

Industrial Management Engineering By O P Khanna

Chaos Engineering *Software Engineering at Google Site*
Reliability Engineering Database Reliability Engineering
Engineering Dynamics Feature Engineering for Machine
Learning **Engineering MLOps Learning Chaos Engineering**
97 Things Every Engineering Manager Should Know The
Rails Way Systems Engineering *The Pragmatic Programmer*
Transport Planning and Traffic Engineering Requirements
Engineering for Software and Systems, Second Edition
Fundamentals of Electrical Engineering *Basic Civil*
Engineering Creating a Software Engineering Culture **Test**
Engineering Workbook for Karsnitz/O'Brien/Hutchinson's
Engineering Design: An Introduction, 2nd **Building Event-**
Driven Microservices System Integration **System Validation**
and Verification *Systems Engineering* **Feature Engineering**
for Machine Learning Independent Verification and
Validation Concise Guide to Software Engineering **Rethinking**
Engineering Education Engineering a Safer World
Fundamentals of Civil Engineering Guide to the Software
Engineering Body of Knowledge (Swebok(r)) Advanced
Engineering Mathematics, SI Edition *Excel Scientific and*
Engineering Cookbook Introduction to Automotive Engineering
Probability Distributions Used in Reliability Engineering **Civil**
Engineering Construction Contracts Engineering and
Management of Data Centers **Fluidization Engineering**
Studyguide for Practical Reliability Engineering by
O'Connor, Patrick, ISBN 9780470979822 Technology
Strategy Patterns Tunnel Engineering Handbook

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Building Event-Driven Microservices Mar 13 2021
Organizations today often struggle to balance business requirements with ever-increasing volumes of data. Additionally, the demand for leveraging large-scale, real-time data is growing rapidly among the most competitive digital industries. Conventional system architectures may not be up to the task. With this practical guide, you'll learn how to leverage large-scale

data usage across the business units in your organization using the principles of event-driven microservices. Author Adam Bellemare takes you through the process of building an event-driven microservice-powered organization. You'll reconsider how data is produced, accessed, and propagated across your organization. Learn powerful yet simple patterns for unlocking the value of this data. Incorporate event-driven design and architectural

principles into your own systems. And completely rethink how your organization delivers value by unlocking near-real-time access to data at scale. You'll learn: How to leverage event-driven architectures to deliver exceptional business value The role of microservices in supporting event-driven designs Architectural patterns to ensure success both within and between teams in your organization Application patterns for developing powerful event-driven microservices Components and tooling required to get your microservice ecosystem off the ground

The Rails Way Jan 23 2022

The expert guide to building Ruby on Rails applications Ruby on Rails strips complexity from the development process, enabling professional developers to focus on what matters most: delivering business value. Now, for the first time, there's a comprehensive, authoritative guide to building production-quality software with Rails.

Pioneering Rails developer Obie Fernandez and a team of experts illuminate the entire Rails API, along with the Ruby idioms, design approaches, libraries, and plug-ins that make Rails so valuable.

Drawing on their unsurpassed experience, they address the real challenges development teams face, showing how to use Rails' tools and best practices to maximize productivity and build polished applications users will enjoy. Using detailed code examples, Obie systematically covers Rails' key capabilities and subsystems. He presents advanced programming techniques, introduces open source libraries that facilitate easy Rails adoption, and offers important insights into testing and production deployment. Dive deep into the Rails codebase together, discovering why Rails behaves as it does—and how to make it behave the way you want it to. This book will help you Increase your productivity as a web developer Realize the overall joy of programming with Ruby

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on Rails Learn what's new in Rails 2.0 Drive design and protect long-term maintainability with TestUnit and RSpec Understand and manage complex program flow in Rails controllers Leverage Rails' support for designing REST-compliant APIs Master sophisticated Rails routing concepts and techniques Examine and troubleshoot Rails routing Make the most of ActiveRecord object-relational mapping Utilize Ajax within your Rails applications Incorporate logins and authentication into your application Extend Rails with the best third-party plug-ins and write your own Integrate email services into your applications with ActionMailer Choose the right Rails production configurations Streamline deployment with Capistrano

Introduction to Automotive Engineering Jan 29 2020 The automotive industry is one of the largest and most important industries in the world. Cars, buses, and other engine-based vehicles abound in every

country on the planet, and it is continually evolving, with electric cars, hybrids, self-driving vehicles, and so on. Technologies that were once thought to be decades away are now on our roads right now. Engineers, technicians, and managers are constantly needed in the industry, and, often, they come from other areas of engineering, such as electrical engineering, process engineering, or chemical engineering. Introductory books like this one are very useful for engineers who are new to the industry and need a tutorial. Also valuable as a textbook for students, this introductory volume not only covers the basics of automotive engineering, but also the latest trends, such as self-driving vehicles, hybrids, and electric cars. Not only useful as an introduction to the science or a textbook, it can also serve as a valuable reference for technicians and engineers alike. The volume also goes into other subjects, such as maintenance and performance. Data has always been used in

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every company irrespective of its domain to improve the operational efficiency and performance of engines. This work deals with details of various automotive systems with focus on designing various components of these system to suit the working conditions on roads. Whether a textbook for the student, an introduction to the industry for the newly hired engineer, or a reference for the technician or veteran engineer, this volume is the perfect introduction to the science of automotive engineering.

Learning Chaos Engineering

Mar 25 2022 Most companies work hard to avoid costly failures, but in complex systems a better approach is to embrace and learn from them. Through chaos engineering, you can proactively hunt for evidence of system weaknesses before they trigger a crisis. This practical book shows software developers and system administrators how to plan and run successful chaos engineering experiments. System weaknesses go beyond your infrastructure, platforms,

and applications to include policies, practices, playbooks, and people. Author Russ Miles explains why, when, and how to test systems, processes, and team responses using simulated failures on Game Days. You'll also learn how to work toward continuous chaos through automation with features you can share across your team and organization. Learn to think like a chaos engineer Build a hypothesis backlog to determine what could go wrong in your system Develop your hypotheses into chaos engineering experiment Game Days Write, run, and learn from automated chaos experiments using the open source Chaos Toolkit Turn chaos experiments into tests to confirm that you've overcome the weaknesses you discovered Observe and control your automated chaos experiments while they are running

Independent Verification and Validation Oct 08 2020 Comprehensive and up-to-date, it covers the most vital part of software development, independent verification and

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validation. Presents a variety of methods that will ensure better quality, performance, cost and reliability of technical products and systems. Features numerous hints, tips and instructions for better interaction between verification and validation personnel, development engineers and managers. Includes 8 case histories ranging from major engineering systems through information systems. Many of the principles involved also apply to computer hardware as well as the fields of science and engineering.

Creating a Software

Engineering Culture Jun 15

2021 This is the digital version of the printed book (Copyright

© 1996). Written in a remarkably clear style,

Creating a Software

Engineering Culture presents a comprehensive approach to improving the quality and effectiveness of the software development process. In twenty chapters spread over six parts, Wiegiers promotes the tactical changes required

to support process improvement and high-quality software development.

Throughout the text, Wiegiers identifies scores of culture builders and culture killers, and he offers a wealth of references to resources for the software engineer, including seminars, conferences, publications, videos, and on-line information. With case studies on process improvement and software metrics programs and an entire part on action planning (called "What to Do on Monday"), this practical book guides the reader in applying the concepts to real life. Topics include software culture concepts, team behaviors, the five dimensions of a software project, recognizing achievements, optimizing customer involvement, the project champion model, tools for sharing the vision, requirements traceability matrices, the capability maturity model, action planning, testing, inspections, metrics-based project estimation, the cost of quality,

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and much more! Principles from Part 1 Never let your boss or your customer talk you into doing a bad job. People need to feel the work they do is appreciated. Ongoing education is every team member's responsibility. Customer involvement is the most critical factor in software quality. Your greatest challenge is sharing the vision of the final product with the customer. Continual improvement of your software development process is both possible and essential. Written software development procedures can help build a shared culture of best practices. Quality is the top priority; long-term productivity is a natural consequence of high quality. Strive to have a peer, rather than a customer, find a defect. A key to software quality is to iterate many times on all development steps except coding: Do this once. Managing bug reports and change requests is essential to controlling quality and maintenance. If you measure what you do, you can learn to

do it better. You can't change everything at once. Identify those changes that will yield the greatest benefits, and begin to implement them next Monday. Do what makes sense; don't resort to dogma.

Advanced Engineering Mathematics, SI Edition Apr 01 2020 O'Neil's ADVANCED ENGINEERING

MATHEMATICS, 8E makes rigorous mathematical topics accessible to today's learners by emphasizing visuals, numerous examples, and interesting mathematical models. New Math in Context broadens the engineering connections by demonstrating how mathematical concepts are applied to current engineering problems. The reader has the flexibility to select from a variety of topics to study from additional posted web modules. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Rethinking Engineering Education Aug 06 2020 This book describes an approach to

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engineering education that integrates a comprehensive set of personal, interpersonal, and professional engineering skills with engineering disciplinary knowledge in order to prepare innovative and entrepreneurial engineers. The education of engineers is set in the context of engineering practice, that is, Conceiving, Designing, Implementing, and Operating (CDIO) through the entire lifecycle of engineering processes, products, and systems. The book is both a description of the development and implementation of the CDIO model and a guide to engineering programs worldwide that seek to improve the education of young engineers.

Feature Engineering for Machine Learning Nov 08 2020

Feature engineering is a crucial step in the machine-learning pipeline, yet this topic is rarely examined on its own. With this practical book, you'll learn techniques for extracting and transforming features--the numeric representations of raw data--into formats for machine-

learning models. Each chapter guides you through a single data problem, such as how to represent text or image data. Together, these examples illustrate the main principles of feature engineering. Rather than simply teach these principles, authors Alice Zheng and Amanda Casari focus on practical application with exercises throughout the book. The closing chapter brings everything together by tackling a real-world, structured dataset with several feature-engineering techniques. Python packages including numpy, Pandas, Scikit-learn, and Matplotlib are used in code examples. You'll examine: Feature engineering for numeric data: filtering, binning, scaling, log transforms, and power transforms Natural text techniques: bag-of-words, n-grams, and phrase detection Frequency-based filtering and feature scaling for eliminating uninformative features Encoding techniques of categorical variables, including feature hashing and bin-

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counting Model-based feature engineering with principal component analysis The concept of model stacking, using k-means as a featurization technique Image feature extraction with manual and deep-learning techniques Engineering and Management of Data Centers Oct 27 2019 This edited volume covers essential and recent development in the engineering and management of data centers. Data centers are complex systems requiring ongoing support, and their high value for keeping business continuity operations is crucial. The book presents core topics on the planning, design, implementation, operation and control, and sustainability of a data center from a didactical and practitioner viewpoint. Chapters include: · Foundations of data centers: Key Concepts and Taxonomies · ITSDM: A Methodology for IT Services Design · Managing Risks on Data Centers through Dashboards · Risk Analysis in Data Center Disaster Recovery Plans · Best practices in Data

Center Management Case: KIO Networks · QoS in NaaS (Network as a Service) using Software Defined Networking · Optimization of Data Center Fault-Tolerance Design · Energetic Data Centre Design Considering Energy Efficiency Improvements During Operation · Demand-side Flexibility and Supply-side Management: The Use Case of Data Centers and Energy Utilities · DevOps: Foundations and its Utilization in Data Centers · Sustainable and Resilient Network Infrastructure Design for Cloud Data Centres · Application Software in Cloud-Ready Data Centers This book bridges the gap between academia and the industry, offering essential reading for practitioners in data centers, researchers in the area, and faculty teaching related courses on data centers. The book can be used as a complementary text for traditional courses on Computer Networks, as well as innovative courses on IT Architecture, IT Service Management, IT Operations,

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and Data Centers.

Fluidization Engineering

Sep 26 2019 Fluidization Engineering, Second Edition, expands on its original scope to encompass these new areas and introduces reactor models specifically for these contacting regimes. Completely revised and updated, it is essentially a new book. Its aim is to distill from the thousands of studies those particular developments that are pertinent for the engineer concerned with predictive methods, for the designer, and for the user and potential user of fluidized beds. Covers the recent advances in the field of fluidization. Presents the studies of developments necessary to the engineers, designers, and users of fluidized beds.

Transport Planning and Traffic Engineering

Oct 20 2021 'Transport Planning and Traffic Engineering' is a comprehensive textbook on the relevant principles and practice. It includes sections on transport policy and planning, traffic surveys and accident

investigation, road design for capacity and safety, and traffic management. Clearly written and illustrated, the book is ideal reading for students of t

System Validation and Verification

Jan 11 2021 Historically, the terms validation and verification have been very loosely defined in the system engineering world, with predictable confusion. Few hardware or software testing texts even touch upon validation and verification, despite the fact that, properly employed, these test tools offer system and test engineers powerful techniques for identifying and solving problems early in the design process. Together, validation and verification encompass testing, analysis, demonstration, and examination methods used to determine whether a proposed design will satisfy system requirements. System Validation and Verification clear definitions of the terms and detailed information on using these fundamental tools for problem solving. It

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smooths the transition between requirements and design by providing methods for evaluating the ability of a given approach to satisfy demanding technical requirements. With this book, system and test engineers and project managers gain confidence in their designs and lessen the likelihood of serious problems cropping up late in the program. In addition to explanations of the theories behind the concepts, the book includes practical methods for each step of the process, examples from the author's considerable experience, and illustrations and tables to support the ideas. Although not primarily a textbook, System Validation and Verification is based in part on validation and verification courses taught by the author and is an excellent supplemental reference for engineering students. In addition to its usefulness to system engineers, the book will be valuable to a wider audience including manufacturing, design, software , and risk management project engineers

- anyone involved in large systems design projects.

Engineering a Safer World
Jul 05 2020 A new approach to safety, based on systems thinking, that is more effective, less costly, and easier to use than current techniques. Engineering has experienced a technological revolution, but the basic engineering techniques applied in safety and reliability engineering, created in a simpler, analog world, have changed very little over the years. In this groundbreaking book, Nancy Leveson proposes a new approach to safety—more suited to today's complex, sociotechnical, software-intensive world—based on modern systems thinking and systems theory. Revisiting and updating ideas pioneered by 1950s aerospace engineers in their System Safety concept, and testing her new model extensively on real-world examples, Leveson has created a new approach to safety that is more effective, less expensive, and easier to use than current techniques.

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Arguing that traditional models of causality are inadequate, Leveson presents a new, extended model of causation (Systems-Theoretic Accident Model and Processes, or STAMP), then shows how the new model can be used to create techniques for system safety engineering, including accident analysis, hazard analysis, system design, safety in operations, and management of safety-critical systems. She applies the new techniques to real-world events including the friendly-fire loss of a U.S. Blackhawk helicopter in the first Gulf War; the Vioxx recall; the U.S. Navy SUBSAFE program; and the bacterial contamination of a public water supply in a Canadian town. Leveson's approach is relevant even beyond safety engineering, offering techniques for "reengineering" any large sociotechnical system to improve safety and manage risk.

Engineering MLOps Apr 25 2022 Get up and running with machine learning life cycle management and implement

MLOps in your organization
Key Features Become well-versed with MLOps techniques to monitor the quality of machine learning models in production Explore a monitoring framework for ML models in production and learn about end-to-end traceability for deployed models Perform CI/CD to automate new implementations in ML pipelines Book Description Engineering MLps presents comprehensive insights into MLOps coupled with real-world examples in Azure to help you to write programs, train robust and scalable ML models, and build ML pipelines to train and deploy models securely in production. The book begins by familiarizing you with the MLOps workflow so you can start writing programs to train ML models. Then you'll then move on to explore options for serializing and packaging ML models post-training to deploy them to facilitate machine learning inference, model interoperability, and end-to-end model traceability. You'll learn how to build ML pipelines,

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continuous integration and continuous delivery (CI/CD) pipelines, and monitor pipelines to systematically build, deploy, monitor, and govern ML solutions for businesses and industries. Finally, you'll apply the knowledge you've gained to build real-world projects. By the end of this ML book, you'll have a 360-degree view of MLOps and be ready to implement MLOps in your organization. What you will learn

Formulate data governance strategies and pipelines for ML training and deployment

Get to grips with implementing ML pipelines, CI/CD pipelines, and ML monitoring pipelines

Design a robust and scalable microservice and API for test and production environments

Curate your custom CD processes for related use cases and organizations

Monitor ML models, including monitoring data drift, model drift, and application performance

Build and maintain automated ML systems

Who this book is for

This MLOps book is for data scientists, software engineers, DevOps engineers, machine learning engineers, and business and technology leaders who want to build, deploy, and maintain ML systems in production using MLOps principles and techniques. Basic knowledge of machine learning is necessary to get started with this book.

Requirements Engineering for Software and Systems, Second Edition Sep 18 2021

As requirements engineering continues to be recognized as the key to on-time and on-budget delivery of software and systems projects, many engineering programs have made requirements engineering mandatory in their curriculum. In addition, the wealth of new software tools that have recently emerged is empowering practicing engineers to improve their requirements engineering habits. However, these tools are not easy to use without appropriate training. Filling this need, Requirements Engineering for Software and

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Systems, Second Edition has been vastly updated and expanded to include about 30 percent new material. In addition to new exercises and updated references in every chapter, this edition updates all chapters with the latest applied research and industry practices. It also presents new material derived from the experiences of professors who have used the text in their classrooms. Improvements to this edition include: An expanded introductory chapter with extensive discussions on requirements analysis, agreement, and consolidation An expanded chapter on requirements engineering for Agile methodologies An expanded chapter on formal methods with new examples An expanded section on requirements traceability An updated and expanded section on requirements engineering tools New exercises including ones suitable for research projects Following in the footsteps of its bestselling predecessor, the text illustrates key ideas associated with

requirements engineering using extensive case studies and three common example systems: an airline baggage handling system, a point-of-sale system for a large pet store chain, and a system for a smart home. This edition also includes an example of a wet well pumping system for a wastewater treatment station. With a focus on software-intensive systems, but highly applicable to non-software systems, this text provides a probing and comprehensive review of recent developments in requirements engineering in high integrity systems.

Tunnel Engineering

Handbook Jun 23 2019 The Tunnel Engineering Handbook, Second Edition provides, in a single convenient volume, comprehensive coverage of the state of the art in the design, construction, and rehabilitation of tunnels. It brings together essential information on all the principal classifications of tunnels, including soft ground, hard rock, immersed tube and cut-and-cover, with comparisons of their relative

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advantages and suitability. The broad coverage found in the Tunnel Engineering Handbook enables engineers to address such critical questions as how tunnels are planned and laid out, how the design of tunnels depends on site and ground conditions, and which types of tunnels and construction methods are best suited to different conditions. Written by the leading engineers in the fields, this second edition features major revisions from the first, including: * Complete updating of all chapters from the first edition * Seven completely new chapters covering tunnel stabilization and lining, difficult ground, deep shafts, water conveyance tunnels, small diameter tunnels, fire life safety, tunnel rehabilitation and tunnel construction contracting *New coverage of the modern philosophy and techniques of tunnel design and tunnel construction contracting The comprehensive coverage of the Tunnel Engineering Handbook makes it an essential resource for all practicing engineers

engaged in the design of tunnels and underground construction. In addition, the book contains a wealth of information that government administrators and planners and transportation officials will use in the planning and management of tunnels. *Systems Engineering* Dec 10 2020 This translation brings a landmark systems engineering (SE) book to English-speaking audiences for the first time since its original publication in 1972. For decades the SE concept championed by this book has helped engineers solve a wide variety of issues by emphasizing a top-down approach. Moving from the general to the specific, this SE concept has situated itself as uniquely appealing to both highly trained experts and anybody managing a complex project. Until now, this SE concept has only been available to German speakers. By shedding the overtly technical approach adopted by many other SE methods, this book can be used as a problem-solving guide in a great variety

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of disciplines, engineering and otherwise. By segmenting the book into separate parts that build upon each other, the SE concept's accessibility is reinforced. The basic principles of SE, problem solving, and systems design are helpfully introduced in the first three parts. Once the fundamentals are presented, specific case studies are covered in the fourth part to display potential applications. Then part five offers further suggestions on how to effectively practice SE principles; for example, it not only points out frequent stumbling blocks, but also the specific points at which they may appear. In the final part, a wealth of different methods and tools, such as optimization techniques, are given to help maximize the potential use of this SE concept. Engineers and engineering students from all disciplines will find this book extremely helpful in solving complex problems. Because of its practicable lessons in problem-solving, any professional facing a complex project will also find much to

learn from this volume. *Software Engineering at Google* Sep 30 2022 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 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

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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

The Pragmatic Programmer
Nov 20 2021 "One of the most significant books in my life."
-Obie Fernandez, Author, *The Rails Way* "Twenty years ago, the first edition of *The Pragmatic Programmer* completely changed the trajectory of my career. This new edition could do the same for yours." -Mike Cohn, Author of *Succeeding with Agile*, *Agile Estimating and Planning*, and *User Stories Applied* ". . . filled with practical advice, both technical and professional, that will serve you and your projects well for years to come." -Andrea Goulet, CEO, Corgibytes, Founder,

LegacyCode.Rocks ". . . lightning does strike twice, and this book is proof." -VM (Vicky) Brasseur, Director of Open Source Strategy, Juniper Networks *The Pragmatic Programmer* is one of those rare tech books you'll read, re-read, and read again over the years. Whether you're new to the field or an experienced practitioner, you'll come away with fresh insights each and every time. Dave Thomas and Andy Hunt wrote the first edition of this influential book in 1999 to help their clients create better software and rediscover the joy of coding. These lessons have helped a generation of programmers examine the very essence of software development, independent of any particular language, framework, or methodology, and the Pragmatic philosophy has spawned hundreds of books, screencasts, and audio books, as well as thousands of careers and success stories. Now, twenty years later, this new edition re-examines what it means to be a modern

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programmer. Topics range from personal responsibility and career development to architectural techniques for keeping your code flexible and easy to adapt and reuse. Read this book, and you'll learn how to: Fight software rot Learn continuously Avoid the trap of duplicating knowledge Write flexible, dynamic, and adaptable code Harness the power of basic tools Avoid programming by coincidence Learn real requirements Solve the underlying problems of concurrent code Guard against security vulnerabilities Build teams of Pragmatic Programmers Take responsibility for your work and career Test ruthlessly and effectively, including property-based testing Implement the Pragmatic Starter Kit Delight your users Written as a series of self-contained sections and filled with classic and fresh anecdotes, thoughtful examples, and interesting analogies, The Pragmatic Programmer illustrates the best approaches and major pitfalls of many different

aspects of software development. Whether you're a new coder, an experienced programmer, or a manager responsible for software projects, use these lessons daily, and you'll quickly see improvements in personal productivity, accuracy, and job satisfaction. You'll learn skills and develop habits and attitudes that form the foundation for long-term success in your career. You'll become a Pragmatic Programmer. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Studyguide for Practical Reliability Engineering by O'Connor, Patrick, ISBN 9780470979822 Aug 25 2019 Never HIGHLIGHT a Book Again! Includes all testable terms, concepts, persons, places, and events. Cram101 Just the FACTS101 studyguides gives all of the outlines, highlights, and quizzes for your textbook with optional online comprehensive practice tests.

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Only Cram101 is Textbook Specific. Accompanies: 9780470979822. This item is printed on demand.

Fundamentals of Civil Engineering Jun 03 2020 While the ASCE Body of Knowledge (BOK2) is the codified source for all technical and non-technical information necessary for those seeking to attain licensure in civil engineering, recent graduates have notoriously been lacking in the non-technical aspects even as they excel in the technical. *Fundamentals of Civil Engineering: An Introduction to the ASCE Body of Knowledge* addresses this shortfall and helps budding engineers develop the knowledge, skills, and attitudes suggested and implied by the BOK2. Written as a resource for all of the non-technical outcomes not specifically covered in the BOK2, it details fundamental aspects of fourteen outcomes addressed in the second edition of the ASCE Body of Knowledge and encourages a broader perspective and understanding

of the role of civil engineers in society as well as the reciprocal influence between civil engineering and social evolution. With discussion questions and group activities at the end of each chapter, topics covered include humanities and social sciences, experimentation, sustainability, contemporary issues and historical perspectives, risk and uncertainty, communication, public policy, globalization, leadership and teamwork, and professional and ethical responsibilities. Suitable for both current and former students in pursuit of further breadth and depth of knowledge and professional maturity, this primer promotes introspection, self-evaluation, and self-learning. It details those attitudes that are essential to the achievement of personal and professional success and advancement to positions of leadership, and encourages an appreciation of the human values that are fundamental to professional practice.

Excel Scientific and

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Engineering Cookbook Mar 01 2020 Given the improved analytical capabilities of Excel, scientists and engineers everywhere are using it-- instead of FORTRAN--to solve problems. And why not? Excel is installed on millions of computers, features a rich set of built-in analyses tools, and includes an integrated Visual Basic for Applications (VBA) programming language. No wonder it's today's computing tool of choice. Chances are you already use Excel to perform some fairly routine calculations. Now the *Excel Scientific and Engineering Cookbook* shows you how to leverage Excel to perform more complex calculations, too, calculations that once fell in the domain of specialized tools. It does so by putting a smorgasbord of data analysis techniques right at your fingertips. The book shows how to perform these useful tasks and others: Use Excel and VBA in general Import data from a variety of sources Analyze data Perform calculations Visualize the results for interpretation

and presentation Use Excel to solve specific science and engineering problems Wherever possible, the *Excel Scientific and Engineering Cookbook* draws on real-world examples from a range of scientific disciplines such as biology, chemistry, and physics. This way, you'll be better prepared to solve the problems you face in your everyday scientific or engineering tasks. High on practicality and low on theory, this quick, look-up reference provides instant solutions, or "recipes," to problems both basic and advanced. And like other books in O'Reilly's popular *Cookbook* format, each recipe also includes a discussion on how and why it works. As a result, you can take comfort in knowing that complete, practical answers are a mere page-flip away.

Systems Engineering Dec 22 2021 For the past several decades, systems engineering has grown rapidly in its scope and application and shown significant benefits for the design of large, complex

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systems. However, current systems engineering textbooks are either too technical or at a high conceptual level. Written by an expert with more than ten years of teaching experience, *Systems Engineering: Design Principles and Models* not only gives students exposure to the concepts of systems and systems engineering, but also provides enough technical expertise for them to immediately use and apply what they learn. The book covers systems and systems engineering, systems methods, models, and analytical techniques as well as systems management and control methods. It discusses systems concepts, emphasizing system life cycle, and includes coverage of systems design processes and the major activities involved. It offers hands-on exercises after each chapter, giving students a solid understanding of system requirements, and uses a software package (CORE) to introduce the requirement management process.

Designed for readers with a wide range of backgrounds, the book enables students to learn about systems and systems engineering, and, more specifically, to be able to use and apply the models and methods in the systems engineering field. The author has integrated feedback from students with materials used in teaching for many years, making the book especially approachable to non-engineering students with no prior exposure to this subject. Engineering students, on the other hand, will also benefit from the clear, concise coverage this book provides as well as the relevant analysis models and techniques.

Site Reliability Engineering

Aug 30 2022 The

overwhelming majority of a software system's lifespan is spent in use, not in design or implementation. So, why does conventional wisdom insist that software engineers focus primarily on the design and development of large-scale computing systems? In this collection of essays and

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articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world. You'll learn the principles and practices that enable Google engineers to make systems more scalable, reliable, and efficient—lessons directly applicable to your organization. This book is divided into four sections: Introduction—Learn what site reliability engineering is and why it differs from conventional IT industry practices
Principles—Examine the patterns, behaviors, and areas of concern that influence the work of a site reliability engineer (SRE)
Practices—Understand the theory and practice of an SRE's day-to-day work: building and operating large distributed computing systems
Management—Explore Google's best practices for training, communication, and

meetings that your organization can use
Guide to the Software Engineering Body of Knowledge (Swebok(r)) May 03 2020 In the Guide to the Software Engineering Body of Knowledge (SWEBOK(R) Guide), the IEEE Computer Society establishes a baseline for the body of knowledge for the field of software engineering, and the work supports the Society's responsibility to promote the advancement of both theory and practice in this field. It should be noted that the Guide does not purport to define the body of knowledge but rather to serve as a compendium and guide to the knowledge that has been developing and evolving over the past four decades. Now in Version 3.0, the Guide's 15 knowledge areas summarize generally accepted topics and list references for detailed information. The editors for Version 3.0 of the SWEBOK(R) Guide are Pierre Bourque (Ecole de technologie superieure (ETS), Universite du

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Quebec) and Richard E. (Dick) Fairley (Software and Systems Engineering Associates (S2EA)).

Feature Engineering for Machine Learning May 27

2022 Feature engineering is a crucial step in the machine-learning pipeline, yet this topic is rarely examined on its own. With this practical book, you'll learn techniques for extracting and transforming features—the numeric representations of raw data—into formats for machine-learning models. Each chapter guides you through a single data problem, such as how to represent text or image data. Together, these examples illustrate the main principles of feature engineering. Rather than simply teach these principles, authors Alice Zheng and Amanda Casari focus on practical application with exercises throughout the book. The closing chapter brings everything together by tackling a real-world, structured dataset with several feature-engineering techniques. Python packages including numpy, Pandas, Scikit-learn, and

Matplotlib are used in code examples. You'll examine: Feature engineering for numeric data: filtering, binning, scaling, log transforms, and power transforms Natural text techniques: bag-of-words, n-grams, and phrase detection Frequency-based filtering and feature scaling for eliminating uninformative features Encoding techniques of categorical variables, including feature hashing and bin-counting Model-based feature engineering with principal component analysis The concept of model stacking, using k-means as a featurization technique Image feature extraction with manual and deep-learning techniques

Civil Engineering Construction Contracts Nov 28 2019 These conference proceedings address the wide range of geotechnical issues associated with urban development, from the use of case histories and reviewing existing data to the techniques and procedures associated with new construction works.

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Chaos Engineering Nov 01 2022 As more companies move toward microservices and other distributed technologies, the complexity of these systems increases. You can't remove the complexity, but through Chaos Engineering you can discover vulnerabilities and prevent outages before they impact your customers. This practical guide shows engineers how to navigate complex systems while optimizing to meet business goals. Two of the field's prominent figures, Casey Rosenthal and Nora Jones, pioneered the discipline while working together at Netflix. In this book, they expound on the what, how, and why of Chaos Engineering while facilitating a conversation from practitioners across industries. Many chapters are written by contributing authors to widen the perspective across verticals within (and beyond) the software industry. Learn how Chaos Engineering enables your organization to navigate complexity Explore a methodology to avoid failures

within your application, network, and infrastructure Move from theory to practice through real-world stories from industry experts at Google, Microsoft, Slack, and LinkedIn, among others Establish a framework for thinking about complexity within software systems Design a Chaos Engineering program around game days and move toward highly targeted, automated experiments Learn how to design continuous collaborative chaos experiments

Workbook for Karsnitz/O'Brien/Hutchinson's Engineering Design: An Introduction, 2nd Apr 13 2021 The student workbook will help you succeed by providing real-world engineering design activities and skill-building exercises and problems. Designed to support *Engineering Design: An Introduction*, this important resource is full of drawing and sketching practice, brainstorming and team development exercises; and step-by-step procedures that will show you how to apply

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engineering concepts to open-ended design challenges. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. [Concise Guide to Software Engineering](#) Sep 06 2020 This essential textbook presents a concise introduction to the fundamental principles of software engineering, together with practical guidance on how to apply the theory in a real-world, industrial environment. The wide-ranging coverage encompasses all areas of software design, management, and quality. Topics and features: presents a broad overview of software engineering, including software lifecycles and phases in software development, and project management for software engineering; examines the areas of requirements engineering, software configuration management, software inspections, software testing, software quality assurance, and process quality; covers topics

on software metrics and problem solving, software reliability and dependability, and software design and development, including Agile approaches; explains formal methods, a set of mathematical techniques to specify and derive a program from its specification, introducing the Z specification language; discusses software process improvement, describing the CMMI model, and introduces UML, a visual modelling language for software systems; reviews a range of tools to support various activities in software engineering, and offers advice on the selection and management of a software supplier; describes such innovations in the field of software as distributed systems, service-oriented architecture, software as a service, cloud computing, and embedded systems; includes key learning topics, summaries and review questions in each chapter, together with a useful glossary. This practical and easy-to-follow

textbook/reference is ideal for

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computer science students seeking to learn how to build high quality and reliable software on time and on budget. The text also serves as a self-study primer for software engineers, quality professionals, and software managers.

97 Things Every Engineering Manager

Should Know Feb 21 2022

Tap into the wisdom of experts to learn what every engineering manager should know. With 97 short and extremely useful tips for engineering managers, you'll discover new approaches to old problems, pick up road-tested best practices, and hone your management skills through sound advice. Managing people is hard, and the industry as a whole is bad at it. Many managers lack the experience, training, tools, texts, and frameworks to do it well. From mentoring interns to working in senior management, this book will take you through the stages of management and provide actionable advice on how to approach the obstacles

you'll encounter as a technical manager. A few of the 97 things you should know: "Three Ways to Be the Manager Your Report Needs" by Duretti Hirpa "The First Two Questions to Ask When Your Team Is Struggling" by Cate Huston "Fire Them!" by Mike Fisher "The 5 Whys of Organizational Design" by Kellan Elliott-McCrea "Career Conversations" by Raquel Vélez "Using 6-Page Documents to Close Decisions" by Ian Nowland "Ground Rules in Meetings" by Lara Hogan

Fundamentals of Electrical Engineering

Aug 18 2021

Real-world engineering problems are rarely, if ever, neatly divided into mechanical, electrical, chemical, civil, and other categories. Engineers from all disciplines eventually encounter computer and electronic controls and instrumentation, which require at least a basic knowledge of electrical and other engineering specialties, as well as associated economics, and environmental, political, and social issues. Co-authored by

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Charles Gross—one of the most well-known and respected professors in the field of electric machines and power engineering—and his world-renowned colleague Thad Roppel, *Fundamentals of Electrical Engineering* provides an overview of the profession for engineering professionals and students whose specialization lies in areas other than electrical. For instance, civil engineers must contend with commercial electrical service and lighting design issues. Mechanical engineers have to deal with motors in HVAC applications, and chemical engineers are forced to handle problems involving process control. Simple and easy-to-use, yet more than sufficient in rigor and coverage of fundamental concepts, this resource teaches EE fundamentals but omits the typical analytical methods that hold little relevance for the audience. The authors provide many examples to illustrate concepts, as well as homework problems to help readers understand and apply

presented material. In many cases, courses for non-electrical engineers, or non-EEs, have presented watered-down classical EE material, resulting in unpopular courses that students hate and senior faculty members understandingly avoid teaching. To remedy this situation—and create more well-rounded practitioners—the authors focus on the true EE needs of non-EEs, as determined through their own teaching experience, as well as significant input from non-EE faculty. The book provides several important contemporary interdisciplinary examples to support this approach. The result is a full-color modern narrative that bridges the various EE and non-EE curricula and serves as a truly relevant course that students and faculty can both enjoy.

Test Engineering May 15 2021 Testing is usually the most expensive, time-consuming and difficult activity during the development of engineering products and

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systems. Development testing must be performed to ensure that designs meet requirements for performance, safety, durability, reliability, statutory aspects, etc. Most manufactured items must be tested to ensure that they are correctly made. However, much of the testing that is performed in industry is based upon traditions, standards and procedures that do not provide the optimum balance of assurance versus cost and time. There is often pressure to reduce testing because of the high costs involved, without appreciation of the effects on performance, reliability. etc. Misperceptions are commonplace, particularly the idea that tests should not stress products in excess of their operating levels. The main reason for this situation seems to be that engineers have not developed a consistent philosophy and methodology for testing. Testing is seldom taught as part of engineering curricula, and there are no books on the subject. Specialist areas are

taught, for example fatigue testing to mechanical engineers and digital device testing to electronics engineers. However, a wide range is untaught, particularly multidisciplinary and systems aspects. Testing is not just an engineering issue. Because of the importance and magnitude of the economic and business aspects testing is an issue for management. Testing is perceived as a high cost activity, when it should be considered as a value-adding process. The objective of this book is, therefore, to propose a philosophy of engineering test and to describe the necessary technologies and methods that will provide a foundation for all plans, methods and decisions related to testing of engineered products and systems. The book will help those who must manage and conduct this most difficult and uncertain task. It will also provide a text which can be used as the basis for teaching the principles of testing to all engineering students.

System Integration Feb 09

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2021 System Integration presents the systems approach to complex problem solving and provides a powerful base for both product and process integration. This unique reference describes 27 kinds of integration work, primarily obtained through human communications. Simple computer applications-already in place in most companies-have the resources to encourage the availability and sharing of current team knowledge, which results in an intense, cooperative experience leading rapidly to sound design solutions.

Engineering Dynamics Jun 27 2022 This Primer is intended to provide the theoretical background for the standard undergraduate, mechanical engineering course in dynamics. The book contains several worked examples and summaries and exercises at the end of each chapter to aid readers in their understanding of the material. Teachers who wish to have a source of more detailed theory for the course, as well as graduate students

who need a refresher course on undergraduate dynamics when preparing for certain first year graduate school examinations, and students taking the course will find the work very helpful.

Basic Civil Engineering Jul 17 2021 Basic Civil Engineering is designed to enrich the preliminary conceptual knowledge about civil engineering to the students of non-civil branches of engineering. The coverage includes materials for construction, building construction, basic surveying and other major topics like environmental engineering, geo-technical engineering, transport traffic and urban engineering, irrigation & water supply engineering and CAD.

Technology Strategy

Patterns Jul 25 2019

Technologists who want their ideas heard, understood, and funded are often told to speak the language of business—without really knowing what that is. This book's toolkit provides architects, product managers, technology managers, and

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executives with a shared language—in the form of repeatable, practical patterns and templates—to produce great technology strategies. Author Eben Hewitt developed 39 patterns over the course of a decade in his work as CTO, CIO, and chief architect for several global tech companies. With these proven tools, you can define, create, elaborate, refine, and communicate your architecture goals, plans, and approach in a way that executives can readily understand, approve, and execute. This book covers:

- Architecture and strategy: Adopt a strategic architectural mindset to make a meaningful material impact
- Creating your strategy: Define the components of your technology strategy using proven patterns
- Communicating the strategy: Convey your technology strategy in a compelling way to a variety of audiences
- Bringing it all together: Employ patterns individually or in clusters for specific problems; use the complete framework for a comprehensive strategy

Database Reliability

Engineering Jul 29 2022 The infrastructure-as-code revolution in IT is also affecting database administration. With this practical book, developers, system administrators, and junior to mid-level DBAs will learn how the modern practice of site reliability engineering applies to the craft of database architecture and operations. Authors Laine Campbell and Charity Majors provide a framework for professionals looking to join the ranks of today's database reliability engineers (DBRE). You'll begin by exploring core operational concepts that DBREs need to master. Then you'll examine a wide range of database persistence options, including how to implement key technologies to provide resilient, scalable, and performant data storage and retrieval. With a firm foundation in database reliability engineering, you'll be ready to dive into the architecture and operations of any modern database. This book covers: Service-level

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requirements and risk management Building and evolving an architecture for operational visibility Infrastructure engineering and infrastructure management How to facilitate the release management process Data storage, indexing, and replication Identifying datastore characteristics and best use cases Datastore architectural components and data-driven architectures *Probability Distributions Used in Reliability Engineering* Dec 30 2019 The book provides

details on 22 probability distributions. Each distribution section provides a graphical visualization and formulas for distribution parameters, along with distribution formulas. Common statistics such as moments and percentile formulas are followed by likelihood functions and in many cases the derivation of maximum likelihood estimates. Bayesian non-informative and conjugate priors are provided followed by a discussion on the distribution characteristics and applications in reliability engineering.