PREFACE

"The winds and waves are always on the side of the ablest navigator."
Edward Gibbon (1737-1794)

What is MATLAB?

MATLAB is a very powerful and reliable software package. It is used at many universities worldwide and in industry in many different disciplines. It is easy to use, accurate, and the user can easily extend its features and capabilities. Its purpose is to help us solve complex numerical problems without having to write tedious programs in traditional general purpose programming languages such as C or FORTRAN..

Remember, however, that while it might be tempting to rely exclusively on MATLAB to solve problems, there is no substitute for a clear understanding of the underlying theoretical concepts. You should use MATLAB as a tool for facilitating your work, much as you would a calculator. My personal view is that combining experimental and theoretical approaches is very insightful, productive and rewarding.

How to use this manual

This manual will familiarize you with the fundamentals of MATLAB and provide a good springboard to explore the full breadth of the program's capabilities. The author does not assume that you have previous exposure to any programming language whatsoever, and has designed this manual to appeal to both novice and experienced programmers.

During my years of teaching, I've realized that most students learn more quickly if they can see examples. Toward this end, I have adopted a hands-on approach, and have attempted to present the material in clear, manageable stages so that readers will not feel overwhelmed at the beginning. It is best for you to use the material in order of its appearance in the manual.

As with other computer languages (and non-computer languages), it is only through practice that real mastery is achieved. I therefore recommend that you try the examples while sitting at a computer terminal running MATLAB. MATLAB is an interactive system that encourages exploration, so the more you use MATLAB, the more you will learn. You will spend a lot of time and effort learning MATLAB, but the rewards are sure to be great.

Acknowledgements

I am grateful to Dr. Henry Gibson, who contributed numerous hours of his own time to reading the manuscript. His insightful comments greatly improved the entire manual. Finally, I wish to thank my students, who inspired me to turn my original class notes into a manual. Please feel free to communicate to me any remaining errors you may see, along with any ideas or comments you may have for improvements.

Good luck in your efforts!

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