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It eliminates the need for time-consuming manual optimization of hot runners ... and it collects real-time pressure and temperature information that can be used for SPC data verification and plant ...

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This project encompasses the design of a foundation and retaining wall, structural high-ceiling ... This is accomplished by moving the verification of update messages from the device level to a ...

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The control architecture is open-source and modular, based on ROS. JR2 arm is equipped with AUBO-i5, 6 axis high quality industrial collaborative robot that can handle payloads up to 5 Kg (completely ...

~~Articulated Arms~~

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Recalling his attitude to the technology he'd helped to develop as far back as the Gemini program, Cernan explained his preference for manual navigational control: "There's no way I'm going to go all ...

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Description: Design Features Easily imports vector-based drawing files and produces G-code motion programs Automatic and manual shape re-ordering options allow for optimal tool and processing paths ...

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As the circumstances surrounding COVID-19 continuously evolve, APEX will regularly update this page with key resources, as well as relevant news on how the pandemic is impacting the aviation industry.

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Solar power is a great source of renewable energy, but has always had its limitations. At best, there's only 1,000 Watts/m<sup>2</sup> available at the Earth's surface on a sunny day, and the limited ...

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Salvors have raised the bow section of the liftboat Seacor Power, which overturned in heavy seas in the Gulf of Mexico in April. The Donjon-SMIT salvage team lifted

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the bow section to the surface ...

Discover BIM: A better way to build better buildings Building Information Modeling (BIM) offers a novel approach to design, construction, and facility management in which a digital representation of the building product and process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. The BIM Handbook, Third Edition provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. Updates to this edition include: Information on the ways in which professionals should use BIM to gain maximum value New topics such as collaborative working, national and major construction clients, BIM standards and guides A discussion on how various professional roles have expanded through the widespread use and the new avenues of BIM practices and services A wealth of new case studies that clearly illustrate exactly how BIM is applied in a wide variety of conditions Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Third Edition guides readers to successful implementations, helping them to avoid needless frustration and costs and take

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full advantage of this paradigm-shifting approach to construct better buildings that consume fewer materials and require less time, labor, and capital resources.

This handbook consists of six core chapters: (1) systems engineering fundamentals discussion, (2) the NASA program/project life cycles, (3) systems engineering processes to get from a concept to a design, (4) systems engineering processes to get from a design to a final product, (5) crosscutting management processes in systems engineering, and (6) special topics relative to systems engineering. These core chapters are supplemented by appendices that provide outlines, examples, and further information to illustrate topics in the core chapters. The handbook makes extensive use of boxes and figures to define, refine, illustrate, and extend concepts in the core chapters without diverting the reader from the main information. The handbook provides top-level guidelines for good systems engineering practices; it is not intended in any way to be a directive. NASA/SP-2007-6105 Rev1 supersedes SP-6105, dated June 1995

This newly expanded and updated second edition of the best-selling classic continues to take the "mystery" out of designing algorithms, and analyzing their efficacy and efficiency. Expanding on the first edition, the book now serves as the primary textbook of choice for algorithm design courses while maintaining its status as the premier practical reference guide to algorithms for programmers, researchers, and students. The reader-friendly Algorithm Design Manual provides

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straightforward access to combinatorial algorithms technology, stressing design over analysis. The first part, Techniques, provides accessible instruction on methods for designing and analyzing computer algorithms. The second part, Resources, is intended for browsing and reference, and comprises the catalog of algorithmic resources, implementations and an extensive bibliography. NEW to the second edition:

- Doubles the tutorial material and exercises over the first edition
- Provides full online support for lecturers, and a completely updated and improved website component with lecture slides, audio and video
- Contains a unique catalog identifying the 75 algorithmic problems that arise most often in practice, leading the reader down the right path to solve them
- Includes several NEW "war stories" relating experiences from real-world applications
- Provides up-to-date links leading to the very best algorithm implementations available in C, C++, and Java

Today, software engineers need to know not only how to program effectively but also how to develop proper engineering practices to make their codebase sustainable and healthy. This book emphasizes this difference between programming and software engineering. How can software engineers manage a living codebase that evolves and responds to changing requirements and demands over the length of its life? Based on their experience at Google, software engineers Titus Winters and Hyrum Wright, along with technical writer Tom Manshreck, present a candid and insightful look at how some of the world's leading

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practitioners construct and maintain software. This book covers Google's unique engineering culture, processes, and tools and how these aspects contribute to the effectiveness of an engineering organization. You'll explore three fundamental principles that software organizations should keep in mind when designing, architecting, writing, and maintaining code: How time affects the sustainability of software and how to make your code resilient over time How scale affects the viability of software practices within an engineering organization What trade-offs a typical engineer needs to make when evaluating design and development decisions

A detailed and thorough reference on the discipline and practice of systems engineering The objective of the International Council on Systems Engineering (INCOSE) Systems Engineering Handbook is to describe key process activities performed by systems engineers and other engineering professionals throughout the life cycle of a system. The book covers a wide range of fundamental system concepts that broaden the thinking of the systems engineering practitioner, such as system thinking, system science, life cycle management, specialty engineering, system of systems, and agile and iterative methods. This book also defines the discipline and practice of systems engineering for students and practicing professionals alike, providing an authoritative reference that is acknowledged worldwide. The latest edition of the INCOSE Systems Engineering Handbook: Is consistent with ISO/IEC/IEEE 15288:2015 Systems and software



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engineering—System life cycle processes and the Guide to the Systems Engineering Body of Knowledge (SEBoK) Has been updated to include the latest concepts of the INCOSE working groups Is the body of knowledge for the INCOSE Certification Process This book is ideal for any engineering professional who has an interest in or needs to apply systems engineering practices. This includes the experienced systems engineer who needs a convenient reference, a product engineer or engineer in another discipline who needs to perform systems engineering, a new systems engineer, or anyone interested in learning more about systems engineering.

Humans have always been fascinated with the concept of artificial life and the construction of machines that look and behave like people. As the field of robotics evolves, it demands continuous development of successful systems with high-performance characteristics for practical applications. Advanced Mechanics in Robotic Systems illustrates original and ambitious mechanical designs and techniques for developing new robot prototypes with successful mechanical operational skills. Case studies are focused on projects in mechatronics that have high growth expectations: humanoid robots, robotics hands, mobile robots, parallel manipulators, and human-centred robots. A good control strategy requires good mechanical design, so a chapter has also been devoted to the description of suitable methods for control architecture design. Readers of Advanced Mechanics in Robotic Systems will discover novel designs for relevant applications in robotic

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fields, that will be of particular interest to academic and industry-based researchers.

Human-Robot Interaction: A Survey presents a unified treatment of HRI-related issues, identifies key themes, and discusses challenge problems that are likely to shape the field in the near future. The survey includes research results from a cross section of the universities, government efforts, industry labs, and countries that contribute to HRI, and a cross section of the disciplines that contribute to the field, such as human factors, robotics, cognitive psychology and design

This book provides an introduction to the mathematical and algorithmic foundations of data science, including machine learning, high-dimensional geometry, and analysis of large networks. Topics include the counterintuitive nature of data in high dimensions, important linear algebraic techniques such as singular value decomposition, the theory of random walks and Markov chains, the fundamentals of and important algorithms for machine learning, algorithms and analysis for clustering, probabilistic models for large networks, representation learning including topic modelling and non-negative matrix factorization, wavelets and compressed sensing. Important probabilistic techniques are developed including the law of large numbers, tail inequalities, analysis of random projections, generalization guarantees in machine learning, and moment methods for analysis of phase transitions in large random graphs. Additionally, important

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structural and complexity measures are discussed such as matrix norms and VC-dimension. This book is suitable for both undergraduate and graduate courses in the design and analysis of algorithms for data.

An introduction to the engineering principles of embedded systems, with a focus on modeling, design, and analysis of cyber-physical systems. The most visible use of computers and software is processing information for human consumption. The vast majority of computers in use, however, are much less visible. They run the engine, brakes, seatbelts, airbag, and audio system in your car. They digitally encode your voice and construct a radio signal to send it from your cell phone to a base station. They command robots on a factory floor, power generation in a power plant, processes in a chemical plant, and traffic lights in a city. These less visible computers are called embedded systems, and the software they run is called embedded software. The principal challenges in designing and analyzing embedded systems stem from their interaction with physical processes. This book takes a cyber-physical approach to embedded systems, introducing the engineering concepts underlying embedded systems as a technology and as a subject of study. The focus is on modeling, design, and analysis of cyber-physical systems, which integrate computation, networking, and physical processes. The second edition offers two new chapters, several new exercises, and other improvements. The book can be used as a textbook at the advanced undergraduate or introductory graduate level and as a professional reference for

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practicing engineers and computer scientists. Readers should have some familiarity with machine structures, computer programming, basic discrete mathematics and algorithms, and signals and systems.

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