the PRiME 2008 joint international meeting of The Electrochemical Society and The Electrochemical Society of Japan, with the technical cosponsorship of the Japan Society of Applied Physics, the Korean Electrochemical Society, the Electrochemistry Division of the Royal Australian Chemical Institute, and the Chinese Society of Electrochemistry. This meeting was held in Honolulu, Hawaii, from October 12 to 17, 2008.

This volume contains the proceedings of the 7th International Symposium on Functional and Logic Programming (FLOPS 2004), held in Nara, Japan, April 7-9, 2004 at the New Public Hall, Nara. FLOPS is a forum for research on all issues concerning functional programming and logic programming. In particular it aims to stimulate the cross-fertilization as well as the integration of the two paradigms. The previous FLOPS meetings took place in Fuji-Susono (1995), Shonan (1996), Kyoto (1998), Tsukuba (1999), Tokyo(2001)and Aizu (2002). The proceedings of FLOPS 1999,FLOPS 2001 and FLOPS 2002 were published by Springer-Verlag in the Lecture Notes in Computer Science series, as volumes 1722, 2024 and

2441, respectively. In response to the call for papers, 55 papers were submitted by authors from 1 Australia (1), Austria (1), Canada (1), China (4), Denmark (2), Estonia (), 2 1 1 France (3), Germany (4), Italy (1), Japan (15), the Netherlands (1), Oman 2 4 1 1 (1), Portugal (), Singapore (2), Spain (8), UK (3), and USA (6). Each paper 2 4 was reviewed by at least three program committee members with the help of expert external reviewers. The program committee meeting was conducted electronically for a period of 2 weeks in December 2003. After careful and thorough discussion, the program committee selected 18 papers (33%) for presentation at the conference. In addition to the 18 contributed papers, the symposium included talks by three invited speakers: Masami Hagiya (University of Tokyo), Carsten Schur · mann (Yale University), and Peter Selinger (University of Ottawa).

This volume contains the proceedings of a Polish/Czechoslovakian symposium on topics including parallel and distributed computing, software specification and development, logic and semantics of programs, algorithms, complexity and computability theory.

This book constitutes the refereed proceedings of the 7th International Conference on the Mathematics of Program Construction, MPC 2004, held in Stirling, Scotland, UK in July 2004. The 19 revised full papers presented were carefully reviewed and selected from 37 submissions. Among the topics addressed are programming theory, programming methodology, program specification, program transformation, programming paradigms, programming calculi, and programming language semantics. Logic programming synthesis and transformation are methods of deriving logic programs from their specifications and, where necessary, producing alternative but equivalent forms of a given program. The techniques involved in synthesis and transformation are extremely important as they allow the systematic construction of correct and efficient programs and have the potential to enhance current methods of software production. Transformation strategies are also being widely used in the field of logic program development. LOPSTR 91 was the first workshop to deal exclusively with both logic program synthesis and transformation and, as such, filled an obvious gap in the existing range of logic programming workshops. In attempting to cover the subject as comprehensively as possible, the workshop brought together researchers with an interest in all aspects of logic (including Horn Clause and first order logic) and all approaches to program synthesis and transformation. Logic Program Synthesis and Transformation provides a complete record of the workshop, with all the papers reproduced either in full or as extended abstracts. They cover a wide range of aspects, both practical and theoretical, including the use of mode input-output in program transformation, program specification and synthesis in constructive formal systems and a case study in formal program development in modular Prolog. This volume provides a comprehensive overview of current research and will be invaluable to researchers and postgraduate students who wish to enhance their understanding of logic programming techniques.

This volume contains the papers selected for presentation at the fifth European Symposium on Programming (ESOP '94), which was held jointly with the 19th Colloquium on Trees in Algebra and Programming (CAAP '94) in Edinburgh in April

1994. ESOP is devoted to fundamental issues in the specification, design and implementation of programming languages and systems. The scope of the symposium includes work on: software analysis, specification, transformation, development and verification/certification; programming paradigms (functional, logic, object-oriented, concurrent, etc.) and their combinations; programming language concepts, implementation techniques and semantics; software design methodologies; typing disciplines and typechecking algorithms; and programming support tools.

This volume constitutes the refereed proceedings of the 1993 Higher-Order Logic User's Group Workshop, held at the University of British Columbia in August 1993. The workshop was sponsored by the Centre for Integrated Computer System Research. It was the sixth in the series of annual international workshops dedicated to the topic of Higher-Order Logic theorem proving, its usage in the HOL system, and its applications. The volume contains 40 papers, including an invited paper by David Parnas, McMaster University, Canada, entitled "Some theorems we should prove".

Collects the Latest Research Involving the Application of Process Algebra to Computing Exploring state-of-the-art applications, Process Algebra for Parallel and Distributed Processing shows how one formal method of reasoning—process algebra—has become a powerful tool for solving design and implementation challenges of concurrent systems. Parallel Programming Divided into three parts, the book begins by parallelizing an algorithm for the Cell Broadband Engine processor of IBM, Sony, and Toshiba. It also develops a runtime environment that can be ported to different parallel platforms and describes the formal model of action systems. Distributed Systems The next part presents a process algebra (mCRL2) that targets distributed applications, looks at how to turn prose descriptions into unambiguous specifications, extends pi-calculus to create a service-oriented mobility abstract machine, and introduces the Channel Ambient Machine for mobile applications. Embedded Systems The final section combines state-based Z with the event-based process algebra CSP in a formal methodology called Circus. It also develops a pair of process algebras (PARS) to address the problem of scheduling in real-time embedded systems and emphasizes the reuse of concurrent artifacts across different hardware platforms. Highlighting recent research work, this volume addresses multicore programming problems and the evolution of the growing body of concurrency-enabled languages. It proposes solutions to the problems of designing and implementing today's concurrency-constrained multicore processor and cloud architectures.

A 1998 collection of original articles by leading researchers in area of programming languages.

This is the second volume of a collection of original and review articles on recent advances and new directions in a multifaceted and interconnected area of mathematics and its applications. It encompasses many topics in theoretical developments in operator theory and its diverse applications in applied mathematics, physics, engineering, and other disciplines. The purpose is to bring in one volume many important original results of cutting edge research as well as authoritative review of recent achievements, challenges, and future directions in the area of operator theory and its applications.

First multi-year cumulation covers six years: 1965-70.

"This book is offers an overview of the practices and the technologies that are shaping the knowledge production of the future"--Provided by publisher. Formal methods are coming of age. Mathematical techniques and tools are now regarded as an important part of the development process in a wide range of industrial and governmental organisations. A transfer of technology into the mainstream of systems development is slowly, but surely, taking place. FM'99, the First World Congress on Formal Methods in the Development of Computing Systems, is a result, and a measure, of this new-found maturity. It brings an impressive array of industrial and applications-oriented papers that show how formal methods have been used to tackle real problems. These proceedings are a record of the technical symposium ofFM'99:alo- side the papers describingapplicationsofformalmethods,youwill ndtechnical reports,papers,andabstracts detailing new advances in formaltechniques,from mathematical foundations to practical tools. The World Congress is the successor to the four Formal Methods Europe Symposia, which in turn succeeded the four VDM Europe Symposia. This s- cession re?ects an increasing openness within the international community of researchers and practitioners: papers were submitted covering a wide variety of formal methods and application areas. The programmecommittee re?ects the Congress's international nature, with a membership of 84 leading researchersfrom 38 di erent countries.The comm- tee was divided into 19 tracks, each with its own chair to oversee the reviewing process. Our collective task was a di cult one: there were 259 high-quality s- missions from 35 di erent countries.

This volume presents the latest research worldwide on communications protocols, emphasizing specification and compliance testing. It presents the complete proceedings of the fifteenth meeting on `Protocol Specification, Testing and Verification' arranged by the International Federation for Information Processing.

Process Algebra is a formal description technique for complex computer systems, especially those involving communicating, concurrently executing components. It is a subject that concurrently touches many topic areas of computer science and discrete math, including system design notations, logic, concurrency theory, specification and verification, operational semantics, algorithms, complexity theory, and, of course, algebra. This Handbook documents the fate of process algebra since its inception in the late 1970's to the present. It is intended to serve as a reference source for researchers, students, and system designers and engineers interested in either the theory of process algebra or in learning what process algebra brings to the table as a formal system description and verification technique. The Handbook is divided into six parts spanning a total of 19 self-contained Chapters. The organization is as follows. Part 1, consisting of four chapters, covers a broad swath of the basic theory of process algebra. Part 2 contains two chapters devoted to the sub-specialization of process algebra known as finite-state processes, while the three

chapters of Part 3 look at infinite-state processes, value-passing processes and mobile processes in particular. Part 4, also three chapters in length, explores several extensions to process algebra including real-time, probability and priority. The four chapters of Part 5 examine non-interleaving process algebras, while Part 6's three chapters address process-algebra tools and applications. Physical, safety and technological constraints suggest that control actuators can neither provide unlimited amplitude signals nor unlimited speed of reaction. The techniques described in this book are useful for industrial applications in aeronautical or space domains, and in the context of biological systems. Such methods are well suited for the development of tools that help engineers to solve analysis and synthesis problems of control systems with input and output constraints.

This book constitutes the refereed proceedings of the 25th International Conference on the Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2005, held in Hyderabad, India, in December 2005. The 38 revised full papers presented together with 7 invited papers were carefully reviewed and selected from 167 submissions. A broad variety of current topics from the theory of computing are addressed, ranging from software science, programming theory, systems design and analysis, formal methods, mathematical logic, mathematical foundations, discrete mathematics, combinatorial mathematics, complexity theory, and automata theory to theoretical computer science in general.

First published in 1998, this textbook is a broad but rigourous survey of the theoretical basis for the design, definition and implementation of programming languages and of systems for specifying and proving programme behaviour. Both imperative and functional programming are covered, as well as the ways of integrating these aspects into more general languages. Recognising a unity of technique beneath the diversity of research in programming languages, the author presents an integrated treatment of the basic principles of the subject. He identifies the relatively small number of concepts, such as compositional semantics, binding structure, domains, transition systems and inference rules, that serve as the foundation of the field. Assuming only knowledge of elementary programming and mathematics, this text is perfect for advanced undergraduate and beginning graduate courses in programming language theory and also will appeal to researchers and professionals in designing or implementing computer languages.

A formal method is not the main engine of a development process, its contribution is to improve system dependability by motivating formalisation where useful. This book summarizes the results of the DEPLOY research project on engineering methods for dependable systems through the industrial deployment of formal methods in software development. The applications considered were in automotive, aerospace, railway, and enterprise information systems, and microprocessor design. The project introduced a formal method, Event-B, into

several industrial organisations and built on the lessons learned to provide an ecosystem of better tools, documentation and support to help others to select and introduce rigorous systems engineering methods. The contributing authors report on these projects and the lessons learned. For the academic and research partners and the tool vendors, the project identified improvements required in the methods and supporting tools, while the industrial partners learned about the value of formal methods in general. A particular feature of the book is the frank assessment of the managerial and organisational challenges, the weaknesses in some current methods and supporting tools, and the ways in which they can be successfully overcome. The book will be of value to academic researchers, systems and software engineers developing critical systems, industrial managers, policymakers, and regulators.

Includes subject section, name section, and 1968-1970, technical reports. Software Engineer's Reference Book provides the fundamental principles and general approaches, contemporary information, and applications for developing the software of computer systems. The book is comprised of three main parts, an epilogue, and a comprehensive index. The first part covers the theory of computer science and relevant mathematics. Topics under this section include logic, set theory, Turing machines, theory of computation, and computational complexity. Part II is a discussion of software development methods, techniques and technology primarily based around a conventional view of the software life cycle. Topics discussed include methods such as CORE, SSADM, and SREM, and formal methods including VDM and Z. Attention is also given to other technical activities in the life cycle including testing and prototyping. The final part describes the techniques and standards which are relevant in producing particular classes of application. The text will be of great use to software engineers, software project managers, and students of computer science.

The Semantic Web is a Web defined and linked in a way that it can be used by machines not just for display purposes, but also for automation, integration and reuse of data across various applications. This work presents technologies that will enable the Semantic Web to become a reality.

"Sponsored by the Association for Computing Machinery, Special Interest Group on Programming Languages (SIGPLAN)."

In this fascinating journey to the edge of science, Vidal takes on big philosophical questions: Does our universe have a beginning and an end or is it cyclic? Are we alone in the universe? What is the role of intelligent life, if any, in cosmic evolution? Grounded in science and committed to philosophical rigor, this book presents an evolutionary worldview where the rise of intelligent life is not an accident, but may well be the key to unlocking the universe's deepest mysteries. Vidal shows how the fine-tuning controversy can be advanced with computer simulations. He also explores whether natural or artificial selection could hold on a cosmic scale. In perhaps his boldest hypothesis, he argues that signs of advanced extraterrestrial civilizations are already present in our astrophysical data. His conclusions invite us to see the meaning of life, evolution and intelligence from a novel cosmological framework that should stir debate

for years to come.

Der Arbeitskreis "Datenschutz und Datensicherung" des Präsidiums der Gesellschaft für In formatik sieht es als seine Aufgabe an, Probleme des Datenschutzes und der Datensicherung aus der Sicht der Informatik zu behandeln. Er hat in diesem Rahmen grundsätzliche Aus sagen zu diesen Themen unter besonderer Berücksichtigung der sich rasch entwickelnden In formationstechnologien erarbeitet und zu Entwürfen für Änderungen des Bundesdatenschutz gesetzes Stellung genommen. Aus dieser Tätigkeit heraus entstand der Plan zur Durchfüh rung einer Fachtagung mit dem Thema "Datenschutz und Datensicherung im Wandel der Informationstechnologien". Diese Tagung, deren Beiträge dieser Band enthält, findet am 30. und 31. Oktober 1985 im Rahmen der SYSTEMS 85 statt. Sie soll die Datenschutz- und Datensicherungs-Probleme, die mit den wachsenden technologischen Möglichkeiten entstehen, aus der Sicht der Informa tionstechnik beleuchten. Sie soll Methoden, Verfahren und Hilfsmittel aufzeigen, mit denen die Datenschutz- und Datensicherungs-Probleme konstruktiv einer Lösung näher gebracht werden können. Sie soll Anwender von Rechensystemen und Kommunikationsnetzen, Juristen und Informatiker dazu anregen, gemeinsam über Datenschutz- und Datensicherungs-Probleme nachzudenken und miteinander Lösungen dieser Probleme zu erarbeiten.

Cryptography is ubiquitous and plays a key role in ensuring data secrecy and integrity as well as in securing computer systems more broadly. Introduction to Modern Cryptography provides a rigorous yet accessible treatment of this fascinating subject. The authors introduce the core principles of modern cryptography, with an emphasis on formal defini

This book is a multi-disciplinary effort that involves world-wide experts from diverse fields, such as artificial intelligence, human computer interaction, information technology, data mining, statistics, adaptive user interfaces, decision support systems, marketing, and consumer behavior. It comprehensively covers the topic of recommender systems, which provide personalized recommendations of items or services to the new users based on their past behavior. Recommender system methods have been adapted to diverse applications including social networking, movie recommendation, query log mining, news recommendations, and computational advertising. This book synthesizes both fundamental and advanced topics of a research area that has now reached maturity. Recommendations in agricultural or healthcare domains and contexts, the context of a recommendation can be viewed as important side information that affects the recommendation goals. Different types of context such as temporal data, spatial data, social data, tagging data, and trustworthiness are explored. This book illustrates how this technology can support the user in decision-making, planning and purchasing processes in agricultural & healthcare sectors.

Robin Milner presents a unified structural theory for modelling networks of agents that is destined to have far-reaching significance.

This book constitutes the thoroughly refereed post-proceedings of the IST/FET International Workshop on Global Computing, GC 2004, held in Rovereto, Italy in March 2004. The 18 revised full papers presented were carefully selected during two rounds of reviewing and improvement from numerous submissions. Among the topics covered are programming environments, dynamic reconfiguration, resource guarantees, peer-to-peer networks, analysis of systems and resources, resource

sharing, and security, as well as foundational calculi for mobility.
This tutorial volume presents a coherent and well-balanced introduction to the validation of stochastic systems; it is based on a GI/Dagstuhl research seminar. Supervised by the seminar organizers and volume editors, established researchers in the area as well as graduate students put together a collection of articles competently covering all relevant issues in the area. The lectures are organized in topical sections on: modeling stochastic systems, model checking of stochastic systems, representing large state spaces, deductive verification of stochastic systems.

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