Welcome to

Introduction to MATLAB and how it makes your homework easier

The event will begin shortly, before we begin remember:

Mute your mics

(should be off by default)

If you don’t have MATLAB, scan the code to get started

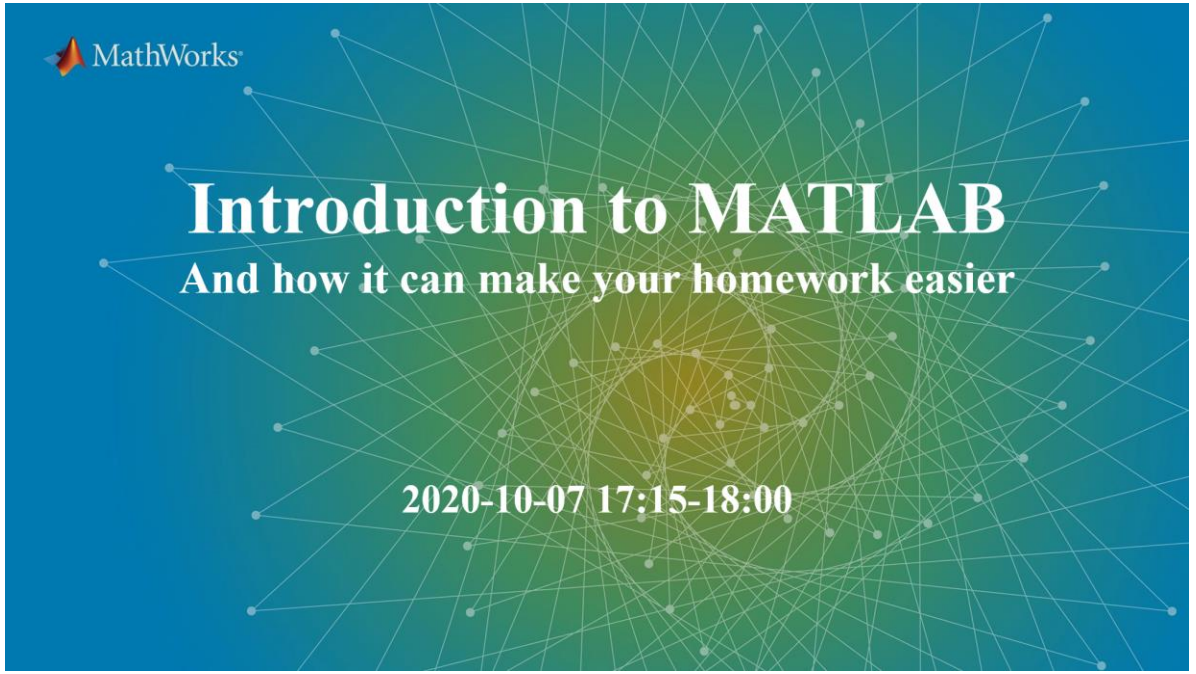
Introduction to MATLAB

and how it makes your homework easier

Simon Thor MATLAB Student Ambassador

Agenda

- About MATLAB@KTH
- Introduction to MATLAB
- MATLAB for homework
- Resources to learn more
- **Ask questions whenever you want!**



Who am I?

- Simon Thor
- Engineering Physics student
- Enjoy particle physics, space physics
- Tasked with organizing events like this one
- Post on social media

github.com/simonthor/kth-matlab-ambassador

Facebook group

- Join the MATLAB@KTH Facebook group
- Stay up to date with all events being hosted
- Posts about MATLAB & Simulink resources

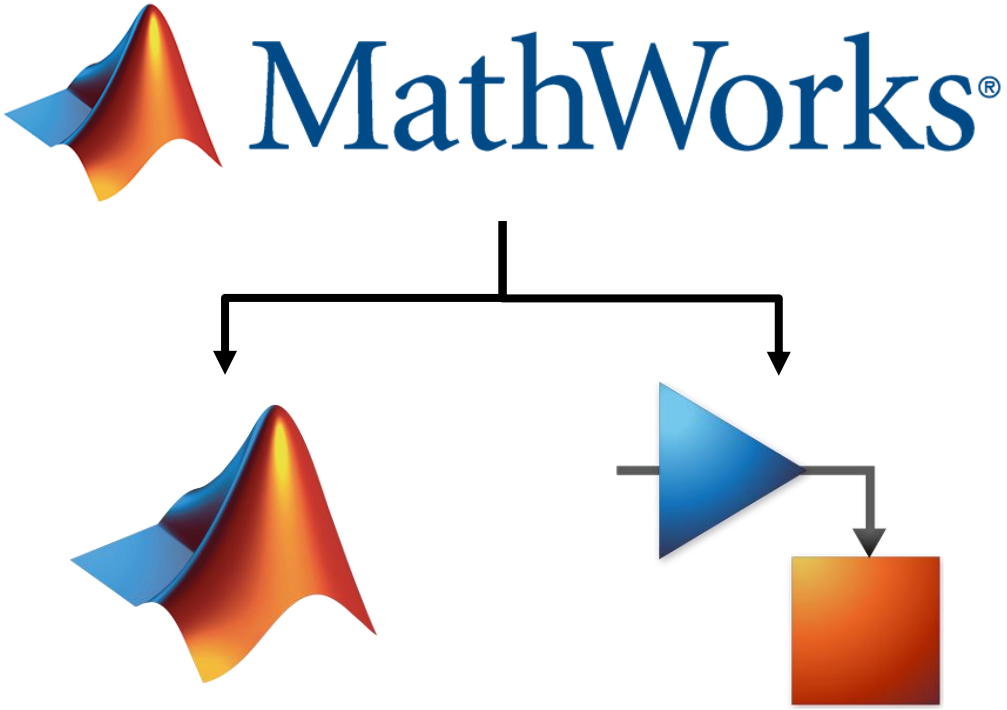
facebook.com/groups/MATLAB.KTH

- Instagram: @matlab_kth
- Post (outdated) memes
- Suggest better memes!

instagram.com/matlab_kth

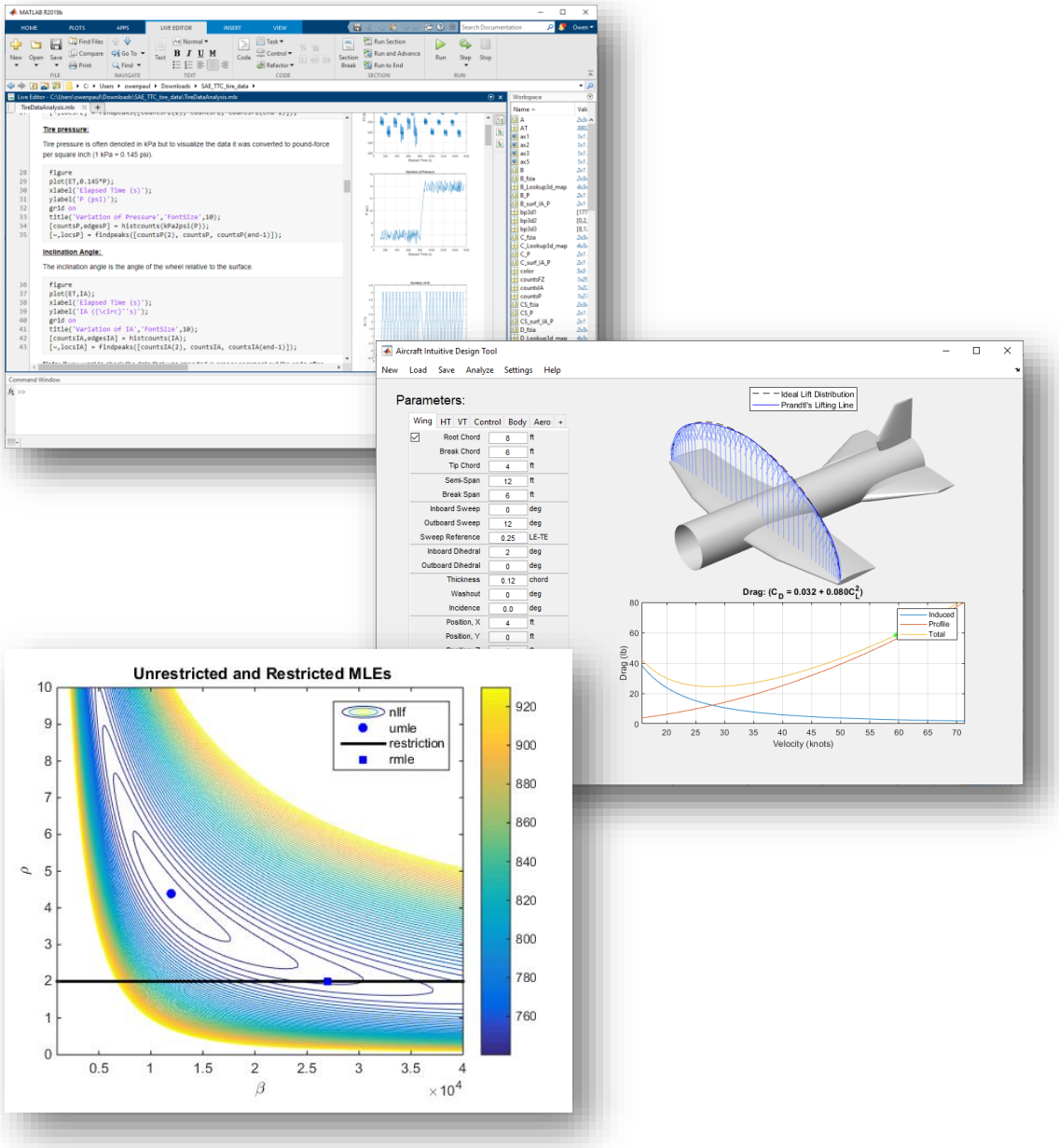
What is MathWorks?

- Private company
- Creators of MATLAB and Simulink
- Founded in 1984
- $1 billion revenue
  - Profitable every year
- Hiring(!)



What is MATLAB?

- High-level technical language
  - Native support for vector and matrix operations
  - Built-in math and visualization functions
- Interactive development environment
  - Interactive and easy to get started
  - Ideal for iterative exploration and design
- Biannual release cycle
  - Current version is r2020b **new!**

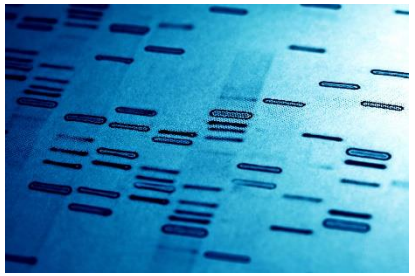


Key Industries that use MATLAB

Aerospace and Defense

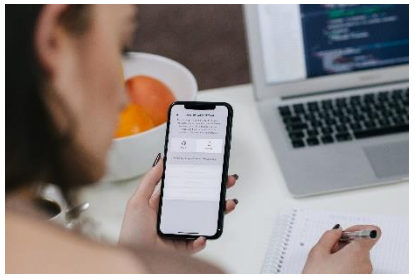
Automotive

Biological Sciences



Biotech and Pharmaceutical

Communications



Electronics

Energy Production

Financial Services

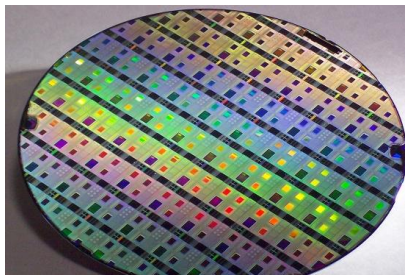
Industrial Machinery

Medical Devices

Metals, Materials, Mining

Neuroscience

Railway Systems



Semiconductors

Software and Internet

A few companies that use MATLAB

- Amazon
- Apple
- Scania
- BAE Systems
- Bank of England/PRA
- BMW
- Boeing
- Facebook
- Ford Motor Company
- Genentech
- Google
- Huawei
- Hydro-Québec
- Intel
- Johnson & Johnson
- JP Morgan
- NASA
- Ericsson
- Qualcomm
- Samsung
- Siemens
- Tetra Pak
- Texas Instruments
- Toyota

4 million+

users in 185 countries

100,000+

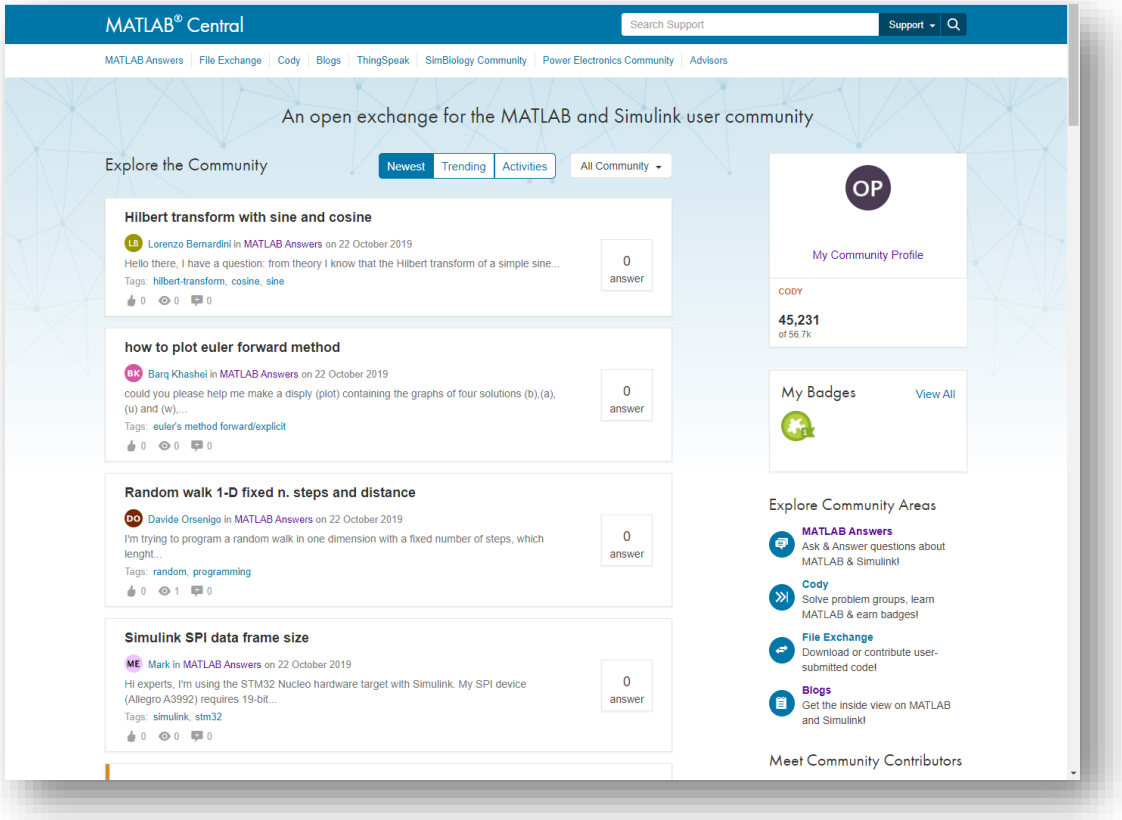
businesses, governments, and universities

All of the top 10 automotive and aerospace companies

OICA: 2017 World Motor Vehicle Production
PwC: Aerospace and Defense 2018 Year in Review

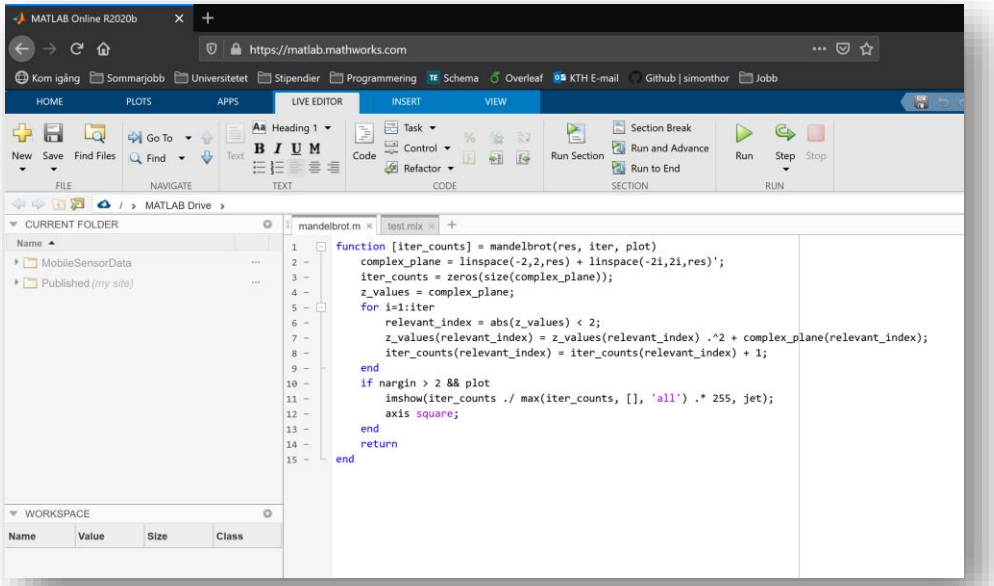
Why use MATLAB?

- Fast
  - Can be used for rapid prototyping
- Easy to read and learn
- Extensive documentation
  - Help forum, built-in documentation, examples etc…
- Toolboxes for everything
  - Deep learning, LiDAR, parallell computing…
- **You need it for your homework!**

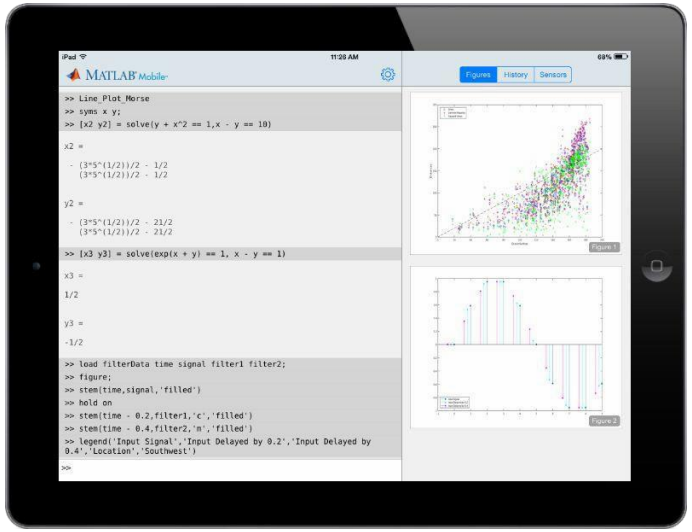


MATLAB anywhere

- MATLAB online
- Code stored in the cloud
- MATLAB Mobile
- Run commands, m-files, see visualizations
- All files connected to MathWorks cloud
- Acquire data from device sensors
  - GPS, accelerometer etc…



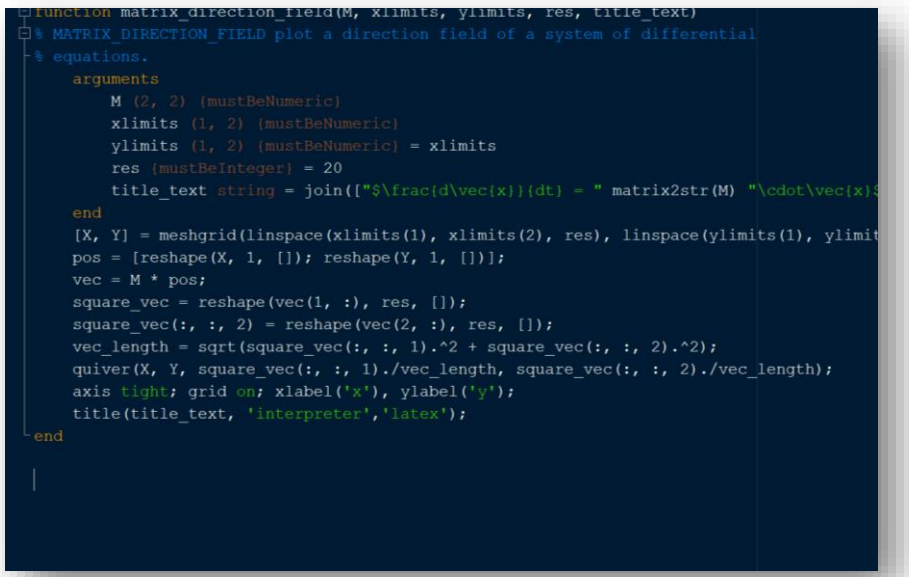
https://matlab.mathworks.com/



Demo

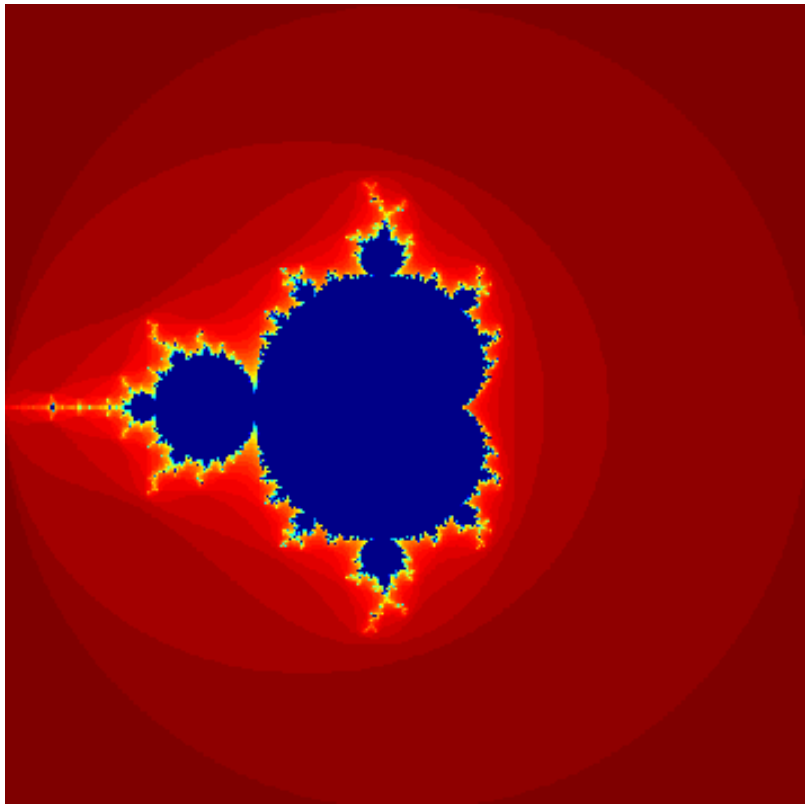
- Basics
- Live scripts
- Linear algebra
- Differential equations
  - Symbolic math toolbox
- Visualization

https://drive.matlab.com/sharing/745f9ccf-0630-4c01-9d92-40487c4c37ff



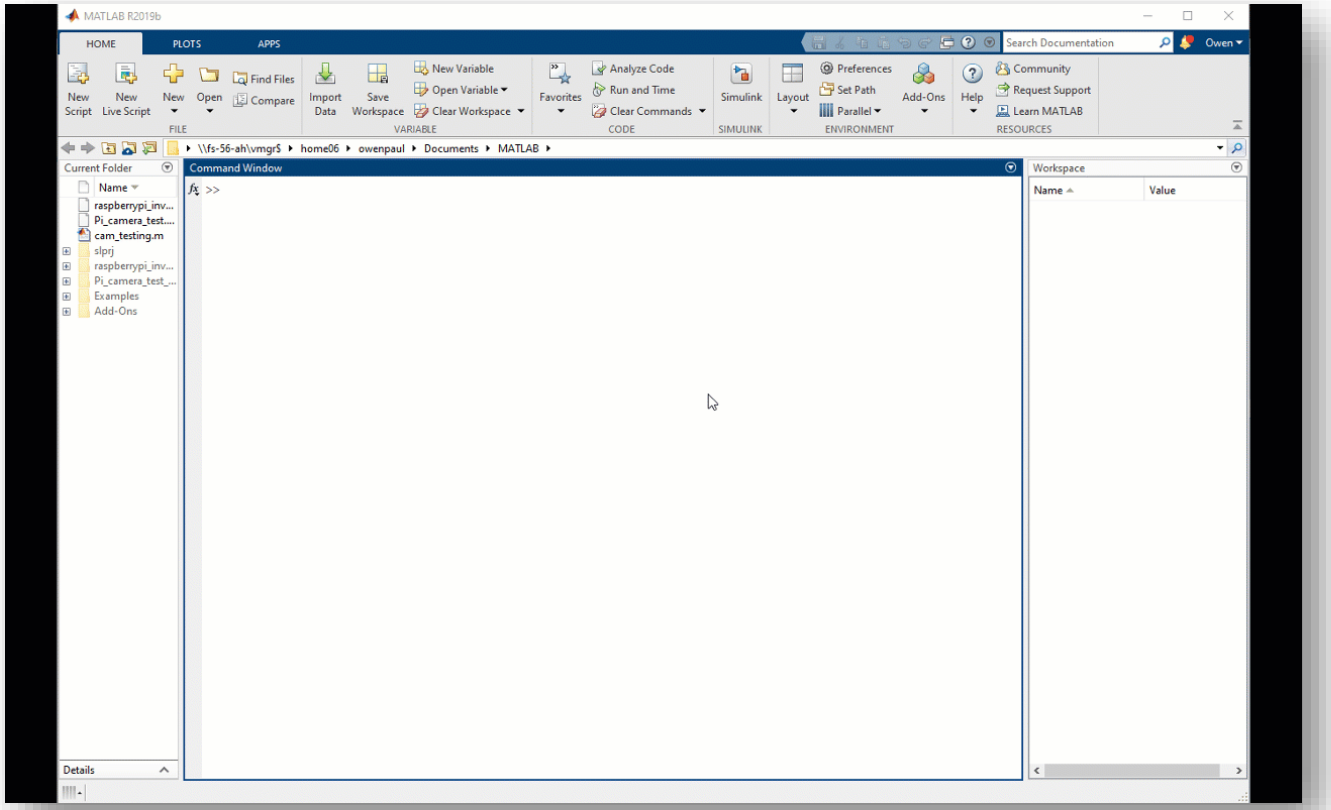
Fun ways to use MATLAB

- Perfect for hobbies and small projects
  - Mario game
  - Fractals
- Can be used for internet of things
- Student association projects
  - Rocket launches
  - Car racing



Online courses

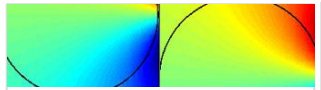
- MATLAB Onramp
  - 2 hours of introductory material
- Free access, self paced
- Many other courses
  - Machine Learning
  - Deep Learning
  - Simulink
  - Stateflow
- Send proof to get giveaways



Additional Self-Paced Training Courses

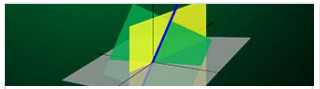
These courses are free with your university MATLAB license

Computational Mathematics



Solving Nonlinear Equations with MATLAB

Solving Ordinary Differential Equations with MATLAB



Introduction to Linear Algebra with MATLAB

Introduction to Statistical Methods with MATLAB

Introduction to Symbolic Math with MATLAB

9 hours of short courses on computational mathematics topics

Core MATLAB

MATLAB Fundamentals

MATLAB Programming Techniques

MATLAB for Financial Applications

Data Science

MATLAB for Data Processing and Visualization

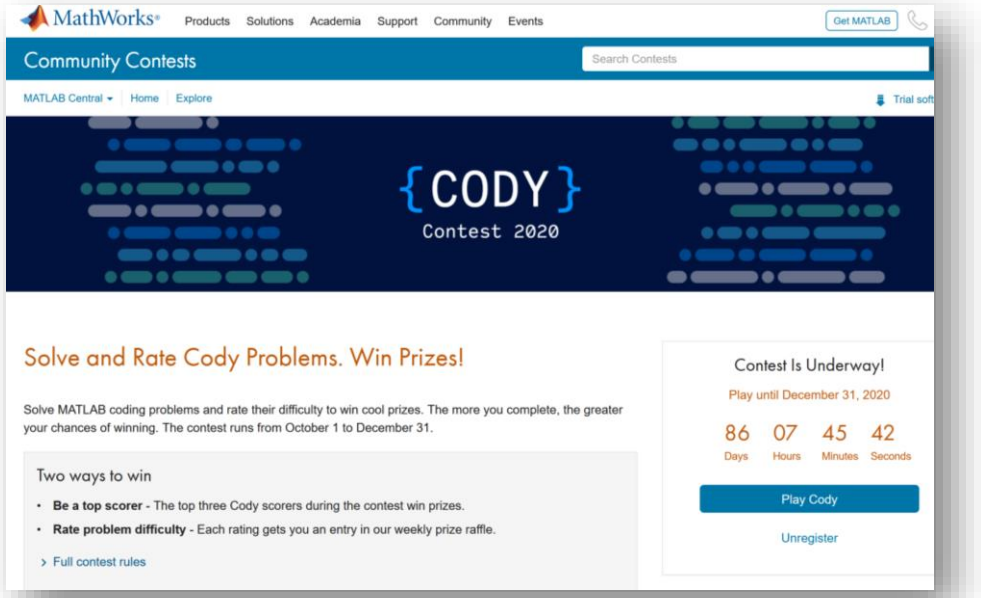
Machine Learning with MATLAB

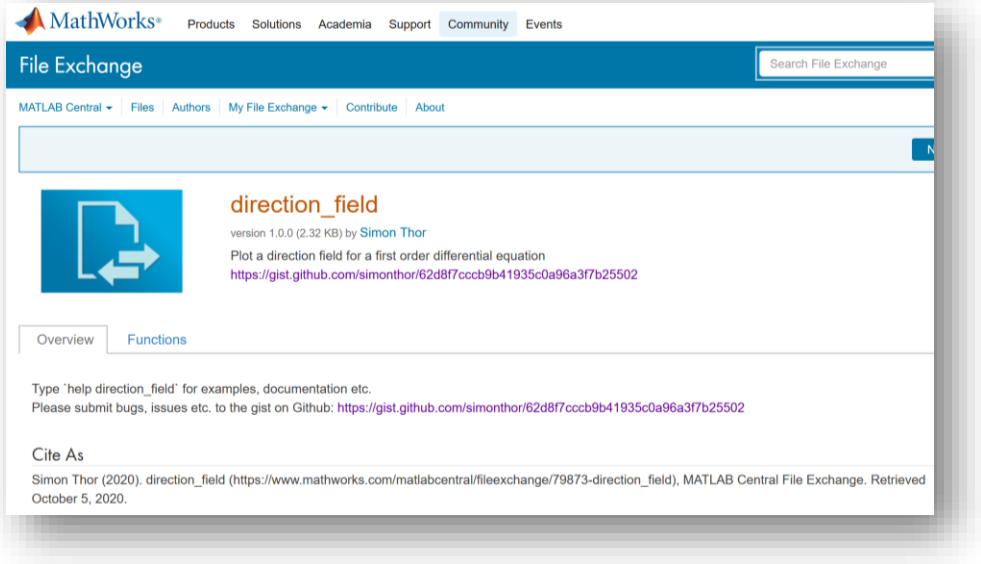
Deep Learning with MATLAB

Over 80 hours of comprehensive MATLAB learning content

Other resources

- Cody
  - Cody contest 2020
  - Local competitions in Facebook group
- File Exchange
  - Access more than 10k free files
- Facebook group
  - Ask questions
  - Answer quizzes
  - Get merch!





Thank you for attending!

- Fill out this form to get **giveaways**
- https://forms.gle/orKvuxxVE1jL8FuV9