

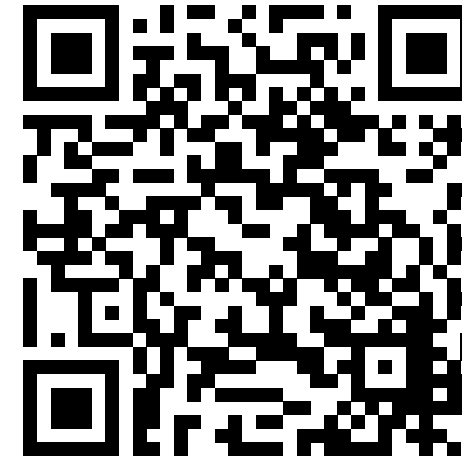
Welcome to MATLAB with Python

The event will begin shortly, before we begin remember:

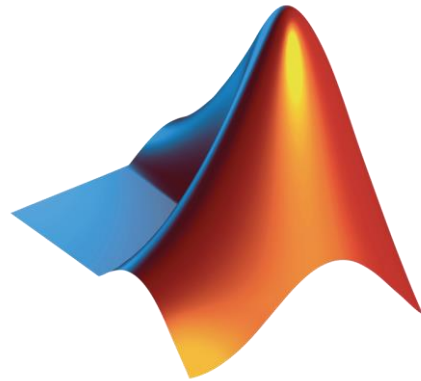
Mute your mics
(should be off by default)



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



MATLAB with Python



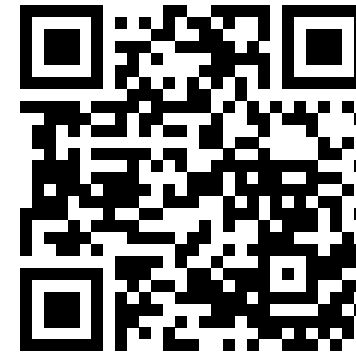
Simon Thor

MATLAB Student Ambassador

Agenda

- About MATLAB and Python
 - Python in MATLAB
 - MATLAB in Python
 - Other use cases
 - Resources to learn more
 - **Ask questions whenever you want!**
- Presentation and other resources available here:

<https://github.com/simonthor/kth-matlab-ambassador>



MATLAB vs Python

- Similar languages
- Similar use cases
- Which one is better?
 - Depends!
- **Why not use both?**

Feature	MATLAB	Python
Dynamic	Yes (JIT)	Yes (parsed)
High-level	Yes	Yes
Readability	Readable	Readable
Use cases	Science, engineering, machine learning	Science, web, machine learning
Linear algebra	Builtin support	Numpy
Visualization	Builin support	Matplotlib
Symbolic math	Builtin support	Sympy
Number of users	4 million+	8 million+ ¹
License	Commercial	Open source

¹<https://www.zdnet.com/article/programming-languages-python-developers-now-outnumber-java-ones/>

Calling Python from MATLAB

- Required setup:
 - Run `pyenv` if using virtual environments
 - Otherwise, no setup required
- Super easy to call Python code from MATLAB
 - Clean syntax
 - Smooth type conversion
- Use powerful Python libraries
- Demo

More information:

<https://www.mathworks.com/help/matlab/call-python-libraries.html>

Try out the demo with me!

<https://drive.matlab.com/sharing/d55f0d7a-4cd5-4b96-a4c0-723368546f39>

Or download the demo here:

https://github.com/simonthor/kth-matlab-ambassador/blob/master/Seminars/MATLAB%20with%20Python/pythonFromMatlab_demo.mlx

Calling MATLAB from Python

- Required setup:
 - Run setup.py
 - Supported Python versions: 2.7, 3.6-3.8
 - Also works with virtual environments
- MATLAB array type
 - Easy transition to numpy arrays
- Demo

```
>> cd [matlabroot]/extern/engines/python/  
>> python setup.py install
```

More information:

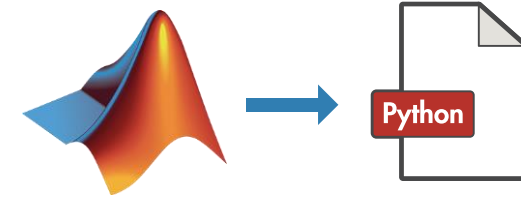
<https://www.mathworks.com/help/matlab/matlab-engine-for-python.html>

Download demo here:

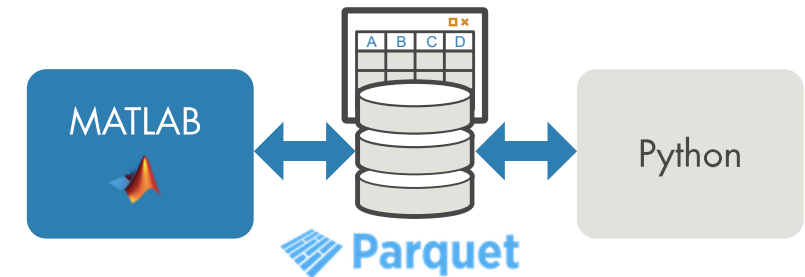
https://github.com/simonthor/kth-matlab-ambassador/blob/master/Seminars/MATLAB%20with%20Python/matlabFromPython_demo.ipynb

Other use cases of MATLAB with Python

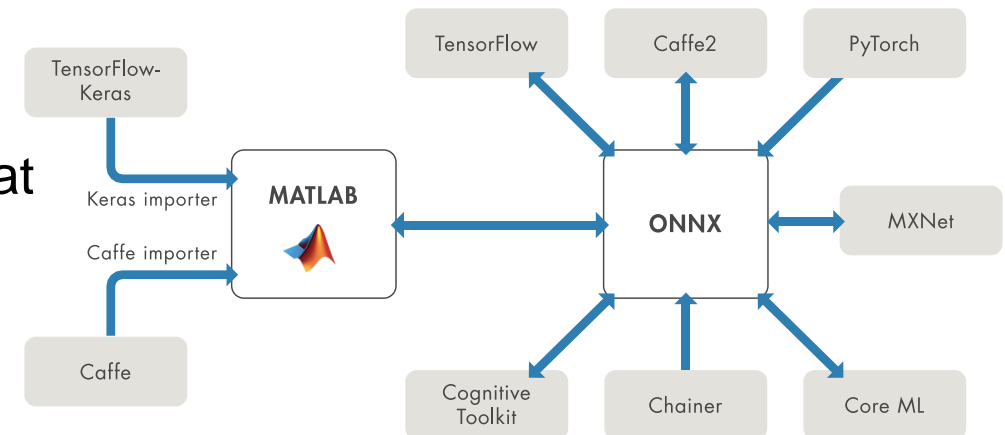
- MATLAB Compiler SDK
 - Generate Python packages from MATLAB code



- Tabular data
 - Export and import parquet files
 - load in Python with pandas



- Neural networks
 - Export to Open Neural Network Exchange format
 - Import Keras model: `importKerasNetwork`
 - Import Caffe model: `importCaffeNetwork`



Other resources

- [MATLAB with Python](#)
- [MATLAB homepage](#)
- [Python homepage](#)
- [Webinar - Using MATLAB with Python together \(18/11\)](#)
- [Cheat sheets and this presentation](#)
- Have problems? Ask in the Facebook group :)

Live Events

Using MATLAB with Python Together

Date	Time
18 Nov 2020	16:00 CET

Overview


MATLAB® provides flexible, two-way integration with many programming languages, including Python. This allows different teams to work together and use MATLAB algorithms within production software and IT systems. This webinar will cover how to call MATLAB from Python and how to call Python libraries from MATLAB.

Who should attend?

This webinar is aimed at Professors, PhD students & Post-Docs who are interested in Online Teaching.

About the Presenter

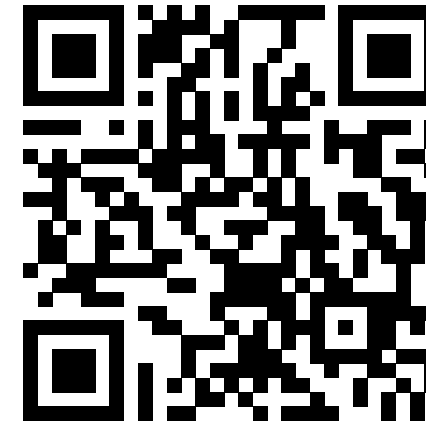
Heather Gorr holds a Ph.D. in Materials Science Engineering from the University of Pittsburgh and a Masters and Bachelors of Science in Physics from Penn State University. Since 2013, she has supported MATLAB users in the areas of mathematics, data science, deep learning, and application deployment. She currently acts as a Senior MATLAB Product Marketing Manager, specializing in data science, AI, and integrating MATLAB and Python code. Prior to joining MathWorks, she was a Research Fellow, focused on machine learning for prediction of fluid concentrations.



Continue

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

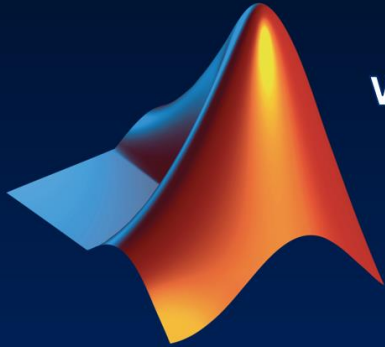
Thank you for attending!

- Fill out this form to make the events better
- <https://forms.gle/bJW2JduqdmnCqtmMA>
- MATLAB merch will be handed out at the KTH library on November 18 (Wednesday this week) 9:15-12:00


Webinar

Learn how to use

MATLAB



with



Python

16th November
12:15-13:00