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2.5 Programming and Tactics of MATLAB Functions
2.5.1 Structures of MATLAB Functions; 2.5.2 Handling Variable Numbers of Arguments; 2.5.3 Debugging of MATLAB Functions; 2.5.4 Pseudo Codes; 2.6 Two-dimensional Graphics in MATLAB; 2.6.1 Basic Two-dimensional Graphics; 2.6.2 Plotting Functions with Other Options; 2.6.3 Labeling MATLAB Graphics; 2.6.4 Adding Texts and Other Objects to Plots; 2.6.5 Other Graphics Functions with Applications; 2.6.6 Plotting Implicit Functions; 2.7 Three-dimensional Graphics; 2.7.1 Three-dimensional Curves; 2.7.2 Surface Plots; 2.7.3 Local Processing of Graphics
2.8 Graphical User Interface Design in MATLAB
2.8.1 Graphical User Interface Tool - Guide; 2.8.2 Handle Graphics and Properties of Objects; 2.8.3 Menu System Design; 2.8.4 Illustrative Examples in GUI Design; 2.8.5 Toolbar Design; 2.8.6 Embedding ActiveX Components in GUIs; 2.9 Accelerating MATLAB Functions; 2.9.1 Execution Time and Profiles of MATLAB Functions; 2.9.2 Suggestions for Accelerating MATLAB Functions; 2.9.3 Mex Interface Design; Exercises; References;
3 MATLAB Applications in Scientific Computations; 3.1 Analytical and Numerical Solutions; 3.2 Solutions to Linear Algebra Problems
3.2.1 Inputting Special Matrices
3.2.2 Matrix Analysis and Computation; 3.2.3 Inverse and Pseudo Inverse of Matrices; 3.2.4 Similarity Transform and Decomposition of Matrices; 3.2.5 Eigenvalues and Eigenvectors of Matrices; 3.2.6 Solution of Matrix Equations; 3.2.7 Nonlinear Matrix Functions; 3.3 Solutions of Calculus Problems; 3.3.1 Analytical Solutions to Calculus Problems; 3.3.2 Numerical Difference and Differentiation; 3.3.3 Numerical Integration; 3.3.4 Numerical Multiple Integration; 3.4 Solutions of Ordinary Differential Equations
3.4.1 Numerical Methods of Ordinary Differential Equations

Sommario/riassunto

System Simulation Techniques with MATLAB and Simulink comprehensively explains how to use MATLAB and Simulink to perform dynamic systems simulation tasks for engineering and non-engineering applications. This book begins with covering the fundamentals of MATLAB programming and applications, and the solutions to different mathematical problems in simulation. The fundamentals of Simulink modelling and simulation are then presented, followed by coverage of intermediate level modelling skills and more advanced techniques in Simulink modelling and applications. Finally the modelling
