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MATLAB for Neuroscientists Aug 12 2022 MATLAB for Neuroscientists serves as the only complete study manual and teaching resource for MATLAB, the globally accepted standard for scientific computing, in the neurosciences and psychology. This unique introduction can be used to learn the entire empirical and experimental process (including stimulus generation, experimental control, data collection, data analysis, modeling, and more), and the 2nd Edition continues to ensure that a wide variety of computational problems can be addressed in a single programming environment. This updated edition features additional material on the creation of visual stimuli, advanced psychophysics, analysis of LFP data, choice probabilities, synchrony, and advanced spectral analysis. Users at a variety of levels—advanced undergraduates, beginning graduate students, and researchers looking to modernize their skills—will learn to design and implement their own analytical tools, and gain the fluency required to meet the computational needs of neuroscience practitioners. The first complete volume on MATLAB focusing on neuroscience and psychology applications Problem-based approach with many examples from neuroscience and cognitive psychology using real data Illustrated in full color throughout Careful tutorial approach, by authors who are award-winning educators with strong teaching experience

Programming with MATLAB for Scientists Sep 12 2022 This book offers an introduction to the basics of MATLAB programming to scientists and engineers. The author leads with engaging examples to build a working knowledge, specifically geared to those with science and engineering backgrounds. The reader is empowered to model and simulate real systems, as well as present and analyze everyday data sets. In order to achieve those goals, the contents bypass excessive "under the hood" details, and instead gets right down to the essential, practical foundations for successful programming and modeling. Readers will benefit from the following features: Teaches programming to scientists and engineers using a problem-based approach, leading with illustrative and interesting examples. Emphasizes a hands-on approach, with "must know" information and minimal technical details. Utilizes examples from science and engineering to showcase the application of learned concepts on real problems. Showcases modeling of real systems, gradually advancing from simpler to more challenging problems. Highlights the practical uses of data processing and analysis in everyday life.

MATLAB for Machine Learning Jan 29 2024 Extract patterns and knowledge from your data in easy way using MATLAB About This Book Get your first steps into machine learning with the help of this easy-to-follow guide Learn regression, clustering, classification, predictive analytics, artificial neural networks and more with MATLAB Understand how your data works and identify hidden layers in the data with the power of machine learning. Who This Book Is For This book is for data analysts, data scientists, students, or anyone who is looking to get started with machine learning and want to build efficient data processing and predicting applications. A mathematical and statistical background will really help in following this book well. What You Will Learn Learn the introductory concepts of machine learning. Discover different ways to transform data using SAS XPORT, import and export tools, Explore the different types of regression techniques such as simple & multiple linear regression, ordinary least squares estimation, correlations and how to apply them to your data. Discover the basics of classification methods and how to implement Naive Bayes algorithm and Decision Trees in the Matlab environment. Uncover how to use clustering methods like hierarchical clustering to grouping data using the similarity measures. Know how to perform data fitting, pattern recognition, and clustering analysis with the help of MATLAB Neural Network Toolbox. Learn feature selection and extraction for dimensionality reduction leading to improved performance. In Detail MATLAB is the language of choice for many researchers and mathematics experts for machine learning. This book will help you build a foundation in machine learning using MATLAB for beginners. You'll start by getting your system ready with the MATLAB environment for machine learning and you'll see how to easily interact with the Matlab workspace. We'll then move on to data cleansing, mining and analyzing various data types in machine learning and you'll see how to display data values on a plot. Next, you'll get to

know about the different types of regression techniques and how to apply them to your data using the MATLAB functions. You'll understand the basic concepts of neural networks and perform data fitting, pattern recognition, and clustering analysis. Finally, you'll explore feature selection and extraction techniques for dimensionality reduction for performance improvement. At the end of the book, you will learn to put it all together into real-world cases covering major machine learning algorithms and be comfortable in performing machine learning with MATLAB. Style and approach The book takes a very comprehensive approach to enhance your understanding of machine learning using MATLAB. Sufficient real-world examples and use cases are included in the book to help you grasp the concepts quickly and apply them easily in your day-to-day work.

MATLAB Programming for Biomedical Engineers and Scientists Nov 02 2021 MATLAB Programming for Biomedical Engineers and Scientists, Second Edition provides an easy-to-learn introduction to the fundamentals of computer programming in MATLAB. The book explains the principles of good programming practice, while also demonstrating how to write efficient and robust code that analyzes and visualizes biomedical data. Aimed at the biomedical engineering student, biomedical scientist and medical researcher with little or no computer programming experience, this is an excellent resource for learning the principles and practice of computer programming using MATLAB. The book enables the reader to analyze problems and apply structured design methods to produce elegant, efficient and well-structured program designs, implement a structured program design in MATLAB, write code that makes good use of MATLAB programming features, including control structures, functions and advanced data types, and much more. Presents many real-world biomedical problems and data, showing the practical application of programming concepts Contains two whole chapters dedicated to the practicalities of designing and implementing more complex programs Provides an accompanying website with freely available data and source code for the practical code examples, activities and exercises in the book Includes new chapters on machine learning, engineering mathematics, and expanded coverage of data types

The Elements of MATLAB Style Jul 03 2024 The Elements of MATLAB Style is a guide for both new and experienced MATLAB programmers. It provides a comprehensive collection of standards and guidelines for creating solid MATLAB code that will be easy to understand, enhance, and maintain. It is written for both individuals and those working in teams in which consistency is critical. This is the only book devoted to MATLAB style and best programming practices, focusing on how MATLAB code can be written in order to maximize its effectiveness. Just as Strunk and White's The Elements of Style provides rules for writing in the English language, this book provides conventions for formatting, naming, documentation, programming and testing. It includes many concise examples of correct and incorrect usage, as well as coverage of the latest language features. The author also provides recommendations on use of the integrated development environment features that help produce better, more consistent software.

MATLAB Primer Jun 21 2023 Highlighting the new aspects of MATLAB 7.10 and expanding on many existing features, this eighth edition continues to offer a hands-on, step-by-step introduction to using the powerful tools of MATLAB. It includes a new chapter on object-oriented programming, a new discussion of the MATLAB File Exchange window, major changes to the MATLAB Editor, and an explanation of more powerful Help tools. It also presents a synopsis of the most frequently used functions, operators, and special characters-providing quick and easy access to frequently used information. M-files and MEX-files for large examples are available at www.crcpress.com

Programming in MATLAB Jun 09 2022 Perfect for use in a lab or by individuals, PROGRAMMING IN MATLAB is designed to help anyone interested in electrical and computer engineering develop programming skills using MATLAB as the programming language. The text is also applicable for those interested in utilizing MATLAB in industry. MATLAB is quickly surpassing C, BASIC, and Fortran in engineering departments as the programming language of choice (due to the many functions and toolboxes the program features). It allows the many students who use it

to write complex programs to solve a variety of technical problems efficiently. Herniter offers a straightforward approach to learning the program, and assumes no prior exposure to MATLAB. The book offers comprehensive instructions for programming in MATLAB, including specific output results and numerous MATLAB screen captures. Its use is ideal in a lab/lecture setting where readers can recreate examples and complete problem assignments. However, the text organization is also appropriate for use as a general reference guide for programming MATLAB. Herniter introduces fundamental programming skills, then moves into solving basic problems using built-in MATLAB functions, and finally into solving engineering problems using MATLAB.

MATLAB Graphics and Data Visualization Cookbook Feb 15 2023

"MATLAB Graphics and Data Visualization Cookbook" will serve as your handbook in recipe format with ample screenshots. Each independent recipe will help you in achieving target-oriented solutions to your problems with concise explanation. For those who are already using MATLAB for their computational needs but need to also harness its powerful visualization capabilities.

MATLAB Mathematical Analysis May 09 2022 MATLAB Mathematical Analysis is a reference book that presents the techniques of mathematical analysis through examples and exercises resolved with MATLAB software. The purpose is to give you examples of the mathematical analysis functions offered by MATLAB so that you can use them in your daily work regardless of the application. The book supposes proper training in the mathematics and so presents the basic knowledge required to be able to use MATLAB for calculational or symbolic solutions to your problems for a vast amount of MATLAB functions. The book begins by introducing the reader to the use of numbers, operators, variables and functions in the MATLAB environment. Then it delves into working with complex variables. A large section is devoted to working with and developing graphical representations of curves, surfaces and volumes. MATLAB functions allow working with two-dimensional and three-dimensional graphics, statistical graphs, curves and surfaces in explicit, implicit, parametric and polar coordinates. Additional work implements twisted curves, surfaces, meshes, contours, volumes and graphical interpolation. The following part covers limits, functions, continuity and numerical and power series. Then differentiation is addressed in one and several variables including differential theorems for vector fields. Thereafter the topic of integration is handled including improper integrals, definite and indefinite integration, integration in multiple variables and multiple integrals and their applications. Differential equations are exemplified in detail, Laplace transforms, Taylor series, and the Runge-Kutta method and partial differential equations.

The Student Edition of MATLAB Apr 07 2022 This book provides a comprehensive tutorial for MATLAB plus documentation for three special toolboxes bundled with The Student Edition of MATLAB: Signal Processing, Control Systems, and Symbolic Math. It can also be used as student documentation for academic site licenses and computer lab installations of the professional version of MATLAB.

Calculus Nov 14 2022 Correlated directly to Calculus: The Language of Change, an engaging new text by David Cohen and James Henle, this outstanding lab manual provides numerous labs, projects, and exercises to teach students how to use MATLAB. Written in a friendly and accessible style, this is the ideal resource for students to practice what they've learned in the text.

Guide to MATLAB. Oct 02 2021

Undocumented Secrets of MATLAB-Java Programming Apr 19 2023 For a variety of reasons, the MATLAB-Java interface was never fully documented. This is really quite unfortunate: Java is one of the most widely used programming languages, having many times the number of programmers and programming resources as MATLAB. Also unfortunate is the popular claim that while MATLAB is a fine programming platform for proto

Foundations of Computational Finance with MATLAB Jul 23 2023 Graduate from Excel to MATLAB® to keep up with the evolution of finance data Foundations of Computational Finance with MATLAB® is an introductory text for both finance professionals looking to branch out from the spreadsheet, and for programmers who wish to learn more about finance. As financial data grows in volume and complexity, its very nature has changed to the extent that traditional financial calculators and spreadsheet programs are simply no longer enough. Today's analysts need more powerful data solutions with more customization and visualization capabilities, and MATLAB provides all of this and more in an easy-to-learn skillset. This book walks you through the basics, and

then shows you how to stretch your new skills to create customized solutions. Part I demonstrates MATLAB's capabilities as they apply to traditional finance concepts, and PART II shows you how to create interactive and reusable code, link with external data sources, communicate graphically, and more. Master MATLAB's basic operations including matrices, arrays, and flexible data structures Learn how to build your own customized solutions when the built-ins just won't do Learn how to handle financial data and industry-specific variables including risk and uncertainty Adopt more accurate modeling practices for portfolios, options, time series, and more MATLAB is an integrated development environment that includes everything you need in one well-designed user interface. Available Toolboxes provide tested algorithms that save you hours of code, and the skills you learn using MATLAB make it easier to learn additional languages if you choose to do so. Financial firms are catching up to universities in MATLAB usage, so this is skill set that will follow you throughout your career. When you're ready to step into the new age of finance, Foundations of Computational Finance with MATLAB provides the expert instruction you need to get started quickly. **Essential MATLAB for Scientists and Engineers** May 28 2021 "This completely revised new edition is based on the latest version of MATLAB. New chapters cover handle graphics, graphical user interfaces (GUIs), structures and cell arrays, and importing/exporting data. The chapter on numerical methods now includes a general GUI-driver ODE solver."--Jacket.

Python for MATLAB Development Dec 16 2022 MATLAB can run Python code! Python for MATLAB Development shows you how to enhance MATLAB with Python solutions to a vast array of computational problems in science, engineering, optimization, statistics, finance, and simulation. It is three books in one: A thorough Python tutorial that leverages your existing MATLAB knowledge with a comprehensive collection of MATLAB/Python equivalent expressions A reference guide to setting up and managing a Python environment that integrates cleanly with MATLAB A collection of recipes that demonstrate Python solutions invoked directly from MATLAB This book shows how to call Python functions to enhance MATLAB's capabilities. Specifically, you'll see how Python helps MATLAB: Run faster with numba Distribute work to a compute cluster with dask Find symbolic solutions to integrals, derivatives, and series summations with SymPy Overlay data on maps with Cartopy Solve mixed-integer linear programming problems with PuLP Interact with Redis via pyredis, PostgreSQL via psycopg2, and MongoDB via pymongo Read and write file formats that are not natively understood by MATLAB, such as SQLite, YAML, and ini Who This Book Is For MATLAB developers who are new to Python and other developers with some prior experience with MATLAB, R, IDL, or Mathematica.

Introduction to MATLAB Feb 23 2021 Introduction to MATLAB is intended for use in first-year or introductory Engineering courses. It also serves as an essential MATLAB introduction for engineers. √ Best-selling author Delores Etter provides an up-to-date introduction to MATLAB. Using a consistent five-step problem-solving methodology, Etter describes the computational and visualization capabilities of MATLAB and illustrates the problem solving process through a variety of engineering examples and applications. √ Teaching and Learning Experience This program will provide a better teaching and learning experience-for you and your students. It will help: √ Customize your Course with ESource: Instructors can adopt this title as is, or use the ESource website to select the chapters they need, in the sequence they want. Present a Consistent Methodology for Solving Engineering Problems: Chapter 1 introduces a five-step process for solving engineering problems using the computer Describe the Exceptional Computational and Visualization Capabilities of MATLAB: Students will gain a clear understanding of how to use MATLAB. Illustrate the Problem-solving Process through a Variety of Engineering Examples and Applications: Numerous examples emphasize the creation of readable and simple solutions to develop and reinforce problem-solving skills. Keep your Course Current with Discussion of the Latest Technologies: The discussions, screen captures, examples, and problem solutions have been updated to reflect MATLAB Version 8.2, R2013b.

Accelerating MATLAB Performance Mar 31 2024 The MATLAB programming environment is often perceived as a platform suitable for prototyping and modeling but not for "serious" applications. One of the main complaints is that MATLAB is just too slow. Accelerating MATLAB Performance aims to correct this perception by describing multiple ways to greatly improve MATLAB program speed. Packed with the *Scientific Computing with MATLAB* Feb 03 2022 This textbook is an introduction to Scientific Computing, in which several numerical

methods for the computer solution of certain classes of mathematical problems are illustrated. The authors show how to compute the zeros or the integrals of continuous functions, solve linear systems, approximate functions by polynomials and construct accurate approximations for the solution of differential equations. To make the presentation concrete and appealing, the programming environment MATLAB is adopted as a faithful companion. All the algorithms introduced throughout the book are shown, thus furnishing an immediate quantitative assessment of their theoretical properties such as stability, accuracy and complexity. The book also contains the solution to several problems raised through exercises and examples, often originating from specific applications. A specific section is devoted to subjects which were not addressed in the book and indicates the bibliographical references for a more comprehensive treatment of the material.

Computer Programming with MATLAB Sep 24 2023

Matlab Jan 17 2023 MatLab, Third Edition is the only book that gives a full introduction to programming in MATLAB combined with an explanation of the software's powerful functions, enabling engineers to fully exploit its extensive capabilities in solving engineering problems. The book provides a systematic, step-by-step approach, building on concepts throughout the text, facilitating easier learning. Sections on common pitfalls and programming guidelines direct students towards best practice. The book is organized into 14 chapters, starting with programming concepts such as variables, assignments, input/output, and selection statements; moves onto loops; and then solves problems using both the 'programming concept' and the 'power of MATLAB' side-by-side. In-depth coverage is given to input/output, a topic that is fundamental to many engineering applications. Vectorized Code has been made into its own chapter, in order to emphasize the importance of using MATLAB efficiently. There are also expanded examples on low-level file input functions, Graphical User Interfaces, and use of MATLAB Version R2012b; modified and new end-of-chapter exercises; improved labeling of plots; and improved standards for variable names and documentation. This book will be a valuable resource for engineers learning to program and model in MATLAB, as well as for undergraduates in engineering and science taking a course that uses (or recommends) MATLAB. Presents programming concepts and MATLAB built-in functions side-by-side Systematic, step-by-step approach, building on concepts throughout the book, facilitating easier learning Sections on common pitfalls and programming guidelines direct students towards best practice

MATLAB for Beginners: A Gentle Approach: Revised Edition Jul 31 2021 This book is written for beginners and students who wish to learn MATLAB. One of the objectives of writing this book is to introduce MATLAB to students in high schools. The material presented is very easy and simple to understand - written in a gentle manner. The topics covered in the book include arithmetic operations, variables, mathematical functions, complex numbers, vectors, matrices, programming, graphs, solving equations, and an introduction to calculus. In addition, the MATLAB Symbolic Math Toolbox is emphasized in this book. There are also over 230 exercises at the ends of chapters for students to practice. Detailed solutions to all the exercises are provided in the second half of the book. The author has been using MATLAB for the past fifteen years and is the author of the best selling book "MATLAB Guide to Finite Elements." For the paperback edition, visit Amazon.com. This description applies to the Revised Edition.

Statistics in MATLAB Mar 19 2023 This primer provides an accessible introduction to MATLAB version 8 and its extensive functionality for statistics. Fulfilling the need for a practical user's guide, the book covers capabilities in the main MATLAB package, the Statistics Toolbox, and the student version of MATLAB, presenting examples of how MATLAB can be used to analyze data. It explains how to determine what method should be used for analysis, and includes figures, visual aids, and access to a companion website with data sets and additional examples.

An Introduction to MATLAB for Behavioral Researchers Oct 14 2022 MATLAB is a powerful data analysis program, but many behavioral science researchers find it too daunting to learn and use. An Introduction to MATLAB for Behavioral Researchers is an easy-to-understand, hands-on guide for behavioral researchers who have no prior programming experience. Written in a conversational and non-intimidating style, the author walks students—step by step—through analyzing real experimental data. Topics covered include the basics of programming, the implementation of simple behavioral analyses, and how to make publication-ready figures. More advanced topics such as pseudo-

randomization of trial sequences to meet specified criteria and working with psycholinguistic data are also covered. Interesting behavioral science examples and datasets from published studies, such as visualizing fixation patterns in eye-tracking studies and animal search behavior in two-dimensional space, help develop an intuition for data analysis, which is essential and can only be developed when working with real research problems and real data.

Robust Control Design with MATLAB® Jun 29 2021 Shows readers how to exploit the capabilities of the MATLAB® Robust Control and Control Systems Toolboxes to the fullest using practical robust control examples. *Digital Signal Processing Using MATLAB* May 21 2023 This supplement to any standard DSP text is one of the first books to successfully integrate the use of MATLAB® in the study of DSP concepts. In this book, MATLAB® is used as a computing tool to explore traditional DSP topics, and solve problems to gain insight. This greatly expands the range and complexity of problems that students can effectively study in the course. Since DSP applications are primarily algorithms implemented on a DSP processor or software, a fair amount of programming is required. Using interactive software such as MATLAB® makes it possible to place more emphasis on learning new and difficult concepts than on programming algorithms. Interesting practical examples are discussed and useful problems are explored. This updated second edition includes new homework problems and revises the scripts in the book, available functions, and m-files to MATLAB® V7.

A Guide to MATLAB Object-Oriented Programming Jun 02 2024 The first book to deliver broad coverage of the documented and undocumented object-oriented features of MATLAB, this guide aids readers in creating effective software. Eight basic functions are discussed: constructor, subsref, subsasgn, display, struct, fieldnames, get, and set. Also explored are inheritance topics and the Class Wizard, a powerful MATLAB class generation tool. The final section delves into advanced strategies, including vectorized classes, containers, static variables, and function fronts, protected visibility, and pass-by-reference visibility. Included is a CD-ROM with source code, enabling readers to experiment with modifications and apply new concepts.

MATLAB for Brain and Cognitive Scientists Dec 04 2021 An introduction to a popular programming language for neuroscience research, taking the reader from beginning to intermediate and advanced levels of MATLAB programming. MATLAB is one of the most popular programming languages for neuroscience and psychology research. Its balance of usability, visualization, and widespread use makes it one of the most powerful tools in a scientist's toolbox. In this book, Mike Cohen teaches brain scientists how to program in MATLAB, with a focus on applications most commonly used in neuroscience and psychology. Although most MATLAB tutorials will abandon users at the beginner's level, leaving them to sink or swim, MATLAB for Brain and Cognitive Scientists takes readers from beginning to intermediate and advanced levels of MATLAB programming, helping them gain real expertise in applications that they will use in their work. The book offers a mix of instructive text and rigorous explanations of MATLAB code along with programming tips and tricks. The goal is to teach the reader how to program data analyses in neuroscience and psychology. Readers will learn not only how to but also how not to program, with examples of bad code that they are invited to correct or improve. Chapters end with exercises that test and develop the skills taught in each chapter. Interviews with neuroscientists and cognitive scientists who have made significant contributions their field using MATLAB appear throughout the book. MATLAB for Brain and Cognitive Scientists is an essential resource for both students and instructors, in the classroom or for independent study.

Getting Started with MATLAB Jul 11 2022 MATLAB is one of the most widely used tools in the field of engineering today. Its broad appeal lies in its interactive environment with hundreds of built-in functions. This book is designed to get you up and running in just a few hours -- Provided by publisher.

MATLAB For Dummies Oct 26 2023 Go from total MATLAB newbie to plotting graphs and solving equations in a flash! MATLAB is one of the most powerful and commonly used tools in the STEM field. But did you know it doesn't take an advanced degree or a ton of computer experience to learn it? MATLAB For Dummies is the roadmap you've been looking for to simplify and explain this feature-filled tool. This handy reference walks you through every step of the way as you learn the MATLAB language and environment inside-and-out. Starting with straightforward basics before moving on to more advanced material like Live Functions and Live Scripts, this easy-to-read guide shows you how to make your

way around MATLAB with screenshots and newly updated procedures. It includes: A comprehensive introduction to installing MATLAB, using its interface, and creating and saving your first file Fully updated to include the 2020 and 2021 updates to MATLAB, with all-new screenshots and up-to-date procedures Enhanced debugging procedures and use of the Symbolic Math Toolbox Brand new instruction on working with Live Scripts and Live Functions, designing classes, creating apps, and building projects Intuitive walkthroughs for MATLAB's advanced features, including importing and exporting data and publishing your work Perfect for STEM students and new professionals ready to master one of the most powerful tools in the fields of engineering, mathematics, and computing, MATLAB For Dummies is the simplest way to go from complete newbie to power user faster than you would have thought possible.

NUMERICAL METHODS KIT Mar 26 2021 The book has been designed for Science, Engineering, Mathematics and Statistics undergraduate students. A look at the contents of the book will give the reader a clear idea of the variety of numerical methods discussed and analysed. The book has been written in a concise and lucid style with proper explanation of Mathematics involved in each method. Each method is explained with solved examples, computer programs and their results as a screenshot of the graphic window and console window. The careful organisation of figures, solved examples, codes, graphic window and console window help the students grasp quickly.

Numerical Computing with MATLAB May 01 2024 A revised textbook for introductory courses in numerical methods, MATLAB and technical computing, which emphasises the use of mathematical software.

Getting Started with MATLAB Aug 24 2023 MATLAB is one of the most widely used tools in the field of engineering today. Its broad appeal lies in its interactive environment with hundreds of built-in functions. This book is designed to get you up and running in just a few hours.

Introduction to MATLAB 6 for Engineers Apr 27 2021 This is a simple, concise, and useful book, explaining MATLAB for freshmen in engineering. MATLAB is presently a globally available standard computational tool for engineers and scientists. The terminology, syntax, and the use of the programming language are well defined and the organization of the material makes it easy to locate information and navigate through the textbook. This new text emphasizes that students do not need to write loops to solve many problems. The MATLAB find command with its relational and logical operators can be used instead of loops in many cases. This was mentioned in Palm's previous MATLAB texts, but receives more emphasis in this MATLAB, 6 edition, starting with Chapter 1, and re-emphasized in Chapter 4.

Introduction to MATLAB for Engineers and Scientists Aug 31 2021 Familiarize yourself with MATLAB using this concise, practical tutorial that is focused on writing code to learn concepts. Starting from the basics, this book covers array-based computing, plotting and working with files, numerical computation formalism, and the primary concepts of approximations. Introduction to MATLAB is useful for industry engineers, researchers, and students who are looking for open-source solutions for numerical computation. In this book you will learn by doing, avoiding technical jargon, which makes the concepts easy to learn. First you'll see how to run basic calculations, absorbing technical complexities incrementally as you progress toward advanced topics. Throughout, the language is kept simple to ensure that readers at all levels can grasp the concepts. What You'll Learn Apply sample code to your engineering or science problems Work with MATLAB arrays, functions, and loops Use MATLAB's plotting functions for data visualization Solve numerical computing and computational engineering problems with a MATLAB case study Who This Book Is For Engineers, scientists, researchers, and students who are new to MATLAB. Some prior programming experience would be helpful but not required.

A Guide to MATLAB Nov 26 2023 This book is a short, focused introduction to MATLAB and should be useful to both beginning and experienced users.

Biomedical Image Analysis Recipes in MATLAB Mar 07 2022 As its title suggests, this innovative book has been written for life scientists needing to analyse their data sets, and programmers, wanting a better understanding of the types of experimental images life scientists investigate on a regular basis. Each chapter presents one self-contained biomedical experiment to be analysed. Part I of the book presents its two basic ingredients: essential concepts of image analysis and Matlab. In Part II, algorithms and techniques are shown as series of "recipes" or solved examples that show how specific techniques are applied to a biomedical experiments like Western Blots, Histology, Scratch Wound

Assays and Fluorescence. Each recipe begins with simple techniques that gradually advance in complexity. Part III presents some advanced techniques for the generation of publication quality figures. The book does not assume any computational or mathematical expertise. A practical, clearly-written introduction to biomedical image analysis that provides the tools for life scientists and engineers to use when solving problems in their own laboratories. Presents the basic concepts of MATLAB software and uses it throughout to show how it can execute flexible and powerful image analysis programs tailored to the specific needs of the problem. Within the context of four biomedical cases, it shows algorithms and techniques as series of "recipes", or solved examples that show how a particular technique is applied in a specific experiment. Companion website containing example datasets, MATLAB files and figures from the book.

Antenna and EM Modeling with MATLAB Antenna Toolbox Jan 05 2022 ANTENNA AND EM MODELING WITH MATLAB ANTENNA TOOLBOX™

An essential text to MATLAB Antenna Toolbox™ as accessible and easy-to-use full-wave antenna modeling tool Antenna and EM Modeling with MATLAB Antenna Toolbox™ is a textbook on antennas intended for a one semester course. The core philosophy is to introduce the key antenna concepts and follow them up with full-wave modeling and optimization in the MATLAB Antenna Toolbox™. Such an approach will enable immediate testing of theoretical concepts by experimenting in software. It also provides the direct path to research work. The fundamental families of antennas — dipoles, loops, patches, and traveling wave antennas — are discussed in detail, together with the respective antenna arrays. Using antenna parameters such as impedance, reflection coefficient, efficiency, directivity, and gain, the reader is introduced to the different ways of understanding the performance of an antenna. Written for senior undergraduates, graduates as well as RF/Antenna engineers, Antenna and EM Modeling with Antenna Toolbox™ is a resource that: Provides 14 video assisted laboratories on using Antenna Toolbox™ Includes approximately 50 real-world examples in antenna and array design Offers approximately 200 homework problems Provides multiple ready-to-use standalone MATLAB® scripts

MATLAB Guide, Third Edition Feb 28 2024 MATLAB is an interactive system for numerical computation that is widely used for teaching and research in industry and academia. It provides a modern programming language and problem solving environment, with powerful data structures, customizable graphics, and easy-to-use editing and debugging tools. This third edition of MATLAB Guide completely revises and updates the best-selling second edition and is more than 30 percent longer. The book remains a lively, concise introduction to the most popular and important features of MATLAB and the Symbolic Math Toolbox. Key features are a tutorial in Chapter 1 that gives a hands-on overview of MATLAB; a thorough treatment of MATLAB mathematics, including the linear algebra and numerical analysis functions and the differential equation solvers; and a web page at <http://www.siam.org/books/ot150> that provides example program files, updates, and links to MATLAB resources. The new edition contains color figures throughout; includes pithy discussions of related topics in new "Asides" boxes that augment the text; has new chapters on the Parallel Computing Toolbox, object-oriented programming, graphs, and large data sets; covers important new MATLAB data types such as categorical arrays, string arrays, tall arrays, tables, and timetables; contains more on MATLAB workflow, including the Live Editor and unit tests; and fully reflects major updates to the MATLAB graphics system. This book is suitable for both beginners and more experienced users, including students, researchers, and practitioners.

The Finite Element Method Using MATLAB Dec 28 2023 Expanded to include a broader range of problems than the bestselling first edition, Finite Element Method Using MATLAB: Second Edition presents finite element approximation concepts, formulation, and programming in a format that effectively streamlines the learning process. It is written from a general engineering and mathematical perspective rather than that of a solid/structural mechanics basis. What's new in the Second Edition? Each chapter in the Second Edition now includes an overview that outlines the contents and purpose of each chapter. The authors have also added a new chapter of special topics in applications, including cracks, semi-infinite and infinite domains, buckling, and thermal stress. They discuss three different linearization techniques to solve nonlinear differential equations. Also included are new sections on shell formulations and MATLAB programs. These enhancements increase the book's already significant value both as a self-study text and a reference for practicing engineers and scientists.