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**PROCEEDINGS OF THE 21ST CONFERENCE  
ON FORMAL METHODS IN COMPUTER-  
AIDED DESIGN - FMCAD 2021** - Michael W.

Whalen 2021-10-14

Our life is dominated by hardware: a USB stick,

the processor in our laptops or the SIM card in our smart phone. But who or what makes sure that these systems work stably, safely and securely from the word go? The computer - with a little help from humans. The overall name for

this is CAD (computer-aided design), and it's become hard to imagine our modern industrial world without it. So how can we be sure that the hardware and computer systems we use are reliable? By using formal methods: these are techniques and tools to calculate whether a system description is in itself consistent or whether requirements have been developed and implemented correctly. Or to put it another way: they can be used to check the safety and security of hardware and software. Just how this works in real life was also of interest at the annual conference on "Formal Methods in Computer-Aided Design (FMCAD)". Under the direction of Ruzica Piskac and Michael Whalen, the 21st Conference in October 2021 addressed the results of the latest research in the field of formal methods. A volume of conference proceedings with over 30 articles covering a wide range of formal methods has now been published for this online conference: starting from the verification of hardware, parallel and

distributed systems as well as neuronal networks, right through to machine learning and decision-making procedures. This volume provides a fascinating insight into revolutionary methods, technologies, theoretical results and tools for formal logic in computer systems and system developments.

Editorial: Towards Real World Impacts: Design, Development, and Deployment of Social Robots in the Wild - Chung Hyuk Park 2021-01-19

### **Applied Mechanics, Mechatronics and Intelligent Systems - Proceedings of the 2015 International Conference**

**(ammis2015)** - Shihong Qin 2015-12-08

This book consists of one hundred and twenty-five selected papers presented at the 2015 International Conference on Applied Mechanics, Mechatronics and Intelligent Systems (AMMIS2015), which was held in Nanjing, China during June 19-20, 2015. AMMIS2015 focuses on seven main areas, namely, applied mechanics,

control and automation, intelligent systems, computer technology, electronics engineering, electrical engineering, and materials science and technology. Experts in this field from all over the world contributed to the collection of research results and development activities. AMMIS2015 provides an excellent international exchange platform for researchers to share their development works and results in these areas. All papers selected for this proceeding were subjected to a rigorous peer-review process. *Validation of Dynamic Analyses of Dams and Their Equipment* - Jean-Jacques Fry 2018-06-27 *Validation of Dynamic Analyses of Dams and Their Equipment* is the outcome of a three year cooperation program between CFBR (Comite Francais des Barrages et Reservoirs or French Committee on Large dams) and JCOLD (Japan Commission on Large Dams), and focusses on the dynamic behavior of concrete and embankment dams analyzed based on acceleration records of the JCOLD data base.

The book covers a broad range of topics, including simplified and detailed methods of dynamic analysis for the seismic response of concrete and embankment dams compared with measured behavior. The response of embankment dams subjected to a 1.0 g foundation acceleration time history is computed by several analytical methods and compared. The modelling of stress-strain behavior of compacted soils for seismic stability analysis of earth-fill dams and its application for a failed earthfill dam is described. The cracking of the face slab of four faced rockfill dams during earthquakes is analyzed. The seismic behavior of concrete arch dams is discussed by the comparison of numerical and experimental results. Displacement-based seismic assessment of concrete dams is presented. Finally the book contains a comparison between the Japanese and French design criteria of gates and a comparison of the analysis of gates and field measurements. *Validation of Dynamic Analyses*

of Dams and Their Equipment will be useful to professional and academics involved or interested in dam engineering.

Designing with Objects - Avinash C. Kak  
2014-12-15

Here is a book that takes the sting out of learning object-oriented design patterns! Using vignettes from the fictional world of Harry Potter, author Avinash C. Kak provides a refreshing alternative to the typically abstract and dry object-oriented design literature. Designing with Objects is unique. It explains design patterns using the short-story medium instead of sterile examples. It is the third volume in a trilogy by Avinash C. Kak, following Programming with Objects (Wiley, 2003) and Scripting with Objects (Wiley, 2008). Designing with Objects confronts how difficult it is for students to learn complex patterns based on conventional scenarios that they may not be able to relate to. In contrast, it shows that stories from the fictional world of Harry Potter provide

highly relatable and engaging models. After explaining core notions in a pattern and its typical use in real-world applications, each chapter shows how a pattern can be mapped to a Harry Potter story. The next step is an explanation of the pattern through its Java implementation. The following patterns appear in three sections: Abstract Factory, Builder, Factory Method, Prototype, and Singleton; Adapter, Bridge, Composite, Decorator, Facade, Flyweight, and Proxy; and the Chain of Responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, State, Strategy, Template Method, and Visitor. For readers' use, Java code for each pattern is included in the book's companion website. All code examples in the book are available for download on a companion website with resources for readers and instructors. A refreshing alternative to the abstract and dry explanations of the object-oriented design patterns in much of the existing literature on the

subject. In 24 chapters, Designing with Objects explains well-known design patterns by relating them to stories from the fictional Harry Potter series

**Programming Languages and Systems** - Jan Vitek 2015-03-31

This book constitutes the proceedings of the 24th European Symposium on Programming, ESOP 2015, which took place in London, UK, in April 2015, held as Part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2015. The 33 papers presented in this volume were carefully reviewed and selected from 113 submissions.

**Software Engineering for Resilient Systems**

- Alexander Romanovsky 2017-08-18

This book constitutes the refereed proceedings of the International Workshop on Software Engineering for Resilient Systems, SERENE 2017, held in Geneva; Switzerland, in September 2017. The 11 papers presented together with 2 invited talks were carefully reviewed and

selected from 16 submissions. They cover the following areas: modeling and specification; safety and security; fault tolerance, resilience and robustness software.

Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems - Zhi Ning Chen 2021-05-18

Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems The first and only comprehensive text on substrate-integrated mmW antenna technology, state-of-the-art antenna design, and emerging wireless applications Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems elaborates the most important topics related to revolutionary millimeter-wave (mmW) technology. Following a clear description of fundamental concepts including substrate-integrated waveguides and loss analysis, the text treats key design methods, prototyping techniques, and experimental setup and testing.

The authors also highlight applications of mmW antennas in 5G wireless communication and next-generation radar systems. Readers are prepared to put techniques into practice through practical discussions of how to set up testing for impedance matching, radiation patterns, gain from 24GHz up to 325 GHz, and more. This book will bring readers state-of-the-art designs and recent progress in substrate-integrated mmW antennas for emerging wireless applications. Substrate-Integrated Millimeter-Wave Antennas for Next-Generation Communication and Radar Systems is the first comprehensive text on the topic, allowing readers to quickly master mmW technology. This book: Introduces basic concepts such as metamaterials Huygens's surface, zero-index structures, and pattern synthesis Describes prototyping in the form of fabrication based on printed-circuit-board, low-temperature-co-fired-ceramic and micromachining Explores applications for next-generation radar and imaging systems such as 24-GHz and 77-GHz

vehicular radar systems Elaborates design methods including waveguide-based feeding network, three-dimensional feeding structure, dielectric loaded aperture antenna element, and low-sidelobe synthesis The mmW is one of today's most important emerging technologies. This book provides graduate students, researchers, and engineers with the knowledge they need to deploy mmW systems and develop new antenna designs with low cost, low loss, and low complexity.

*Languages, Design Methods, and Tools for Electronic System Design* - Frank Oppenheimer  
2015-12-11

This book brings together a selection of the best papers from the seventeenth edition of the Forum on specification and Design Languages Conference (FDL), which took place on October 14-16, 2014, in Munich, Germany. FDL is a well-established international forum devoted to dissemination of research results, practical experiences and new ideas in the application of

specification, design and verification languages to the design, modeling and verification of integrated circuits, complex hardware/software embedded systems, and mixed-technology systems.

**Innovative Bridge Design Handbook** - Alessio Pipinato 2021-09-08

Innovative Bridge Design Handbook: Construction, Rehabilitation, and Maintenance, Second Edition, brings together the essentials of bridge engineering across design, assessment, research and construction. Written by an international group of experts, each chapter is divided into two parts: the first covers design issues, while the second presents current research into the innovative design approaches used across the world. This new edition includes new topics such as foot bridges, new materials in bridge engineering and soil-foundation structure interaction. All chapters have been updated to include the latest concepts in design, construction, and maintenance to reduce project

cost, increase structural safety, and maximize durability. Code and standard references have been updated. Completely revised and updated with the latest in bridge engineering and design Provides detailed design procedures for specific bridges with solved examples Presents structural analysis including numerical methods (FEM), dynamics, risk and reliability, and innovative structural typologies  
*Dependable Software Systems Engineering* - J. Esparza 2016-04-19

In the last few years we have all become daily users of Internet banking, social networks and cloud services. Preventing malfunctions in these services and protecting the integrity of private data from cyber attack are both current preoccupations of society at large. While modern technologies have dramatically improved the quality of software, the computer science community continues to address the problems of security by developing a theory of formal verification; a body of methodologies, algorithms

and software tools for finding and eliminating bugs and security hazards. This book presents lectures delivered at the NATO Advanced Study Institute (ASI) School Marktoberdorf 2015 - 'Verification and Synthesis of Correct and Secure Systems'. During this two-week summer school, held in Marktoberdorf, Germany, in August 2015, the lecturers provided a comprehensive view of the current state-of-the-art in a large variety of subjects, including: models and techniques for analyzing security protocols; parameterized verification; synthesis of reactive systems; software model checking; composition checking; programming by examples; verification of current software; two-player zero-sum games played on graphs; software security by information flow; equivalents - combinatorics; and analysis of synthesis with 'Big Code'. The Marktoberdorf ASIs have become a high-level scientific nucleus of the international scientific network on formal methods, and one of the major international

computer science summer schools. This book will be of interest to all those seeking an overview of current theories and applications in formal verification and security.

**Recent Trends in Design, Materials and Manufacturing** - Manvandra Kumar Singh  
2022-04-29

The book presents the select proceedings of the International Conference on Recent Advances in Design, Materials and Manufacturing (ICRADMM 2020). The topics covered include structural mechanics, kinematics and dynamics of machines, mechanical structures and stress analysis, noise and vibration analysis, fault detection and condition monitoring, optimization techniques, mechatronics & robotics, product design and development, tribology. The book also discusses various properties and performance attributes of modern-age design in mechanical engineering including their durability, workability, and carbon footprint. The book will be a valuable reference for researchers

and professionals interested in sustainable development in mechanical engineering design and allied fields.

PROCEEDINGS OF THE 20TH CONFERENCE ON FORMAL METHODS IN COMPUTER-AIDED DESIGN – FMCAD 2020 - Alexander Ivrii  
2020-09-11

Formal Methods in Computer-Aided Design (FMCAD) is a conference series on the theory and applications of formal methods in hardware and system verification. FMCAD provides a leading forum to researchers in academia and industry for presenting and discussing groundbreaking methods, technologies, theoretical results, and tools for reasoning formally about computing systems. FMCAD covers formal aspects of computer-aided system design including verification, specification, synthesis, and testing.

**Progress in Cryptology - INDOCRYPT 2020** - Karthikeyan Bhargavan 2021-01-08  
This book constitutes the refereed proceedings

of the 21st International Conference on Cryptology in India, INDOCRYPT 2020, held in Bangalore, India, in December 2020. The 39 full papers presented together with 3 invited abstracts in this book were carefully reviewed and selected from 84 submissions. Apart from its traditional focus on areas in applied and theoretical cryptology, this year INDOCRYPT solicited papers in the area of Formal Methods for Cryptographic Systems as well and much more.

**Operating System Design** - Douglas Comer  
2015-02-18

An Update of the Most Practical A-to-Z Operating System Book  
Widely lauded for avoiding the typical black box approach found in other operating system textbooks, the first edition of this bestselling book taught readers how an operating system works and explained how to build it from the ground up. Continuing to follow a logical pattern for system design  
*Verification, Model Checking, and Abstract*

*Interpretation* - Constantin Enea 2019-01-10

This book constitutes the refereed proceedings of the 20th International Conference on Verification, Model Checking, and Abstract Interpretation, VMCAI 2019, held in Cascais, Portugal, in January 2019. The 27 full papers presented together with the abstracts of 3 invited keynote talks were carefully reviewed and selected from 62 submissions. VMCAI provides topics including: program verification, model checking, abstract interpretation, program synthesis, static analysis, type systems, deductive methods, program certification, decision procedures, theorem proving, program certification, debugging techniques, program transformation, optimization, and hybrid and cyber-physical systems.

**Automated Reasoning** - Nicolas Peltier

2020-06-29

This two-volume set LNAI 12166 and 12167 constitutes the refereed proceedings of the 10th International Joint Conference on Automated

Reasoning, IJCAR 2020, held in Paris, France, in July 2020.\* In 2020, IJCAR was a merger of the following leading events, namely CADE (International Conference on Automated Deduction), FroCoS (International Symposium on Frontiers of Combining Systems), ITP (International Conference on Interactive Theorem Proving), and TABLEAUX (International Conference on Analytic Tableaux and Related Methods). The 46 full research papers, 5 short papers, and 11 system descriptions presented together with two invited talks were carefully reviewed and selected from 150 submissions. The papers focus on the following topics: Part I: SAT; SMT and QBF; decision procedures and combination of theories; superposition; proof procedures; non classical logics Part II: interactive theorem proving/ HOL; formalizations; verification; reasoning systems and tools \*The conference was held virtually due to the COVID-19 pandemic. Chapter 'A Fast Verified Liveness

Analysis in SSA Form' is available open access under a Creative Commons Attribution 4.0 International License via [link.springer.com](http://link.springer.com).  
*Low Grade Heat Driven Multi-Effect Distillation and Desalination* - Hui Tong Chua 2017-03-01  
Low Grade Heat Driven Multi-effect Distillation and Desalination describes the development of advanced multi-effect evaporation technologies that are driven by low grade sensible heat, including process waste heat in refineries, heat rejection from diesel generators or microturbines, and solar and geothermal energy. The technologies discussed can be applied to desalination in remote areas, purifying produced water in oil-and-gas industries, and to re-concentrate process liquor in refineries. This book is ideal for researchers, engineering scientists, graduate students, and industrial practitioners working in the desalination, petrochemical, and mineral refining sectors, helping them further understand the technologies and opportunities that relate to

their respective industries. For researchers and graduate students, the core enabling ideas in the book will provide insights and open up new horizons in thermal engineering. Focuses on advanced, yet practical, distillation technologies using low-grade sensible heat Explains the new design paradigm that must accompany the development of technologies Contains key experimental data that serves to prove the core concepts that underpin the new technologies Covers extensive thermo-economic analyses of the technologies, the price point for adoption, capital cost comparison with existing technologies, operating costs, and net present values

*Designing Effective Instruction* - Gary R. Morrison 2019-03-19

A guide to the information and practical skills for successful instructional design, revised and updated The updated eighth edition of *Designing Effective Instruction* offers educators an essential guide for designing effective and

efficient instruction that is exciting and interesting. The flexible model presented is based on research from many different disciplines. The authors—noted experts on the topic—draw on recent research that incorporates both behavioral and cognitive approaches into the model. The eighth edition highlights the fundamentals of instructional design that can help students develop a solid foundation in the design process. These basic skills can be adapted to a wide variety of settings, such as multimedia, classroom, business, health care, higher education, and distance-education instruction. This new edition has been revised to include information on the most recent research and trends. The book also contains a new section on the topic of lean instructional design. This new section discusses strategies to reduce time and resources for each step of the process. This important guide: Offers a review of the basic skills needed to create effective instruction Includes various features to

stimulate thinking and provides additional explanations Provides a real-world scenario in every chapter Presents exercises to test skills and knowledge Contains a quality management section to help conduct a quick quality check of the design project Written for instructional designers in business, military, medical, and government settings as well as to those in higher education and P-12 classrooms, *Designing Effective Instruction* is the proven resource for designing quality instruction that can motivate participants.

*Sense, Feel, Design* - Carmelo Ardito 2022-03-19

This book contains a series of revised papers selected from 7 workshops organized by 18th IFIP TC 13 International Conference on Human-Computer Interaction, INTERACT 2021, which was held in September 2021 in Bari, Italy. The 15 papers included in this volume were carefully reviewed and selected from 30 submissions. They show the design of interactive technologies addressing one or more United Nations'

Sustainable Development Goals, to deal with evolving contexts of use in today's and future application domains and its influence on human-centered socio-technical system design and development practice, share educational resources and approaches to support the process of teaching and learning HCI Engineering (HCI-E), share educational resources and approaches to support the process of teaching and learning HCI Engineering (HCI-E), and address and discuss geopolitical issues in Human-Computer Interaction as a field of knowledge and practice. Chapter "Extreme Citizen Science Contributions to the Sustainable Development Goals: Challenges and Opportunities for a Human-Centred Design Approach" is available open access under a Creative Commons Attribution 4.0 International License via [link.springer.com](http://link.springer.com).

**Designing the Digital Transformation -**

Alexander Maedche 2017-05-22

This book constitutes the proceedings of the

12th International Conference on Design Science Research in Information Systems and Technology, DESRIST 2017, held in May/June 2017 in Karlsruhe, Germany. The 25 full and 11 short papers presented in this volume were carefully reviewed and selected from 66 full and 19 short papers. The contributions are organized in topical sections named: DSR in business process management; DSR in human computer interaction; DSR in data science and business analytics; DSR in service science; methodological contributions; domain-specific DSR applications; emerging themes and new ideas; and products and prototypes.

**Guide to Automotive Connectivity and Cybersecurity -** Dietmar P.F. Möller 2019-04-03

This comprehensive text/reference presents an in-depth review of the state of the art of automotive connectivity and cybersecurity with regard to trends, technologies, innovations, and applications. The text describes the challenges of the global automotive market, clearly showing

where the multitude of innovative activities fit within the overall effort of cutting-edge automotive innovations, and provides an ideal framework for understanding the complexity of automotive connectivity and cybersecurity. Topics and features: discusses the automotive market, automotive research and development, and automotive electrical/electronic and software technology; examines connected cars and autonomous vehicles, and methodological approaches to cybersecurity to avoid cyber-attacks against vehicles; provides an overview on the automotive industry that introduces the trends driving the automotive industry towards smart mobility and autonomous driving; reviews automotive research and development, offering background on the complexity involved in developing new vehicle models; describes the technologies essential for the evolution of connected cars, such as cyber-physical systems and the Internet of Things; presents case studies on Car2Go and car sharing, car hailing and

ridesharing, connected parking, and advanced driver assistance systems; includes review questions and exercises at the end of each chapter. The insights offered by this practical guide will be of great value to graduate students, academic researchers and professionals in industry seeking to learn about the advanced methodologies in automotive connectivity and cybersecurity.

**Advances in Computers** - Ali R. Hurson  
2021-06-08

Advances in Computers, Volume 123 presents innovations in computer hardware, software, theory, design and applications, with this updated volume including new chapters on Downlink Resource Allocations of Satellite-Airborne-Terrestrial Networks Integration, Evaluating Software Testing Techniques: A Systematic Mapping Study, The Screening Phase in Systematic Reviews: Can we speed up the process?, A Survey on Cloud-Based Video Streaming Services, and User Behavior-

Ensemble Learning based Improving QoE Fairness in HTTP Adaptive Streaming over SDN approach. Contains novel subject matter that is relevant to computer science Includes the expertise of contributing authors Presents an easy to comprehend writing style

*Programming Logic and Design, Comprehensive*  
- Joyce Farrell 2014-02-01

This fully revised eighth edition of Joyce Farrell's PROGRAMMING LOGIC AND DESIGN: COMPREHENSIVE prepares student programmers for success by teaching them the fundamental principles of developing structured program logic. Widely used in foundational Programming courses, this popular text takes a unique, language-independent approach to programming, with a distinctive emphasis on modern conventions. Noted for its clear, concise writing style, the book eliminates highly technical jargon while introducing universal programming concepts and encouraging a strong programming style and logical thinking.

This edition's comprehensive approach prepares students for all programming situations with introductions to object-oriented concepts, UML diagrams, and databases. Quick Reference boxes, a feature new to this edition, provide concise explanations of important programming concepts. Each chapter now also contains a Maintenance Exercise, in which the student is presented with working logic that can be improved. In addition to each chapter's text-based Debugging Exercises, this edition now includes Flowchart Debugging Exercises as well. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

**Music and AI** - Alexandra Bonnici 2021-03-16

*Digital Design and Computer Architecture* -  
Sarah Harris 2015-04-09

Digital Design and Computer Architecture: ARM Edition covers the fundamentals of digital logic design and reinforces logic concepts through the

design of an ARM microprocessor. Combining an engaging and humorous writing style with an updated and hands-on approach to digital design, this book takes the reader from the fundamentals of digital logic to the actual design of an ARM processor. By the end of this book, readers will be able to build their own microprocessor and will have a top-to-bottom understanding of how it works. Beginning with digital logic gates and progressing to the design of combinational and sequential circuits, this book uses these fundamental building blocks as the basis for designing an ARM processor. SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD-based circuit design. The companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. This book will be a valuable resource for students taking a

course that combines digital logic and computer architecture or students taking a two-quarter sequence in digital logic and computer organization/architecture. Covers the fundamentals of digital logic design and reinforces logic concepts through the design of an ARM microprocessor. Features side-by-side examples of the two most prominent Hardware Description Languages (HDLs)—SystemVerilog and VHDL—which illustrate and compare the ways each can be used in the design of digital systems. Includes examples throughout the text that enhance the reader's understanding and retention of key concepts and techniques. The Companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. The Companion website also includes appendices covering practical digital design issues and C programming as well as links to CAD tools,

lecture slides, laboratory projects, and solutions to exercises.

*Computer Principles and Design in Verilog HDL* - Yamin Li 2015-06-30

Uses Verilog HDL to illustrate computer architecture and microprocessor design, allowing readers to readily simulate and adjust the operation of each design, and thus build industrially relevant skills Introduces the computer principles, computer design, and how to use Verilog HDL (Hardware Description Language) to implement the design Provides the skills for designing processor/arithmetical/cpu chips, including the unique application of Verilog HDL material for CPU (central processing unit) implementation Despite the many books on Verilog and computer architecture and microprocessor design, few, if any, use Verilog as a key tool in helping a student to understand these design techniques A companion website includes color figures, Verilog HDL codes, extra test benches not found in the book, and PDFs of

the figures and simulation waveforms for instructors

Verification, Model Checking, and Abstract Interpretation - Ahmed Bouajjani 2017-01-09

This book constitutes the refereed proceedings of the 18th International Conference on Verification, Model Checking, and Abstract Interpretation, VMCAI 2017, held in Paris, France, in January 2017. The 27 full papers together with 3 invited keynotes presented were carefully reviewed and selected from 60 submissions. VMCAI provides topics including: program verification, model checking, abstract interpretation and abstract domains, program synthesis, static analysis, type systems, deductive methods, program certification, debugging techniques, program transformation, optimization, hybrid and cyber-physical systems.

**C++ Programs to Accompany Programming Logic and Design** - Jo Ann Smith 2014-02-12

Learn how to transform program logic and design concepts into working programs with the

outstanding supplemental handbook, C++ PROGRAMS TO ACCOMPANY PROGRAMMING LOGIC AND DESIGN, 8E. Specifically designed to be paired with the latest edition of Joyce Farrell's highly successful and widely used textbook, PROGRAMMING LOGIC AND DESIGN, this innovative guide, developed by experienced industry practitioner Jo Ann Smith, combines the power of C++ with the popular, language-independent, logical approach of Farrell's text. The guide combines clear explanations of concepts and syntax with pseudocode, complete programming examples, numerous visuals, and real-world, business-related C++ code examples. Students practice concepts with both lab exercises and revised practice opportunities in each section. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

*PROCEEDINGS OF THE 22ND CONFERENCE ON FORMAL METHODS IN COMPUTER-AIDED*

*DESIGN - FMCAD 2022* - Alberto Griggio  
2022-10-12

The Conference on Formal Methods in Computer-Aided Design (FMCAD) is an annual conference on the theory and applications of formal methods in hardware and system in academia and industry for presenting and discussing groundbreaking methods, technologies, theoretical results, and tools for reasoning formally about computing systems. FMCAD covers formal aspects of computer-aided system testing.

Dark Silicon and Future On-chip Systems -  
2018-07-26

Dark Silicon and the Future of On-chip Systems, Volume 110, the latest release in the Advances in Computers series published since 1960, presents detailed coverage of innovations in computer hardware, software, theory, design and applications, with this release focusing on an Introduction to dark silicon and future processors, a Revisiting of processor allocation

and application mapping in future CMPs in the dark silicon era, Multi-objectivism in the dark silicon age, Dark silicon aware resource management for many-core systems, Dynamic power management for dark silicon multi-core processors, Topology specialization for networks-on-chip in the dark silicon era, and Emerging SRAM-based FPGA architectures. Provides in-depth surveys and tutorials on new computer technology Covers well-known authors and researchers in the field Presents extensive bibliographies with most chapters Includes volumes that are devoted to single themes or subfields of computer science, with this release focusing on Dark Silicon and Future On-chip Systems

**Computer Aided Verification** - Isil Dillig  
2019-01-01

The open access two-volume set LNCS 11561 and 11562 constitutes the refereed proceedings of the 31st International Conference on Computer Aided Verification, CAV 2019, held in

New York City, USA, in July 2019. The 52 full papers presented together with 13 tool papers and 2 case studies, were carefully reviewed and selected from 258 submissions. The papers were organized in the following topical sections: Part I: automata and timed systems; security and hyperproperties; synthesis; model checking; cyber-physical systems and machine learning; probabilistic systems, runtime techniques; dynamical, hybrid, and reactive systems; Part II: logics, decision procedures; and solvers; numerical programs; verification; distributed systems and networks; verification and invariants; and concurrency.

**Craft of Use** - Kate Fletcher 2016-02-26

This book explores the 'craft of use', the cultivated, ordinary and ingenious ideas and practices that promote satisfying and resourceful use of garments, presenting them as an alternative, dynamic, experiential frame with which to articulate and foster sustainability in the fashion sector. Here Kate Fletcher provides

a broad imagining of sustainability in fashion that gives attention to tending and wearing garments, and favours their use as much as their creation. She offers a diversified view of fashion beyond the market and the market's purpose and reveals fashion provision and expression in a world not dependent on continuous consumption. Framing design and use as a single whole, the book uncovers a more contingent and time-dependent role for design in sustainability, recognising that garments, while sold as a product, are lived as a process. Drawing from stories and portrait photography that document the ways in which members of the public from across three continents use their clothes, and the work of seven international design teams seeking to amplify these use practices, *Craft of Use* presents a changed social narrative for fashion, borne out of ideas of satisfaction and interdependence, of action, knowledge and human agency, that glimpses fashion post-growth.

[Design, Manufacturing And Mechatronics - Proceedings Of The 2015 International Conference \(Icdmm2015\) - Shahhosseini A Mehran 2015-09-23](#)

This book brings together one hundred and seventy nine selected papers presented at the 2015 International Conference on Design, Manufacturing and Mechatronics (ICDMM2015), which was successfully held in Wuhan, China during April 17-18, 2015. The ICDMM2015 covered a wide range of fundamental studies, technical innovations and industrial applications in advanced design and manufacturing technology, automation and control system, communication system and computer network, signal and image processing, data processing and intelligence system, applied material and material processing technology, power and energy, technology and methods for measure, test, detection and monitoring, applied mechatronics, technology and methods for ship navigation and safety, and other engineering

topics. All papers selected here were subjected to a rigorous peer-review process by at least two independent peers. The papers were selected based on innovation, organization, and quality of presentation. The proceedings should be a valuable reference for scientists, engineers and researchers interested in design, manufacturing and mechatronics, as well as graduate students working on related technologies.

### **Programming and Performance**

#### **Visualization Tools** - Abhinav Bhatele

2019-04-24

This book contains the revised selected papers of 4 workshops held in conjunction with the International Conference on High Performance Computing, Networking, Storage and Analysis (SC) in November 2017 in Denver, CO, USA, and in November 2018 in Dallas, TX, USA: the 6th and 7th International Workshop on Extreme-Scale Programming Tools, ESPT 2017 and ESPT 2018, and the 4th and 5th International Workshop on Visual Performance Analysis, VPA

2017 and VPA 2018. The 11 full papers of ESPT 2017 and ESPT 2018 and the 6 full papers of VPA 2017 and VPA 2018 were carefully reviewed and selected for inclusion in this book. The papers discuss the requirements for exascale-enabled tools as well as new approaches of applying visualization and visual analytic techniques to large-scale applications. Topics of interest include: programming tools; methodologies for performance engineering; tool technologies for extreme-scale challenges (e.g., scalability, resilience, power); tool support for accelerated architectures and large-scale multi-cores; tool infrastructures and environments; evolving/future application requirements for programming tools and technologies; application developer experiences with programming and performance tools; scalable displays of performance data; case studies demonstrating the use of performance visualization in practice; data models to enable scalable visualization; graph representation of unstructured

performance data; presentation of high-dimensional data; visual correlations between multiple data sources; human-computer interfaces for exploring performance data; and multi-scale representations of performance data for visual exploration.

Bilevel Optimization - Stephan Dempe

2020-11-23

2019 marked the 85th anniversary of Heinrich Freiherr von Stackelberg's habilitation thesis "Marktform und Gleichgewicht," which formed the roots of bilevel optimization. Research on the topic has grown tremendously since its introduction in the field of mathematical optimization. Besides the substantial advances that have been made from the perspective of game theory, many sub-fields of bilevel optimization have emerged concerning optimal control, multiobjective optimization, energy and electricity markets, management science, security and many more. Each chapter of this book covers a specific aspect of bilevel

optimization that has grown significantly or holds great potential to grow, and was written by top experts in the corresponding area. In other words, unlike other works on the subject, this book consists of surveys of different topics on bilevel optimization. Hence, it can serve as a point of departure for students and researchers beginning their research journey or pursuing related projects. It also provides a unique opportunity for experienced researchers in the field to learn about the progress made so far and directions that warrant further investigation. All chapters have been peer-reviewed by experts on mathematical optimization.

**C# Programming: From Problem Analysis to Program Design** - Barbara Doyle 2015-06-30

Respected author Dr. Barbara Doyle admirably balances programming principles and concepts with practical coding skill to create a strong professional foundation for beginning programmers in her latest edition of C# PROGRAMMING: FROM PROBLEM ANALYSIS

TO PROGRAM DESIGN. This 5th edition's straightforward approach and understandable vocabulary make it easy for readers to grasp new programming concepts without distraction. The book introduces a variety of fundamental programming concepts, from data types and expressions to arrays and collections, all using the latest version of today's popular C# language. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

*Design Solutions for Adaptive Hypermedia Listening Software* - Turel, Vehbi 2021-06-18  
Adaptive hypermedia listening software enables materials writers to combine and deliver a wide range of digital elements on the same digital computer platform more efficiently. Such a combination and delivery provides a multidimensional, multi-sensory digital environment in which rich, efficient, instant, comprehensible, optimum, and meaningful input

and feedback can be presented effectively and efficiently. Moreover, language learners' attention can be drawn to forms and meanings in input. Such aspects correspond with different theories and hypotheses of language learning and teaching. This presents users/learners with an environment that is easy to use, tension-free, and optimal during self-study. However, to be able to design and develop cost effective and professional adaptive hypermedia listening software, there are certain scientific educational findings and implications that need to be implemented at every single stage. To have access to such vital findings is not so easy, and research must address this area. *Design Solutions for Adaptive Hypermedia Listening Software* explores how to design and create technically and pedagogically sound and efficient interactive adaptive hypermedia listening software for language learners in any language. The chapters will cover learner strategy tools, the effectiveness of this

technology, best practices in adaptive hypermedia listening software, and the benefits and challenges of this technology for language learning. It is ideal for companies, institutions, teachers, policymakers, academicians, researchers, advanced-level students, technology developers, and decision-making pertinent government officials interested in designing and developing multimedia listening environments for language learners.

*Modeling and Design of Secure Internet of Things* - Charles A. Kamhoua 2020-08-04

An essential guide to the modeling and design techniques for securing systems that utilize the Internet of Things *Modeling and Design of Secure Internet of Things* offers a guide to the underlying foundations of modeling secure Internet of Things' (IoT) techniques. The contributors—*noted experts on the topic*—also include information on practical design issues that are relevant for application in the commercial and military domains. They also

present several attack surfaces in IoT and secure solutions that need to be developed to reach their full potential. The book offers material on security analysis to help with in understanding and quantifying the impact of the new attack surfaces introduced by IoT deployments. The authors explore a wide range of themes including: modeling techniques to secure IoT, game theoretic models, cyber deception models, moving target defense models, adversarial machine learning models in military and commercial domains, and empirical validation of IoT platforms. This important book: Presents information on game-theory analysis of cyber deception Includes cutting-edge research finding such as IoT in the battlefield, advanced persistent threats, and intelligent and rapid honeynet generation Contains contributions from an international panel of experts Addresses design issues in developing secure IoT including secure SDN-based network orchestration, networked device identity management, multi-

domain battlefield settings, and smart cities  
Written for researchers and experts in computer science and engineering, Modeling and Design of Secure Internet of Things contains expert contributions to provide the most recent modeling and design techniques for securing systems that utilize Internet of Things.

### **Research Infrastructures for Hardware**

**Accelerators** - Yakun Sophia Shao 2015-11-01  
Hardware acceleration in the form of customized datapath and control circuitry tuned to specific applications has gained popularity for its promise to utilize transistors more efficiently. Historically, the computer architecture

community has focused on general-purpose processors, and extensive research infrastructure has been developed to support research efforts in this domain. Envisioning future computing systems with a diverse set of general-purpose cores and accelerators, computer architects must add accelerator-related research infrastructures to their toolboxes to explore future heterogeneous systems. This book serves as a primer for the field, as an overview of the vast literature on accelerator architectures and their design flows, and as a resource guidebook for researchers working in related areas.