1. Record Nr. UNINA9910816603003321 Autore Wallisch Pascal <1978-> Titolo MATLAB for neuroscientists: an introduction to scientific computing in MATLAB / / Pascal Wallisch [and five others] London:,: Academic Press,, 2014 Pubbl/distr/stampa **ISBN** 0-12-383837-1 Edizione [Second edition.] Descrizione fisica 1 online resource (xx, 550 pages): illustrations (some color) Collana Gale eBooks Altri autori (Persone) WallischPascal Disciplina 571 Soggetti Neurosciences - Data processing Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali "Elsevier science and technology books." Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Front Cover: MATLAB® for Neuroscientists; Copyright Page; Contents; Preface to the First Edition: Preface to the Second Edition: About the Authors; How to Use this Book; Structural and Conceptual Considerations; Layout and Style; Companion Web Site; I: Fundamentals; 1 Introduction; 2 MATLAB Tutorial; 2.1 Goal of this Chapter; 2.2 Purpose and Philosophy of MATLAB; 2.2.1 Getting Started; 2.2.2 MATLAB as a Calculator; 2.2.3 Defining Matrices; 2.2.4 Basic Matrix Algebra; 2.2.5 Indexing; 2.3 Graphics and Visualization; 2.3.1 Basic Visualization; 2.4 Function and Scripts; 2.4.1 Scripts 2.4.2 Functions 2.4.3 Control Structures; 2.4.4 Advanced Plotting; 2.4.5 Interactive Programs; 2.5 Data Analysis; 2.5.1 Importing and Storing Data; 2.6 A Word on Function Handles; 2.7 The Function Browser; 2.8 Summary: MATLAB Functions. Commands, and Operators Covered in This Chapter; 3 Mathematics and Statistics Tutorial; 3.1 Introduction; 3.2 Linear Algebra; 3.2.1 Matrices, Vectors, and Arrays; 3.2.2 Transposition; 3.2.3 Addition; 3.2.4 Scalar Multiplication; 3.2.5 Matrix Multiplication; 3.2.6 Geometrical Interpretation of Matrix Multiplication; 3.2.7 The Determinant 3.2.8 Eigenvalues and Eigenvectors3.2.9 Applications of Eigenvectors: Eigendecomposition; 3.2.10 Applications of Eigenvectors: PCA; 3.3 Probability and Statistics; 3.3.1 Introduction; 3.3.2 Random Variables;

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Sommario/riassunto

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 many computational problems can be addressed in a single programming environment. This updated edition features additional material on the crea