

Software Design X Rays

You will be able to watch a capable scientist work to uncover the mystery of what he suspects is a new kind of radiation, a radiation he eventually calls x-rays. A German scientist, Wilhelm Conrad Roentgen, is the main character in this book. His experimental expertise was the key element in his successful science career. When he saw something unusual as he pursued one of his experiments, he investigated to learn more. Long before Roentgen discovered x-rays many other scientists around the world had seen unusual effects, including fogging of film or electrical changes, effects that they never followed up and that later proved to have resulted from x-rays. So many scientists had the opportunity to discover x-rays. Roentgen was the only one who persisted. He learned much about these new rays, and, even though he had some misgivings about his conclusions about a new kind of rays, accepted the challenge to inform fellow scientists about his discovery. His discovery was the start of many new ideas that changed the world perception of science – and changed the lives of Roentgen and his wife Bertha. Roentgen's story is inspiring and unusual, in that he had to overcome many obstacles on his long journey to become a recognized scientist and teacher. Even after he had earned his doctorate in physics his unusual education path to an advanced degree presented problems. He persisted; his story may inspire the reader not to give up in the pursuit of a goal.

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Strategies for building large systems that can be easily adapted for new situations with only minor programming modifications. Time pressures encourage programmers to write code that works well for a narrow purpose, with no room to grow. But the best systems are evolvable; they can be adapted for new situations by adding code, rather than changing the existing code. The authors describe techniques they have found effective--over their combined 100-plus years of programming experience--that will help programmers avoid programming themselves into corners. The authors explore ways to enhance flexibility by:

- Organizing systems using combinators to compose mix-and-match parts, ranging from small functions to whole arithmetics, with standardized interfaces
- Augmenting data with independent annotation layers, such as units of measurement or provenance
- Combining independent pieces of partial information using unification or propagation
- Separating control structure from problem domain with domain models, rule systems and pattern matching, propagation, and dependency-directed backtracking
- Extending the programming language, using dynamically extensible evaluators

This book documents the fascinating history of radiological techniques that use contrast agents. The text includes many of the fundamental documentary sources that bring to life the social and scientific background of the discoveries, the personalities of the discoverers, and implementation of new technologies. Such agents when used with X-rays allow clinicians to distinguish anatomical structures with nearly identical densities.

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Focus is on urological and angiographic uses of contrast agents. Key selling features:
Documents and thoroughly references the history of contrast agent development
Reviews the priority and importance of patents
Discusses the role that important individual scientists and leading research institutions have played in technology development and implementation

This book teaches the users on how to construct a library of routines to simulate scattering and diffraction by almost any kind of samples. The main goal of this book is to break down the huge barrier of difficulties faced by beginners from many fields (Engineering, Physics, Chemistry, Biology, Medicine, Material Science, etc.) in using X-rays as an analytical tool in their research. Besides fundamental concepts, MatLab routines are provided, showing how to test and implement the concepts. The major difficult in analysing materials by X-ray techniques is that it strongly depends on simulation software. This book teaches the users on how to construct a library of routines to simulate scattering and diffraction by almost any kind of samples. It provides to a young student the knowledge that would take more than 20 years to acquire by working on X-rays and relying on the available textbooks. The scientific productivity worldwide is growing at a breakneck pace, demanding ever more dynamic approaches and synergies between different fields of knowledge. To master the fundamentals of X-ray physics means the opportunity of working at an infiniteness of fields, studying systems where the organizational understanding of matter at the atomic scale is

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necessary. Since the discovery of X radiation, its usage as investigative tool has always been under fast expansion afforded by instrumental advances and computational resources. Developments in medical and technological fields have, as one of the master girders, the feasibility of structural analysis offered by X-rays. One of the major difficulties faced by beginners in using this fantastic tool lies in the analysis of experimental data. There are only few cases where it is possible to extract structural information directly from experiments. In most cases, structure models and simulation of radiation-matter interaction processes are essential. The advent of intense radiation sources and rapid development of nanotechnology constantly creates challenges that seek solutions beyond those offered by standard X-ray techniques. Preparing new researchers for this scenario of rapid and drastic changes requires more than just teaching theories of physical phenomena. It also requires teaching of how to implement them in a simple and efficient manner. In this book, fundamental concepts in applied X-ray physics are demonstrated through available computer simulation tools. Using MatLab, more than eighty routines are developed for solving the proposed exercises, most of which can be directly used in experimental data analysis. Therefore, besides X-ray physics, this book offers a practical programming course in modern high-level language, with plenty of graphic and mathematical tools.

Software Design X-Rays
Fix Technical Debt with Behavioral Code Analysis
Pragmatic Bookshelf

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It's been said that software is eating the planet. The modern economy—the world itself—relies on technology. Demand for the people who can produce it far outweighs the supply. So why do developers occupy largely subordinate roles in the corporate structure? *Developer Hegemony* explores the past, present, and future of the corporation and what it means for developers. While it outlines problems with the modern corporate structure, it's ultimately a play-by-play of how to leave the corporate carnival and control your own destiny. And it's an emboldening, specific vision of what software development looks like in the world of developer hegemony—one where developers band together into partner firms of “efficiencers,” finally able to command the pay, respect, and freedom that's earned by solving problems no one else can. Developers, if you grow tired of being treated like geeks who can only be trusted to take orders and churn out code, consider this your call to arms. Bring about the autonomous future that's rightfully yours. It's time for developer hegemony.

Explore the latest Java-based software development techniques and methodologies through the project-based approach in this practical guide. Unlike books that use abstract examples and lots of theory, *Real-World Software Development* shows you how to develop several relevant projects while learning best practices along the way. With this engaging approach, junior developers capable of writing basic Java code will learn about state-of-the-art software development practices for building modern, robust and maintainable Java software. You'll work with many different software development

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topics that are often excluded from software develop how-to references. Featuring real-world examples, this book teaches you techniques and methodologies for functional programming, automated testing, security, architecture, and distributed systems. Free and open source is the foundation of software development, and it's built by people just like you. Discover the fundamental tenets that drive the movement. Take control of your career by selecting the right project to meet your professional goals. Master the language and avoid the pitfalls that typically ensnare new contributors. Join a community of like-minded people and change the world. Programmers, writers, designers, and everyone interested in software will make their mark through free and open source software contributions. Free and open source software is the default choice for the programming languages and technologies which run our world today, and it's all built and maintained by people just like you. No matter your skill level or area of expertise, with this book you will contribute to free and open source software projects. Using this practical approach you'll understand not only the mechanics of contributing, but also how doing so helps your career as well as the community. This book doesn't assume that you're a programmer, or even that you have prior experience with free and open source software. Learn what open source is, where it came from, and why it's important. Start on the right foot by mastering the structure and tools you need before you contribute. Choose the right project for you, amplifying the impact of your contribution. Submit your first contribution, whether it's code, writing, design, or

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community organising. Find out what to do when things don't go the way you expect. Discover how to start your own project and make it friendly and welcoming to contributors. Anyone can contribute! Make your mark today and help others while also helping yourself.

Chest X-rays for Medical Students is a unique teaching and learning resource that offers students, junior doctors, trainee radiologists, nurses, physiotherapists and nurse practitioners a basic understanding of the principles of chest radiology. Provides a memorable way to analyze and present chest radiographs – the unique 'ABCDE' system as developed by the authors Explains how to recognize basic radiological signs, pathology and patterns associated with common medical conditions as seen on plain PA and AP chest radiographs Presents each radiograph twice, side by side - once as would be seen in a clinical setting and again with the pathology clearly highlighted Includes a section of self-assessment and presentation exercises to test knowledge and presentation technique Ideal for study and clinical reference, this book will be the ideal companion for any medical student, junior doctor or trainee radiographer.

A Century of X-Rays and Radioactivity in Medicine: With Emphasis on Photographic Records of the Early Years celebrates three great discoveries-x-rays (1895), radioactivity (1896), and radium (1898)-and recalls the pioneering

achievements that founded the new science of radiology and changed the face of medicine forever. Over 700 historical illustrations with full and informative captions are supported by short introductory essays to illuminate the fascinating radiological past in an easy-to-read style. The focus of this book is on the historically more interesting early years of discovery, invention, diagnosis, therapy, dosimetry, risk, and protection. Interspersed with a variety of radiological anecdotes, the photographic record is complemented by archival accounts of the pioneer scientists and physicians and their early patients. In the chapters on diagnostic techniques, radiotherapy, and nuclear medicine, the author contrasts old methods with newer technologies. He also includes two fascinating chapters on museum and industrial applications of radiography. The book is comprehensively indexed for easy retrieval of the wide variety of people, techniques, apparatus, and examples featured throughout this radiological journey.

"Updates fundamentals and applications of all modes of x-ray spectrometry, including total reflection and polarized beam x-ray fluorescence analysis, and synchrotron radiation induced x-ray emission. Promotes the accurate measurement of samples while reducing the scattered background in the x-ray spectrum."

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The rapid growth in the applications of electronic materials has created an increasing demand for reliable techniques for examining and characterizing these materials. This book explores the area of x-ray diffraction and the techniques available for deployment in research, development, and production. It maps the theoretical and practical background necessary to study single crystal materials using high resolution x-ray diffraction and topography. It combines mathematical formalism with graphical explanations and hands-on advice for interpreting data, thus providing the theoretical and practical background for applying these techniques in scientific and industrial materials characterization

Passenger screening at commercial airports in the United States has gone through significant changes since the events of September 11, 2001. In response to increased concern over terrorist attacks on aircrafts, the Transportation Security Administration (TSA) has deployed security systems of advanced imaging technology (AIT) to screen passengers at airports. To date (December 2014), TSA has deployed AITs in U.S. airports of two different technologies that use different types of radiation to detect threats: millimeter wave and X-ray backscatter AIT systems. X-ray backscatter AITs were deployed in U.S. airports in 2008 and subsequently removed from all airports by June 2013 due to privacy concerns. TSA is looking to deploy a second-generation X-ray backscatter AIT

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equipped with privacy software to eliminate production of an image of the person being screened in order to alleviate these concerns. This report reviews previous studies as well as current processes used by the Department of Homeland Security and equipment manufacturers to estimate radiation exposures resulting from backscatter X-ray advanced imaging technology system use in screening air travelers. Airport Passenger Screening Using Backscatter X-Ray Machines examines whether exposures comply with applicable health and safety standards for public and occupational exposures to ionizing radiation and whether system design, operating procedures, and maintenance procedures are appropriate to prevent over exposures of travelers and operators to ionizing radiation. This study aims to address concerns about exposure to radiation from X-ray backscatter AITs raised by Congress, individuals within the scientific community, and others.

Contrary to what many believe, Alan Turing is not the father of the all-purpose computer. Engineers were, independently of Turing, already building such machines during World War II. Turing's influence was felt more in programming after his death than in computer building during his lifetime. The first person to receive a Turing award was a programmer, not a computer builder. Logicians and programmers recast Turing's notions of machine and universality. Gradually,

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these recast notions helped programmers to see the bigger picture of what they were accomplishing. Later, problems unsolvable with a computer influenced experienced programmers, including Edsger W. Dijkstra. Dijkstra's pioneering work shows that both unsolvability and aesthetics have practical relevance in software engineering. But to what extent did Dijkstra and others depend on Turing's accomplishments? This book presents a revealing synthesis for the modern software engineer and, by doing so, deromanticizes Turing's role in the history of computing.

Read an exclusive interview with Dr. Jerry Battista [here](#). A critical element of radiation treatment planning for cancer is the accurate prediction and delivery of a tailored radiation dose distribution inside the patient. Megavoltage x-ray beams are aimed at the tumour, while collateral damage to nearby healthy tissue and organs is minimized. The key to optimal treatment therefore lies in adopting a trustworthy three-dimensional (3D) dose computation algorithm, which simulates the passage of both primary and secondary radiation throughout the exposed tissue. Edited by an award-winning university educator and pioneer in the field of voxel-based radiation dose computation, this book explores the physics and mathematics that underlie algorithms encountered in contemporary radiation oncology. It is an invaluable reference for clinical physicists who commission,

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develop, or test treatment planning software. This book also covers a core topic in the syllabus for educating graduate students and residents entering the field of clinical physics. This book starts with a historical perspective gradually building up to the three most important algorithms used for today's clinical applications. These algorithms can solve the same general radiation transport problem from three vantages: firstly, applying convolution-superposition principles (i.e. Green's method); secondly, the stochastic simulation of radiation particle interactions with tissue atoms (i.e. the Monte Carlo method); and thirdly, the deterministic solution of the fundamental equations for radiation fields of x-rays and their secondary particles (i.e. the Boltzmann method). It contains clear, original illustrations of key concepts and quantities throughout, supplemented by metaphors and analogies to facilitate comprehension and retention of knowledge. Features: Edited by an authority in the field, enhanced with chapter contributions from physicists with clinical experience in the fields of computational dosimetry and dose optimization Contains examples of test phantom results and clinical cases, illustrating pitfalls to avoid in clinical applications to radiation oncology Introduces four-dimensional (4D) dose computation, on-line dose reconstruction, and dose accumulation that accounts for tissue displacements and motion throughout a course of radiation therapy

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A single dramatic software failure can cost a company millions of dollars - but can be avoided with simple changes to design and architecture. This new edition of the best-selling industry standard shows you how to create systems that run longer, with fewer failures, and recover better when bad things happen. New coverage includes DevOps, microservices, and cloud-native architecture. Stability antipatterns have grown to include systemic problems in large-scale systems. This is a must-have pragmatic guide to engineering for production systems. If you're a software developer, and you don't want to get alerts every night for the rest of your life, help is here. With a combination of case studies about huge losses - lost revenue, lost reputation, lost time, lost opportunity - and practical, down-to-earth advice that was all gained through painful experience, this book helps you avoid the pitfalls that cost companies millions of dollars in downtime and reputation. Eighty percent of project life-cycle cost is in production, yet few books address this topic. This updated edition deals with the production of today's systems - larger, more complex, and heavily virtualized - and includes information on chaos engineering, the discipline of applying randomness and deliberate stress to reveal systematic problems. Build systems that survive the real world, avoid downtime, implement zero-downtime upgrades and continuous delivery, and make cloud-native applications resilient. Examine ways to architect,

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design, and build software - particularly distributed systems - that stands up to the typhoon winds of a flash mob, a Slashdotting, or a link on Reddit. Take a hard look at software that failed the test and find ways to make sure your software survives. To skip the pain and get the experience...get this book.

Jack the Ripper and legacy codebases have more in common than you'd think. Inspired by forensic psychology methods, you'll learn strategies to predict the future of your codebase, assess refactoring direction, and understand how your team influences the design. With its unique blend of forensic psychology and code analysis, this book arms you with the strategies you need, no matter what programming language you use.

Software is a living entity that's constantly changing. To understand software systems, we need to know where they came from and how they evolved. By mining commit data and analyzing the history of your code, you can start fixes ahead of time to eliminate broken designs, maintenance issues, and team productivity bottlenecks. In this book, you'll learn forensic psychology techniques to successfully maintain your software. You'll create a geographic profile from your commit data to find hotspots, and apply temporal coupling concepts to uncover hidden relationships between unrelated areas in your code. You'll also measure the effectiveness of your code improvements. You'll learn how to apply these techniques on projects both large and small. For small projects, you'll get new insights into your design and how well the code fits your ideas. For large projects, you'll identify the good and the fragile parts. Large-scale

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development is also a social activity, and the team's dynamics influence code quality. That's why this book shows you how to uncover social biases when analyzing the evolution of your system. You'll use commit messages as eyewitness accounts to what is really happening in your code. Finally, you'll put it all together by tracking organizational problems in the code and finding out how to fix them. Come join the hunt for better code! What You Need: You need Java 6 and Python 2.7 to run the accompanying analysis tools. You also need Git to follow along with the examples. Architect and urban designer Suisman lays out his views on the urban structure of Los Angeles, exemplified by the long boulevards that cut across the urban body that is Los Angeles.

Only Coloring Book Like It! ? Funny + Wrong = Totally Ass-some Holiday Gift! Laugh your butt off as you color 31 Funny X-Rays of crazy things people stuck up theirs! ? Inspired by real X-Rays! Inside This One-of-a-Kind Adult Coloring Book: 31 Original Designs of Ridiculous X-Rays & Funny Quotes Each Page Features Stress-Relieving Repeating Patterns, Swirls and Abstract Shapes 5 Different Pelvic Layouts with Multiple Design Options for Hours of Coloring Fun Single-Sided Pages on 8.5" x 11" White Paper Great for Most Coloring Tools (Pens, Pencils, Markers) Perfect Coloring Book for Nurses, Doctors, Medical Students and Anyone in Radiology! Awesome White Elephant, Secret Santa, Gag Gift! Grab your coloring pens & pencils and laugh a little. It's the best medicine! You Put What Up Your Butt? is a hilarious addition to any break

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room or staff lounge! THE perfect gift for the stressed medical professional or anyone who needs a good laugh at the expense of someone who got a little too creative with their rectum. Oops! How did that get in there, doc? No ifs, ands or BUTTs about it, it's totally ass-some! Also available from Bad Perm Unicorn: You Put What Up Your Butt? - Midnight Edition ? Same coloring book printed on black paper. Your colors really pop! ? amazon.com/dp/B085RPSGNN

You need to get value from your software project. You need it "free, now, and perfect." We can't get you there, but we can help you get to "cheaper, sooner, and better." This book leads you from the desire for value down to the specific activities that help good Agile projects deliver better software sooner, and at a lower cost. Using simple sketches and a few words, the author invites you to follow his path of learning and understanding from a half century of software development and from his engagement with Agile methods from their very beginning. The book describes software development, starting from our natural desire to get something of value. Each topic is described with a picture and a few paragraphs. You're invited to think about each topic; to take it in. You'll think about how each step into the process leads to the next. You'll begin to see why Agile methods ask for what they do, and you'll learn why a shallow implementation of Agile can lead to only limited improvement. This is not a detailed map, nor a step-by-step set of instructions for building the perfect project. There is no map or instructions that will do that for you. You need to build your own project, making

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it a bit more perfect every day. To do that effectively, you need to build up an understanding of the whole process. This book points out the milestones on your journey of understanding the nature of software development done well. It takes you to a location, describes it briefly, and leaves you to explore and fill in your own understanding. What You Need: You'll need your Standard Issue Brain, a bit of curiosity, and a desire to build your own understanding rather than have someone else's detailed ideas poured into your head.

While books on the medical applications of x-ray imaging exist, there is not one currently available that focuses on industrial applications. Full of color images that show clear spectrometry and rich with applications, X-Ray Imaging fills the need for a comprehensive work on modern industrial x-ray imaging. It reviews the fundamental science of x-ray imaging and addresses equipment and system configuration. Useful to a broad range of radiation imaging practitioners, the book looks at the rapid development and deployment of digital x-ray imaging system.

Now fully updated, the second edition of Modern Diagnostic X-Ray Sources: Technology, Manufacturing, Reliability gives an up-to-date summary of X-ray source technology and design for applications in modern diagnostic medical imaging. It lays a sound groundwork for education and advanced training in the physics of X-ray production, X-ray interactions with matter, and imaging modalities and assesses their prospects. The book begins with a comprehensive and easy-to-read historical overview

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of X-ray tube and generator development, including key achievements leading up to the current technological and economic state of the field. The book covers the physics of X-ray generation, including the process of constructing X-ray source devices. The stand-alone chapters can be read in order or in selections. They take you inside diagnostic X-ray tubes, illustrating their design, functions, metrics for validation, and interfaces. The detailed descriptions enable objective comparison and benchmarking. This detailed presentation of X-ray tube creation and functions enables you to understand how to optimize tube efficiency, particularly with consideration for economics and environmental care. It also simplifies faultfinding. Along with covering the past and current state of the field, the book assesses the future regarding developing new X-ray sources that can enhance performance and yield greater benefits to the scientific community and to the public. After heading international R&D, marketing and advanced development for X-ray sources with Philips, and working in the X-ray industry for more than four decades, Rolf Behling retired in 2020 and is now the owner of the consulting firm XtraininX, Germany. He holds numerous patents and is continuously publishing, consulting and training.

Examines New York City as a paradigmatic example of the tensions between privatization and public uses of space in the contemporary U.S.

This open access book gives a complete and comprehensive introduction to the fields of medical imaging systems, as designed for a broad range of applications. The authors

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of the book first explain the foundations of system theory and image processing, before highlighting several modalities in a dedicated chapter. The initial focus is on modalities that are closely related to traditional camera systems such as endoscopy and microscopy. This is followed by more complex image formation processes: magnetic resonance imaging, X-ray projection imaging, computed tomography, X-ray phase-contrast imaging, nuclear imaging, ultrasound, and optical coherence tomography. More and more Agile projects are seeking architectural roots as they struggle with complexity and scale - and they're seeking lightweight ways to do it Still seeking? In this book the authors help you to find your own path Taking cues from Lean development, they can help steer your project toward practices with longstanding track records Up-front architecture? Sure. You can deliver an architecture as code that compiles and that concretely guides development without bogging it down in a mass of documents and guesses about the implementation Documentation? Even a whiteboard diagram, or a CRC card, is documentation: the goal isn't to avoid documentation, but to document just the right things in just the right amount Process? This all works within the frameworks of Scrum, XP, and other Agile approaches

“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*

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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 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

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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.

This book has evolved by processes of selection and expansion from its predecessor, Practical Scanning Electron Microscopy (PSEM), published by Plenum Press in 1975. The interaction of the authors with students at the Short Course on Scanning Electron Microscopy and X-Ray Microanalysis held annually at Lehigh University has helped greatly in developing this textbook. The material has been chosen to provide a student with a general introduction to the techniques of scanning electron microscopy and x-ray microanalysis suitable for application in such fields as biology, geology, solid state physics, and materials science. Following the format of PSEM, this book gives the

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student a basic knowledge of (1) the user-controlled functions of the electron optics of the scanning electron microscope and electron microprobe, (2) the characteristics of electron-beam-sample interactions, (3) image formation and interpretation, (4) x-ray spectrometry, and (5) quantitative x-ray microanalysis. Each of these topics has been updated and in most cases expanded over the material presented in PSEM in order to give the reader sufficient coverage to understand these topics and apply the information in the laboratory. Throughout the text, we have attempted to emphasize practical aspects of the techniques, describing those instrument parameters which the microscopist can and must manipulate to obtain optimum information from the specimen. Certain areas in particular have been expanded in response to their increasing importance in the SEM field. Thus energy-dispersive x-ray spectrometry, which has undergone a tremendous surge in growth, is treated in substantial detail.

Are you working on a codebase where cost overruns, death marches, and heroic fights with legacy code monsters are the norm? Battle these adversaries with novel ways to identify and prioritize technical debt, based on behavioral data from how developers work with code. And that's just for starters. Because good code involves social design, as well as technical design, you can find surprising dependencies between people and code to resolve coordination bottlenecks among teams. Best of all, the techniques build on behavioral data that you already have: your version-control system. Join the fight for better code! Use statistics and data science to uncover both problematic code and the

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behavioral patterns of the developers who build your software. This combination gives you insights you can't get from the code alone. Use these insights to prioritize refactoring needs, measure their effect, find implicit dependencies between different modules, and automatically create knowledge maps of your system based on actual code contributions. In a radical, much-needed change from common practice, guide organizational decisions with objective data by measuring how well your development teams align with the software architecture. Discover a comprehensive set of practical analysis techniques based on version-control data, where each point is illustrated with a case study from a real-world codebase. Because the techniques are language neutral, you can apply them to your own code no matter what programming language you use. Guide organizational decisions with objective data by measuring how well your development teams align with the software architecture. Apply research findings from social psychology to software development, ensuring you get the tools you need to coach your organization towards better code. If you're an experienced programmer, software architect, or technical manager, you'll get a new perspective that will change how you work with code. What You Need: You don't have to install anything to follow along in the book. The case studies in the book use well-known open source projects hosted on GitHub. You'll use CodeScene, a free software analysis tool for open source projects, for the case studies. We also discuss alternative tooling options where they exist.

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Short presentation of aspects important for the application of X-ray contrast media: Composition and properties of contrast media, handling with respect to stability, purity and sterility; applications, interaction, risks; drugs for prophylaxis and treatment of side effects.

This book provides easy-to-understand explanations to systematically and comprehensively describe the X-ray CT technologies, techniques, and skills used for industrial and scientific purposes. Included are many references along with photographs, figures, and equations prepared by the author. These features all facilitate the reader's gaining a deeper understanding of the topics being discussed. The book presents expertise not only on fundamentals but also about hardware, software, and analytical methods for the benefit of technical users. The book targets engineers, researchers, and students who are involved in research, development, design, and quality assurance in industry and academia. This publication was supported by JSPS KAKENHI Grant Number 20HP5222. .

Provides comprehensive coverage on using X-ray fluorescence for laboratory applications This book focuses on the practical aspects of X-ray fluorescence (XRF) spectroscopy and discusses the requirements for a successful sample analysis, such as sample preparation, measurement techniques and calibration, as well as the quality of the analysis results. X-Ray Fluorescence Spectroscopy for Laboratory Applications begins with a short overview of the physical fundamentals of the generation of X-rays

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and their interaction with the sample material, followed by a presentation of the different methods of sample preparation in dependence on the quality of the source material and the objective of the measurement. After a short description of the different available equipment types and their respective performance, the book provides in-depth information on the choice of the optimal measurement conditions and the processing of the measurement results. It covers instrument types for XRF; acquisition and evaluation of X-Ray spectra; analytical errors; analysis of homogeneous materials, powders, and liquids; special applications of XRF; process control and automation. An important resource for the analytical chemist, providing concrete guidelines and support for everyday analyses Focuses on daily laboratory work with commercially available devices Offers a unique compilation of knowledge and best practices from equipment manufacturers and users Covers the entire work process: sample preparation, the actual measurement, data processing, assessment of uncertainty, and accuracy of the obtained results X-Ray Fluorescence Spectroscopy for Laboratory Applications appeals to analytical chemists, analytical laboratories, materials scientists, environmental chemists, chemical engineers, biotechnologists, and pharma engineers.

The latest title in Addison Wesley's world-renowned Robert C. Martin Series on better software development, Code That Fits in Your Head offers indispensable practical advice for writing code at a sustainable pace, and controlling the complexity that causes too many software projects to spin out of control. Reflecting decades of experience

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consulting on software projects and helping development teams succeed, Mark Seemann shares proven practices and heuristics, supported by realistic advice. His guidance ranges from checklists to teamwork, encapsulation to decomposition, API design to unit testing and troubleshooting. Throughout, Seemann illuminates his insights with up-to-date code examples drawn from a start to finish sample project. Seemann's examples are written in C#, and designed to be clear and useful to every object-oriented enterprise developer, whether they use C#, Java, or another language. Code That Fits in Your Head is accompanied by the complete code base for this sample application, organized in a Git repository to facilitate further exploration of details that don't fit in the text.

X-ray diffraction is a useful and powerful analysis technique for characterizing crystalline materials commonly employed in MSE, physics, and chemistry. This informative new book describes the principles of X-ray diffraction and its applications to materials characterization. It consists of three parts. The first deals with elementary crystallography and optics, which is essential for understanding the theory of X-ray diffraction discussed in the second section of the book. Part 2 describes how the X-ray diffraction can be applied for characterizing such various forms of materials as thin films, single crystals, and powders. The third section of the book covers applications of X-ray diffraction. The book presents a number of examples to help readers better comprehend the subject. X-Ray Diffraction for Materials Research: From Fundamentals to Applications also • provides background knowledge of diffraction to enable nonspecialists to become familiar with the topics • covers the practical applications as well as

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the underlying principle of X-ray diffraction • presents appropriate examples with answers to help readers understand the contents more easily • includes thin film characterization by X-ray diffraction with relevant experimental techniques • presents a huge number of elaborately drawn graphics to help illustrate the content The book will help readers (students and researchers in materials science, physics, and chemistry) understand crystallography and crystal structures, interference and diffraction, structural analysis of bulk materials, characterization of thin films, and nondestructive measurement of internal stress and phase transition. Diffraction is an optical phenomenon and thus can be better understood when it is explained with an optical approach, which has been neglected in other books. This book helps to fill that gap, providing information to convey the concept of X-ray diffraction and how it can be applied to the materials analysis. This book will be a valuable reference book for researchers in the field and will work well as a good introductory book of X-ray diffraction for students in materials science, physics, and chemistry.

This book explores novel methods for implementing X-ray diffraction technology as an imaging modality, which have been made possible through recent breakthroughs in detector technology, computational power, and data processing algorithms. The ability to perform fast, spatially-resolved X-ray diffraction throughout the volume of a sample opens up entirely new possibilities in areas such as material analysis, cancer diagnosis, and explosive detection, thus offering the potential to revolutionize the fields of medical, security, and industrial imaging and detection. Featuring chapters written by an international selection of authors from both academia and industry, the book provides a comprehensive discussion of the underlying physics, architectures, and applications of X-ray diffraction imaging that is accessible and

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relevant to neophytes and experts alike. Teaches novel methods for X-ray diffraction imaging Comprehensive and self-contained discussion of the relevant physics, imaging techniques, system components, and data processing algorithms Features state-of-the-art work of international authors from both academia and industry. Includes practical applications in the medical, industrial, and security sectors

Are there any constraints known that bear on the ability to perform Agile Management for Software Engineering work? How is the team addressing them? In a project to restructure Agile Management for Software Engineering outcomes, which stakeholders would you involve? How much are sponsors, customers, partners, stakeholders involved in Agile Management for Software Engineering? In other words, what are the risks, if Agile Management for Software Engineering does not deliver successfully? How does the organization define, manage, and improve its Agile Management for Software Engineering processes? What are the business goals Agile Management for Software Engineering is aiming to achieve? Defining, designing, creating, and implementing a process to solve a business challenge or meet a business objective is the most valuable role... In EVERY company, organization and department. Unless you are talking a one-time, single-use project within a business, there should be a process. Whether that process is managed and implemented by humans, AI, or a combination of the two, it needs to be designed by someone with a complex enough perspective to ask the right questions. Someone capable of asking the right questions and step back and say, 'What are we really trying to accomplish here? And is there a different way to look at it?' For more than twenty years, The Art of Service's Self-Assessments empower people who can do just that - whether their title is marketer, entrepreneur, manager, salesperson, consultant, business

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process manager, executive assistant, IT Manager, CxO etc... - they are the people who rule the future. They are people who watch the process as it happens, and ask the right questions to make the process work better. This book is for managers, advisors, consultants, specialists, professionals and anyone interested in Agile Management for Software Engineering assessment. All the tools you need to an in-depth Agile Management for Software Engineering Self-Assessment. Featuring 616 new and updated case-based questions, organized into seven core areas of process design, this Self-Assessment will help you identify areas in which Agile Management for Software Engineering improvements can be made. In using the questions you will be better able to: - diagnose Agile Management for Software Engineering projects, initiatives, organizations, businesses and processes using accepted diagnostic standards and practices - implement evidence-based best practice strategies aligned with overall goals - integrate recent advances in Agile Management for Software Engineering and process design strategies into practice according to best practice guidelines Using a Self-Assessment tool known as the Agile Management for Software Engineering Scorecard, you will develop a clear picture of which Agile Management for Software Engineering areas need attention. Included with your purchase of the book is the Agile Management for Software Engineering Self-Assessment downloadable resource, which contains all questions and Self-Assessment areas of this book in a ready to use Excel dashboard, including the self-assessment, graphic insights, and project planning automation - all with examples to get you started with the assessment right away. Access instructions can be found in the book. You are free to use the Self-Assessment contents in your presentations and materials for customers without asking us - we are here to help.

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Containing chapter contributions from over 130 experts, this unique publication is the first handbook dedicated to the physics and technology of X-ray imaging, offering extensive coverage of the field. This highly comprehensive work is edited by one of the world's leading experts in X-ray imaging physics and technology and has been created with guidance from a Scientific Board containing respected and renowned scientists from around the world. The book's scope includes 2D and 3D X-ray imaging techniques from soft-X-ray to megavoltage energies, including computed tomography, fluoroscopy, dental imaging and small animal imaging, with several chapters dedicated to breast imaging techniques. 2D and 3D industrial imaging is incorporated, including imaging of artworks. Specific attention is dedicated to techniques of phase contrast X-ray imaging. The approach undertaken is one that illustrates the theory as well as the techniques and the devices routinely used in the various fields. Computational aspects are fully covered, including 3D reconstruction algorithms, hard/software phantoms, and computer-aided diagnosis. Theories of image quality are fully illustrated. Historical, radioprotection, radiation dosimetry, quality assurance and educational aspects are also covered. This handbook will be suitable for a very broad audience, including graduate students in medical physics and biomedical engineering; medical physics residents; radiographers; physicists and engineers in the field of imaging and non-destructive industrial testing using X-rays; and scientists interested in understanding and using X-ray imaging techniques. The handbook's editor, Dr. Paolo Russo, has over 30 years' experience in the academic teaching of medical physics and X-ray imaging research. He has authored several book chapters in the field of X-ray imaging, is Editor-in-Chief of an international scientific journal in medical physics, and has responsibilities in the publication committees of

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international scientific organizations in medical physics. Features: Comprehensive coverage of the use of X-rays both in medical radiology and industrial testing The first handbook published to be dedicated to the physics and technology of X-rays Handbook edited by world authority, with contributions from experts in each field

What others in the trenches say about The Pragmatic Programmer... “The cool thing about this book is that it’s great for keeping the programming process fresh. The book helps you to continue to grow and clearly comes from people who have been there.” —Kent Beck, author of Extreme Programming Explained: Embrace Change “I found this book to be a great mix of solid advice and wonderful analogies!” —Martin Fowler, author of Refactoring and UML Distilled “I would buy a copy, read it twice, then tell all my colleagues to run out and grab a copy. This is a book I would never loan because I would worry about it being lost.” —Kevin Ruland, Management Science, MSG-Logistics “The wisdom and practical experience of the authors is obvious. The topics presented are relevant and useful.... By far its greatest strength for me has been the outstanding analogies—tracer bullets, broken windows, and the fabulous helicopter-based explanation of the need for orthogonality, especially in a crisis situation. I have little doubt that this book will eventually become an excellent source of useful information for journeymen programmers and expert mentors alike.” —John Lakos, author of Large-Scale C++ Software Design “This is the sort of book I will buy a dozen copies of when it comes out so I can give it to my clients.” —Eric Vought, Software Engineer “Most modern books on software development fail to cover the basics of what makes a great software developer, instead spending their time on syntax or technology where in reality the greatest leverage possible for any software team is in having talented developers who really know their craft well. An

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excellent book.” —Pete McBreen, Independent Consultant “Since reading this book, I have implemented many of the practical suggestions and tips it contains. Across the board, they have saved my company time and money while helping me get my job done quicker! This should be a desktop reference for everyone who works with code for a living.” —Jared Richardson, Senior Software Developer, iRenaissance, Inc. “I would like to see this issued to every new employee at my company....” —Chris Cleeland, Senior Software Engineer, Object Computing, Inc. “If I’m putting together a project, it’s the authors of this book that I want. . . . And failing that I’d settle for people who’ve read their book.” —Ward Cunningham Straight from the programming trenches, *The Pragmatic Programmer* cuts through the increasing specialization and technicalities of modern software development to examine the core process--taking a requirement and producing working, maintainable code that delights its users. It covers topics ranging 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; Avoid the trap of duplicating knowledge; Write flexible, dynamic, and adaptable code; Avoid programming by coincidence; Bullet-proof your code with contracts, assertions, and exceptions; Capture real requirements; Test ruthlessly and effectively; Delight your users; Build teams of pragmatic programmers; and Make your developments more precise with automation. Written as a series of self-contained sections and filled with entertaining anecdotes, thoughtful examples, and interesting analogies, *The Pragmatic Programmer* illustrates the best practices 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

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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.

Intended to provide scientists and engineers at synchrotron radiation facilities with a sound and convenient basis for designing beamlines for monochromatic soft x-ray radiation, this text will also be helpful to the users of synchrotron radiation who want to help ensure that beamlines being built are optimized for the experiments to be performed on them. The primary purpose of a beamline is to capture as much of the light of the source as possible and then to transfer the desired portion of that light as completely as possible to the experiment. With the development of dedicated, brilliant synchrotron radiation sources, the first half of the task has been greatly simplified. The beamline designer must contend with the second half of the problem -- conserving the brilliance of the source through an optical system which monochromatizes and focuses the radiation.

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