

Computer Programming with MATLAB



Lesson 1: Introduction to MATLAB

by

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Computer Programming with MATLAB



- ▶ Lead instructor: Mike Fitzpatrick
- ▶ Supported by: Akos Ledeczi and Robert Tairas
- ▶ Vanderbilt University School of Engineering
- ▶ Purpose
 - To teach computer programming to people who have little or no experience with programming
- ▶ Level
 - Introductory college course
- ▶ Length:
 - 8 weeks of video lectures
 - Extra week for final homework submission



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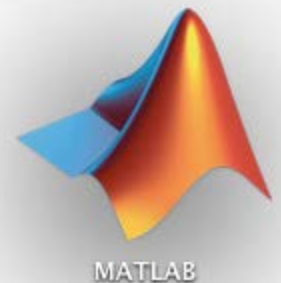
Programming Languages

- ▶ First high-level language: FORTRAN (1954)
 - To make programming easier, especially to solve numerical problems
- ▶ Today's languages: 1970s–
 - For commercial, “shrink-wrapped”, large, complex programs: C, C++, Java, C#, etc.
 - To make programming easier and to solve numerical problems: MATLAB

MATLAB History



- ▶ Invented by Prof. Cleve Moler to make programming easy for his students
 - Late 1970s
 - University of New Mexico
- ▶ The MathWorks, Inc. was formed in 1984
 - By Moler and Jack Little
 - One product: MATLAB
- ▶ Today
 - 100 products
 - Over 1,000,000 users
 - Taught in 5,000 universities



Impact



- ▶ In 2012 the IEEE gave Cleve Moler its annual Computer Pioneer Award
 - “For Improving the quality of mathematical software, making it more accessible, and creating MATLAB”
- ▶ This course is our effort to add to the impact of Moler’s creation by using it to make computer programming more accessible to you.



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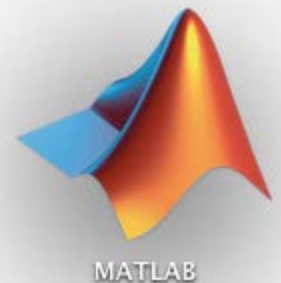
It's Computer Science!

- ▶ We approach MATLAB programming as part of computer science.
- ▶ We use the concepts and vocabulary of computer science to introduce computer programming.
- ▶ This approach gives an idea of how computer scientists think...
- ▶ and makes it easier to learn MATLAB!

Getting MATLAB



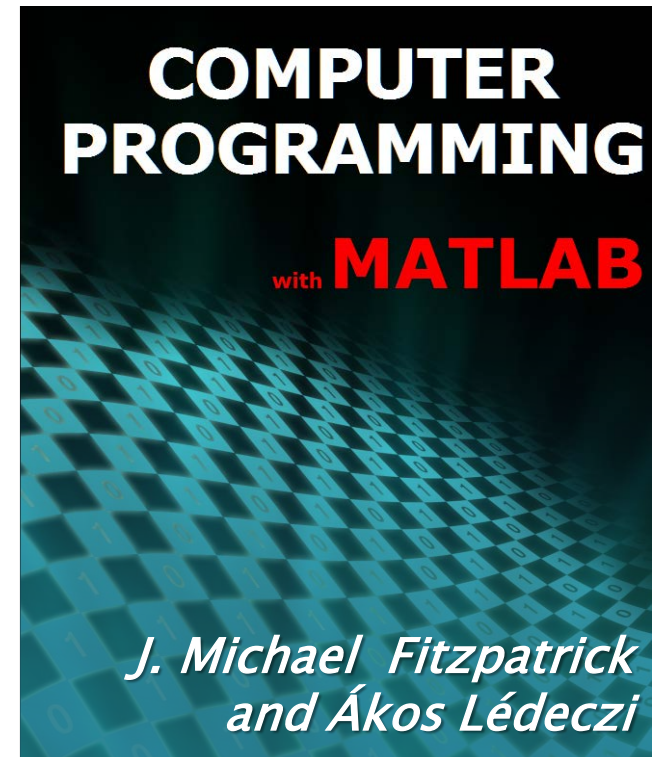
- ▶ www.mathworks.com
- ▶ Paying for MATLAB
 - Student: \$50
 - MATLAB instructor: Free!
 - Companies: \$100s per user
- ▶ Trying MATLAB for free
 - For everybody: 30 days
 - **For students in this course: free for 12 weeks!**
 - How to get it? Visit class website for info.



Textbook



- ▶ eBook
- ▶ Title and authors: same as the course!
- ▶ Recommended, but not required.
- ▶ Current version used at Vanderbilt since 2013
- ▶ Previous versions used at Vanderbilt since 2000





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Getting the Textbook

- ▶ Both Apple (iBook for iPad and Mac) and PDF versions are available for \$9.99 at
 - cs103.net
- ▶ Three main chapters
 - Chapters 1 and 2 are covered in this course
 - The more advanced concepts in Chapter 3 can be learned on your own from the book after completion of this course

