A Guide to MATLAB: for Beginners and Experienced Users
Brian R. Hunt, Ronald L. Lipsman, and Jonathan M. Rosenberg
Cambridge University Press, 2006 (Second Edition)

Review by Ross Gagliano

In addition to their second edition of ***Differential Equations with MATLAB***, where the three coauthors were joined by John Osborn in producing a fine supplemental text for a first course in ordinary differential equations (ODEs), they have now updated their original (2001) MATLAB text. A contraction for mathematics laboratory, MATLAB is a powerful software suite for easily exercising and displaying mathematics and simulation on either laptop or desktop.

Although it has been greatly reduced in price over the years, some may balk at the cost and licensing fee of the essential software. However, MATLAB is typically available through academic departmental laboratories or corporate networks. Nonetheless, it is an outstanding product for a variety of tasks: mathematical and data analysis, data acquisition, signal and image processing, control design and analysis, as well as exercising models of finance or economics.

With fairly succinct explanations of essential MATLAB commands, the first four chapters may not quite be considered as a "for dummies" approach, but more than adequately serve as basic introductory material. After describing MATLAB's features for programming, graphics, and interfaces (now available for Macs as well as Windows), the book moves quickly to increasing levels of power and sophistication. It also provides a guide to SIMULINK, a MATLAB simulation companion, the first examples offered are ODEs (no surprise there!).

Although written for Version 7, descriptions in the book are equally applicable to earlier MATLAB versions. Major highlights of the book are completely transparent examples of classical yet always intriguing mathematical, statistical, engineering, economics, and physics problems. In addition, the book explains a seamless use with Microsoft Word for integrating MATLAB outputs with documents, reports, presentations, or other on-line processes.

Advanced topics with examples include: Monte Carlo simulation, population dynamics, and Linear Programming. Overall, it is an outstanding textbook, and, likewise, should be an integral part of the technical reference shelf for most IT professionals. It is a great resource for wherever MATLAB is available!

Ross Gagliano is a retired professor, having helped found the computer science department at Georgia State University. He previously was a senior researcher at the Georgia Tech Research Institute.

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