Graphics and GUIs
with
MATLAB®
THIRD EDITION
First, I must say that it was quite an honor to be asked to update Patrick’s seminal work. The original “Graphics and GUIs with MATLAB” was my introduction to the graphics capabilities of MATLAB®, and it was by that book that I came to a working knowledge of handle graphics. That was way back with MATLAB 4. Now we are at MATLAB 6 (release 13 is in beta release at the time of this writing) and MATLAB is more capable, powerful, and user friendly than ever – a far cry from MATLAB 4!

As with Patrick’s earlier text, this book is intended to present a comprehensive discussion of the MATLAB graphics system. This third edition builds on the earlier editions by including the objects and properties new to MATLAB version 6 and includes the new features of the MATLAB environment. The organization of this edition is a little different as well. In teaching MATLAB, I have observed that not everyone wants to be a handle graphics guru (but they don’t know what they are missing!). Many just want to be able to plot their data quickly and effectively. MATLAB has addressed this desire by expanding, for instance, the Figure Window tools, and providing the more casual user with a tool to modify many figure properties. Consequently, most of the first half of this book requires little or no knowledge of handle graphics. The second half thoroughly covers the concept of handle graphics, and how to create graphical user interfaces.

As with the earlier editions, this book has been written to be useful to anyone, regardless of their level of expertise with MATLAB. If you know nothing about MATLAB programming, you can learn much by starting at the beginning and working through the examples in this book. If you are already conversant with the MATLAB programming language, you will find a great deal of information here that is not readily apparent in the MATLAB documentation. However, I must point out that MATLAB’s documentation has improved with the product and you are encouraged to delve into the documentation – but be aware, there is a lot of it!

The folks at the MathWorks continue to improve MATLAB, and its capabilities have grown well beyond the scope of a single text. New objects have been created for the latest versions, and the integrated development environment is more capable and customizable than ever.
The code in this text is written with version 6 in mind, so some of it will not work with earlier versions. The code has been written for clarity, not necessarily efficiency, and the functions kept as simple as possible so that you can focus on the graphics aspects. You can download any of the code in this text by going to

http://www.infinityassociates.com

and following the links for this book. You will also find the solutions to the end of chapter exercises.

If you are familiar with the earlier editions, you will see some familiar things here. Good is good and Patrick did such a fine job that much of what he presented then is still quite applicable and educational. Some things have been dropped, such as Patrick’s GUI builder. In many respects, modern MATLAB doesn’t need that any more. There are many new ideas in this edition, along of course with the new functions, features, and properties that the latest MATLAB has to offer. Perhaps one of the best aspects of MATLAB is that The MathWorks has continued to develop the product with very little compatibility problems. Although there were some major changes from version 4 to version 5 that led to a few problems for some extreme users, the transition from 5 to 6 has been smooth and has yielded a version that is more user friendly and more capable than ever.

So why am I writing this preface instead of Patrick? Patrick is very busy with new challenges in his career that have taken him a little out of the MATLAB world, at least as a regular user. My little consulting company, Infinity Technology Associates, has used his text for some time as a complement to our teachings, and I use MATLAB extensively for modeling and analysis in my position as director of a modeling and simulation facility for the Department of the Navy. Through one turn or another, I was contacted about a follow-up to Patrick’s second edition. It has been exciting updating and expanding Patrick’s original work and I know you will find this book a valuable tutorial and resource as you grow in your knowledge and skill of programming MATLAB. Graphics and GUIs. However, don’t stop with this book. Use MATLAB as much as you can, read the abundance of documentation that comes with MATLAB, and by all means experiment. Soon you will wonder how you ever got your work done without MATLAB.

Best wishes and happy programming!

Thomas Holland

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DEDICATION

This book is first dedicated to the Creator, who has made us with inquisitive minds able to fathom the mysteries of the universe.

And secondly to Linda, Katy, and Danny, the best family I could ever have.

I also would like to acknowledge the influence of Wendy Martinez and Ronald Gross – two GUI gurus with whom it is a pleasure to work with, and of course, Patrick Marchand, who started it all.
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