Simulink Hochschule Augsburg

This book constitutes the refereed proceedings of the 8th International Conference on Ubiquitous Intelligence and Computing, UIC 2010, held in Banff, Canada, September 2011. The 44 papers presented together with two keynote speeches were carefully reviewed and selected from numerous submissions. The papers address all current issues in smart systems and services, smart objects and environments, cloud and services computing, security, privacy and trustworthy, P2P, WSN and ad hoc networks, and ubiquitous intelligent algorithms and applications.

Das neue Standardwerk für weiterführende Vorlesungen zur Regelungstechnik. Der Leser findet eine anschauliche Einführung in die Gebiete Mehrgrößenregelung, Digitale Regelung und Fuzzy-Regelung. Zum selbständigen Erarbeiten des Lehrstoffes dienen viele durchgerechnete Beispiele und Aufgaben mit Lösungen.

The 8th IFIP Workshop on Software Technologies for Embedded and Ubiq- tous Systems (SEUS 2010) in Waidhofen/Ybbs, Austria, October 13-15, 2010, succeeded the seven previous workshops in Newport Beach, USA (2009); Capri, Italy (2008); Santorini, Greece (2007); Gyeongju, Korea (2006); Seattle, USA (2005); Vienna, Austria (2004); and Hokodate, Japan (2003); installing SEUS as a successfully established workshop in the ?eld of embedded and ubiquitous systems. SEUS 2010 continued the tradition of fostering cross-community scienti?c excellence and establishing

strong links between research and industry. SEUS 2010 provided a forum where researchers and practitioners with substantial - periences and serious interests in advancing the state of the art and the state of practice in the ?eld of embedded and ubiquitous computing systems gathered with the goal of fostering new ideas, collaborations, and technologies. The c- tributions in this volume present advances in integrating the ?elds of embedded computing and ubiquitous systems. The call for papers attracted 30 submissions from all around the world. Each submission was assigned to at least four members of the Program Committee for review. The Program Committee decided to accept 21 papers, which were arranged in eight sessions. The accepted papers are from Austria, Denmark, France, Germany, Italy, Japan, Korea, Portugal, Taiwan, UK, and USA. Two keynotes complemented the strong technical program. This title investigate what is known and what is not known about suitable environmental conditions for cultural heritage collections.

This book constitutes thoroughly revised and selected papers from the Third International Conference on Model-Driven Engineering and Software Development, MODELSWARD 2015, held in Angers, France, in February 2015. The 25 thoroughly revised and extended papers presented in this volume were carefully reviewed and selected from 94 submissions. They are organized in topical sections named: invited papers; modeling languages, tools and architectures; methodologies, processes and platforms; applications and software development.

Dieses Lehrbuch zeigt an einfachen und nachvollziehbaren Beispielen, wie der Simulationsprozess Schritt für Schritt erfolgreich durchgeführt werden kann. Aber auch speziellere tiefergehende Themen aus den Bereichen Mechanik, Hydraulik und Elektrik werden behandelt und bringen einen starken Praxisbezug. Auch die Frage, wie man Simulation in einen modernen Entwicklungsprozess integrieren kann, wird beantwortet. Zahlreiche Beispiele in Form von Modellen für das weit verbreitete Simulationsprogramm MATLAB®/Simulink® ermöglichen ein Selbststudium.

Parallel manipulators are characterized as having closed-loop kinematic chains. Compared to serial manipulators, which have open-ended structure, parallel manipulators have many advantages in terms of accuracy, rigidity and ability to manipulate heavy loads. Therefore, they have been getting many attentions in astronomy to flight simulators and especially in machine-tool industries.The aim of this book is to provide an overview of the state-of-art, to present new ideas, original results and practical experiences in parallel manipulators. This book mainly introduces advanced kinematic and dynamic analysis methods and cutting edge control technologies for parallel manipulators. Even though this book only contains several samples of research activities on parallel manipulators, I believe this book can give an idea to the reader about what has been done in the field recently, and what kind of open problems are in this area.

Contains results not yet published in technical journals

and conference proceedings.
The wide availability of digital educational resources for mathematics teaching and learning is indisputable, with some notable genres of technologies having evolved, such as graphing calculators, dynamic graphing, dynamic geometry and data visualization tools. But what does this mean for teachers of mathematics, and how do their roles evolve within this digital landscape? This essential book offers an international perspective to help bridge theory and practice, including coverage of networking theories, curriculum design, task implementation, online resources and assessment. Mathematics Education in the Digital Age details the impacts this digital age has, and will continue to have, on the parallel aspects of learning and teaching mathematics within formal education systems and settings. Written by a group of international authors, the chapters address the following themes: Mathematics teacher education and professional development Mathematics curriculum development and task design The assessment of mathematics Theoretical perspectives and methodologies/approaches for researching mathematics education in the digital age This book highlights not only the complex nature of the field, but also the advancements in theoretical and practical knowledge that is enabling the mathematics education community to continue to learn in this increasingly digital age. It is an essential read for all mathematics teacher educators and master teachers. This volume represents the proceedings of the First International Conference on S- tainability in Energy and

Buildings, SEB'09, held in the City of Brighton and Hove in the United Kingdom, organised by KES International with the assistance of the World Renewable Energy Congress / Network, and hosted by the University of Brighton. KES International is a knowledge transfer organisation providing high-quality c- ference events and publishing opportunities for researchers. The KES association is a community consisting of several thousand research scientists and engineers who p- ticipate in KES activities. For over a decade KES has been a leader in the area of Knowledge Based and Intelligent information and Engineering Systems. Now KES is starting to make a contribution in the area of Sustainability and Renewable Energy with this first conference specifically on renewable energy and its application to - mestic and other buildings. Sustainability in energy and buildings is a topic of - creasing interest and importance on the world agenda. We therefore hope and intend that this first SEB event may grow and evolve into a conference series. KES International is a member of the World Renewable Energy Congress / N- work which is Chaired by Professor Ali Sayigh. We are grateful to Professor Sayigh for the collaboration and assistance of WREC/N in the organisation of SEB'09. We hope to continue to work with WREC/N in the future on projects of common interest.

This book constitutes the refereed proceedings of the 4th International Conference on Simulation, Modeling, and Programming for Autonomous Robots, SIMPAR 2014, held in Bergamo, Italy, in October 2014. The 49 revised full papers presented were carefully reviewed and

selected from 62 submissions. The papers are organized in topical sections on simulation, modeling, programming, architectures, methods and tools, and systems and applications.
Dieses Lehrbuch zeigt an einfachen und nachvollziehbaren Beispielen, wie der Simulationsprozess Schritt für Schritt erfolgreich durchgeführt werden kann. Aber auch speziellere tiefergehende Themen aus den Bereichen Mechanik, Hydraulik und Elektrik werden behandelt und bringen einen starken Praxisbezug. Auch die Frage, wie man Simulation in einen modernen Entwicklungsprozess integrieren kann, wird beantwortet. Zahlreiche Beispiele in Form von Modellen für das weit verbreitete Simulationsprogramm MATLAB®/Simulink® ermöglichen ein Selbststudium. Die vorliegende Auflage enthält neue Übungen und Aufgaben zum Thema Physikalische Modellierung.
This text covers the design of food processing equipment based on key unit operations, such as heating, cooling, and drying. In addition, mechanical processing operations such as separations, transport, storage, and packaging of food materials, as well as an introduction to food processes and food processing plants are discussed. Handbook of Food Processing Equipment is an essential reference for food engineers and food technologists working in the food process industries, as well as for designers of process plants. The book also serves as a basic reference for food process engineering students.The chapters cover engineering and economic issues for all important steps in food processing. This

research is based on the physical properties of food, the analytical expressions of transport phenomena, and the description of typical equipment used in food processing. Illustrations that explain the structure and operation of industrial food processing equipment are presented. style="font-size: 13.3333330154419px;">The materials of construction and fabrication of food processing equipment are covered here, as well as the selection of the appropriate equipment for various food processing operations. Mechanical processing equipment such as size reduction, size enlargement, homogenization, and mixing are discussed. Mechanical separations equipment such as filters, centrifuges, presses, and solids/air systems, plus equipment for industrial food processing such as heat transfer, evaporation, dehydration, refrigeration, freezing, thermal processing, and dehydration, are presented. Equipment for novel food processes such as high pressure processing, are discussed. The appendices include conversion of units, selected thermophysical properties, plant utilities, and an extensive list of manufacturers and suppliers of food equipment.
Essential reading for experts in the field of RF circuit design and engineers needing a good reference. This book provides complete design procedures for multiple-pole Butterworth, Chebyshev, and Bessel filters. It also covers capacitors, inductors, and other components with their behavior at RF frequencies discussed in detail. Provides complete design procedures for multiple-pole Butterworth, Chebyshev, and Bessel filters Covers capacitors, inductors, and other components with their

behavior at RF frequencies discussed in detail
SysML does not provide explicit built-in language
constructs to model variants. Nevertheless SysML is
useful to create a model for variants. The VAMOS
method presented in the book Variant Modeling with
SysML is one option how to model variants with SysML.
Multiphysics Modeling Using COMSOL® rapidly
introduces the senior level undergraduate, graduate or
professional scientist or engineer to the art and science
of computerized modeling for physical systems and
devices. It offers a step-by-step modeling methodology
through examples that are linked to the Fundamental
Laws of Physics through a First Principles Analysis
approach. The text explores a breadth of multiphysics
models in coordinate systems that range from 1D to 3D
and introduces the readers to the numerical analysis
modeling techniques employed in the COMSOL®
Multiphysics® software. After readers have built and run
the examples, they will have a much firmer
understanding of the concepts, skills, and benefits
acquired from the use of computerized modeling
techniques to solve their current technological problems
and to explore new areas of application for their
particular technological areas of interest.
Dieses Lehrbuch führt grundlegend in die
Programmierumgebung MATLAB® ein und zeigt, wie damit
effektiv die numerische sowie symbolische Berechnung und
Visualisierung zur Lösung von Fragestellungen aus dem
Maschinenbau eingesetzt werden kann. Dabei stehen die
mathematische und physikalische Modellbildung sowie die
Berechnung und Simulation dynamischer Systeme im
Vordergrund. Anwendungsbeispiele aus den Bereichen

Maschinendynamik, Schwingungslehre und Mechatronik erleichtern das Verstehen. In der aktuellen Auflage wurden noch zusätzliche Beispiele aufgenommen und bestehendes Material mit einer aktuellen Programmversion überarbeitet. Programme und weitere Übungen zu den einzelnen Kapiteln sind auf der Verlagshomepage beim Buch zu finden.

In recent years, a considerable amount of effort has been devoted, both in industry and academia, to the development, validation and verification of critical systems, i.e. those systems whose malfunctions or failures reach a critical level both in terms of risks to human life as well as having a large economic impact. Certifications of Critical Systems - The CECRIS Experience documents the main insights on Cost Effective Verification and Validation processes that were gained during work in the European Research Project CECRIS (Certification of Critical Systems). The objective of the research was to tackle the challenges of certification by focusing on those aspects that turn out to be more difficult/important for current and future critical systems industry: the effective use of methodologies, processes and tools. Starting from both the scientific and industrial state of the art methodologies for system development and the impact of their usage on the verification and validation and certification of critical systems, the project aimed at developing strategies and techniques supported by automatic or semi-automatic tools and methods for these activities, setting guidelines to support engineers during the planning of the verification and validation phases.

Im technisch-naturwissenschaftlichen Bereich können zahlreiche Fragestellungen mittels gewöhnlicher Differentialgleichungen beantwortet werden. Für die grafische Darstellung entsprechender Lösungskurven verwendet die Autorin MatLab, so dass dem Leser anschaulich demonstriert werden kann, wie sich Modifikationen in den Gleichungen

auswirken.

Although the overall appearance of modern airliners has not changed a lot since the introduction of jetliners in the 1950s, their safety, efficiency and environmental friendliness have improved considerably. Main contributors to this have been gas turbine engine technology, advanced materials, computational aerodynamics, advanced structural analysis and on-board systems. Since aircraft design became a highly multidisciplinary activity, the development of multidisciplinary optimization (MDO) has become a popular new discipline. Despite this, the application of MDO during the conceptual design phase is not yet widespread. Advanced Aircraft Design: Conceptual Design, Analysis and Optimization of Subsonic Civil Airplanes presents a quasi-analytical optimization approach based on a concise set of sizing equations. Objectives are aerodynamic efficiency, mission fuel, empty weight and maximum takeoff weight. Independent design variables studied include design cruise altitude, wing area and span and thrust or power loading. Principal features of integrated concepts such as the blended wing and body and highly non-planar wings are also covered. The quasi-analytical approach enables designers to compare the results of high-fidelity MDO optimization with lower-fidelity methods which need far less computational effort. Another advantage to this approach is that it can provide answers to "what if" questions rapidly and with little computational cost. Key features: Presents a new fundamental vision on conceptual airplane design optimization Provides an overview of advanced technologies for propulsion and reducing aerodynamic drag Offers insight into the derivation of design sensitivity information Emphasizes design based on first principles Considers pros and cons of innovative configurations Reconsiders optimum cruise performance at transonic Mach numbers Advanced Aircraft Design:

Conceptual Design, Analysis and Optimization of Subsonic Civil Airplanes advances understanding of the initial optimization of civil airplanes and is a must-have reference for aerospace engineering students, applied researchers, aircraft design engineers and analysts.

This book sheds light on the emerging research trends in intelligent systems and their applications. It mainly focuses on three different themes, including software engineering, ICT in education, and management information systems. Each chapter contributes to the aforementioned themes by discussing the recent design, developments, and modifications of intelligent systems and their applications.

This book constitutes thoroughly revised and selected papers from the 8th International Conference on Model-Driven Engineering and Software Development, MODELSWARD 2020, held in Valletta, Malta, in February 2020. The 15 revised and extended papers presented in this volume were carefully reviewed and selected from 66 submissions. They present recent research results and development activities in using models and model driven engineering techniques for software development. The papers are organized in topical sections on? methodologies, processes and platforms; applications and software development; modeling languages, tools and architectures.

This book develops the core system science needed to enable the development of a complex industrial internet of things/manufacturing cyber-physical systems (IIoT/M-CPS). Gathering contributions from leading experts in the field with years of experience in advancing manufacturing, it fosters a research community committed to advancing research and education in IIoT/M-CPS and to translating applicable science and technology into engineering practice. Presenting the current state of IIoT and the concept of cybermanufacturing, this book is at the nexus of research advances from the

engineering and computer and information science domains. Readers will acquire the core system science needed to transform to cybermanufacturing that spans the full spectrum from ideation to physical realization.

Covering fractional order theory, simulation and experiments,this book explains how fractional order modelling and fractionalorder controller design compares favourably with traditionalvelocity and position control systems. The authors systematicallycompare the two approaches using applied fractional calculus.Stability theory in fractional order controllers design is alsoanalysed. Presents material suitable for a variety of real-worldapplications, including hard disk drives, vehicular controls, robotcontrol and micropositioners in DNA microarray analysis Includes extensive experimental results from both lab benchlevel tests and industrial level, mass-production-readyimplementations Covers detailed derivations and numerical simulations for eachcase Discusses feasible design specifications, ideal for practicingengineers The book also covers key topics including: fractional orderdisturbance cancellation and adaptive learning control studies forexternal disturbances; optimization approaches for nonlinear systemcontrol and design schemes with backlash and friction.Illustrations and experimental validations are included for each ofthe proposed control schemes to enable readers to develop a clearunderstanding of the approaches covered, and move on to apply themin real-world scenarios.

This volume features 29 invited papers presented at the Royal Society of Edinburgh on 1-2 July 2008 by colleagues, collaborators, students and friends of Professor J. Michael Rotter (FREng, FRSE, FICE, FASCE, FIStructE, FIEAust) in honour of his 60th birthday.The articles published in this volume will be of great value to readers as it contains con Space exploration is an immense and expanding field. The

quest for knowledge about space has resulted in hundreds of very important technologies which have been incorporated into society's fabric including the biomedical field. This book examines a multitude of issues related to space exploration including philosophy, biology, dark energy, space tourism, space station measurements, supernova, and Saturn's rings. Simulation mechatronischer SystemeGrundlagen und Beispiele für MATLAB® und Simulink®Springer-Verlag A comprehensive tutorial on photovoltaic technology now fully updated to include solar storage and the latest methods for on-site plant measurements Starting with the basic principles of solar energy, this fully updated, practical text explains the fundamentals of semiconductor physics and the structure and functioning of the solar cell. It describes the latest measurement techniques for solar modules, and the planning and operation of grid-connected and off-grid PV systems. It also looks at other thin film cells, hybrid wafer cells, and concentrator systems. Additionally, this Second Edition covers solar modules and solar generators; system technology of grid connected plants; the storage of solar energy; photovoltaic measurement technology; the planning and operation of grid-connected systems; economic efficiency of PV systems; and the future development of PV. Presents the latest advances in PV R&D and industry deployment Updated illustrations and tabular data reflect current state-of-the-art and PV technology efficiencies Offers expanded tutorial sections to aid teaching and self-study Includes a brand-new chapter on Solar Energy Storage Features two enlarged chapters—one on up-to-date photovoltaic metrology and the other on the future developments in photovoltaics Comes along with the accompanying website www.textbook-pv.org which offers free downloadable figures of the book, solutions of exercises, additional free PV software etc. Developed to prepare engineering students for the PV

industry, this practical text is an essential PV primer. Although parallel robots are known to offer many advantages with respect to accuracy, dynamics, and stiffness, major breakthroughs in industrial applications have not yet taken place. This is due to a knowledge gap preventing fast and precise execution of industrial handling and assembly tasks. This book focuses on the design, modeling, and control of innovative parallel structures as well as the integration of novel machine elements. Special attention is paid to the integration of active components into lightweight links and passive joints. In addition, new control concepts are introduced to minimize structural vibrations. Although the optimization of robot systems itself allows a reduction of cycle times, these can be further decreased by improved path planning, robot programming, and automated assembly planning concepts described by 25 contributions within this book. The content of this volume is subdivided into four main parts dealing with Modeling and Design, System Implementation, Control and Programming as well as Adaptronics and Components. This book is aimed at researchers and postgraduates working in the field of parallel robots as well as practicing engineers dealing with industrial robot development and robotic applications. PRINCIPLES OF MODERN DIGITAL DESIGN FROM UNDERLYING PRINCIPLES TO IMPLEMENTATION—A THOROUGH INTRODUCTION TO DIGITAL LOGIC DESIGN With this book, readers discover the connection between logic design principles and theory and the logic design and optimization techniques used in practice. Therefore, they not only learn how to implement current design techniques, but also how these techniques were developed and why they work. With a deeper understanding of the underlying principles, readers become better problem-solvers when faced with new and difficult digital design challenges.

Principles of Modern Digital Design begins with an examination of number systems and binary code followed by the fundamental concepts of digital logic. Next, readers advance to combinational logic design. Armed with this foundation, they are then introduced to VHDL, a powerful language used to describe the function of digital circuits and systems. All the major topics needed for a thorough understanding of modern digital design are presented, including: Fundamentals of synchronous sequential circuits and synchronous sequential circuit design Combinational logic design using VHDL Counter design Sequential circuit design using VHDL Asynchronous sequential circuits VHDL-based logic design examples are provided throughout the book to illustrate both the underlying principles and practical design applications. Each chapter is followed by exercises that enable readers to put their skills into practice by solving realistic digital design problems. An accompanying website with Quartus II software enables readers to replicate the book's examples and perform the exercises. This book can be used for either a two- or one-semester course for undergraduate students in electrical and computer engineering and computer science. Its thorough explanation of theory, coupled with examples and exercises, enables both students and practitioners to master and implement modern digital design techniques with confidence.
The book includes contributions on the latest model-based methods for the development of personal and commercial vehicle control devices. The main topics treated are: application of simulation and model design to development of driver assistance systems; physical and database model design for engines, motors, powertrain, undercarriage and the whole vehicle; new simulation tools, methods and optimization processes; applications of simulation in function and software development; function and software testing

using HiL, MiL and SiL simulation; application of simulation and optimization in application of control devices; automation approaches at all stages of the development process.
This book covers all aspects of supercharging internal combustion engines. It details charging systems and components, the theoretical basic relations between engines and charging systems, as well as layout and evaluation criteria for best interaction. Coverage also describes recent experiences in design and development of supercharging systems, improved graphical presentations, and most advanced calculation and simulation tools.
Das Lehrbuch präsentiert ausführlich und durch viele Beispiele veranschaulicht den Einsatz von MATLAB und Simulink zur Darstellung und Berechnung in der Signalverarbeitung. Einen besonderen Schwerpunkt stellt dabei das Kernthema Filterung dar. Komprimiert werden auch die notwendigen Grundlagen für die allgemeine Arbeit mit der Software MATLAB und Simulink geboten. Die anwendungsorientierten Experimente, die beschrieben werden und immer auch grafisch dargestellt sind, behandeln die Analyse und Synthese analoger Filter, die Entwicklung digitaler Filter mit Hilfe klassischer als auch spezieller Entwicklungsverfahren, die Multiraten-Signalverarbeitung mit Polyphasenfiltern, Multiratenfilterbänken, CIC und IFIR-Filtern und zuletzt den Einsatz adaptiver Filter. Dabei wird die Verwendung der Werkzeuge der MATLAB-Toolboxen Schritt für Schritt erklärt, Programmcodes

werden wiedergegeben und auch der mathematische Hintergrund der Berechnungen wird beleuchtet.

This book constitutes the proceedings of the International Conference on Research and Education in Robotics, EUROBOT 2011, held in Prague, Czech Republic, in June 2011. The 28 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers present current basic research such as robot control and behaviour, applications of autonomous intelligent robots, and perception, processing and action; as well as educationally oriented papers addressing issues like robotics at school and at university, practical educational robotics activities, practices in educational robot design, and future pedagogical activities.

"Having been born a freeman, and for more than thirty years enjoyed the blessings of liberty in a free State—and having at the end of that time been kidnapped and sold into Slavery, where I remained, until happily rescued in the month of January, 1853, after a bondage of twelve years—it has been suggested that an account of my life and fortunes would not be uninteresting to the public." -an excerpt Commercial development of energy from renewables and nuclear is critical to long-term industry and environmental goals. However, it will take time for them to economically compete with existing fossil

fuel energy resources and their infrastructures. Gas fuels play an important role during and beyond this transition away from fossil fuel dominance to a balanced approach to fossil, nuclear, and renewable energies. Chemical Energy from Natural and Synthetic Gas illustrates this point by examining the many roles of natural and synthetic gas in the energy and fuel industry, addressing it as both a "transition" and "end game" fuel. The book describes various types of gaseous fuels and how are they are recovered, purified, and converted to liquid fuels and electricity generation and used for other static and mobile applications. It emphasizes methane, syngas, and hydrogen as fuels, although other volatile hydrocarbons are considered. It also covers storage and transportation infrastructure for natural gas and hydrogen and methods and processes for cleaning and reforming synthetic gas. The book also deals applications, such as the use of natural gas in power production in power plants, engines, turbines, and vehicle needs. Presents a unified and collective look at gas in the energy and fuel industry, addressing it as both a "transition" and "end game" fuel. Emphasizes methane, syngas, and hydrogen as fuels. Covers gas storage and transport infrastructure. Discusses thermal gasification, gas reforming, processing, purification and upgrading. Describes biogas and bio-hydrogen production. Deals with the use of natural gas in power

production in power plants, engines, turbines, and vehicle needs.

A hands-on, applications-based approach to the design and analysis of commonly used centrifugal pumps Centrifugal Pump Design presents a clear, practical design procedure that is solidly based on theoretical fluid dynamics fundamentals, without requiring higher math beyond algebra. Intended for use on the factory floor, this book offers a short, easy-to-read description of the fluid mechanic phenomena that occur in pumps, including those revealed by the most recent research. The design procedure incorporates a simple computer program that allows designs to be checked immediately and corrected as needed; readers learn to calibrate the performance calculation program based on their own test data. Other important features of this book include: * Up-to-date coverage of detailed design data * Guidance on selection, troubleshooting, and modification of existing pumps * A numerical example illustrating the design of a pump as readers move through the book * Manual calculations-including worked examples-and personal computer program listings critical to pump design * Ample references to all subjects for further study This unique handbook closes the gap between research and application and puts the fundamentals of advanced fluid mechanics where they will do the most good: in the hands of engineers, teachers, and

designers who create industrial pumps.

This book includes selected papers of the 6th IFIP WG 10.2 International Workshop on Software Technologies for Future Embedded and Ubiquitous Systems, SEUS 2008, held on Capri, Italy, in October 2008. The 38 revised full papers presented were carefully reviewed and selected. The papers are organized in topical sections on model-driven development; middleware; real time; quality of service and performance; applications; pervasive and mobile systems: wireless embedded systems; synthesis, verification and protection.

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