

# 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 Webinar**

**By, Deepak Guru Ganesan**  
MATLAB Student Ambassador at Chalmers

# 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 resources  
available here

<https://github.com/DeepakGuru1998/Matlab-with-Python>



# MATLAB vs Python

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

Feature	MATLAB	Python
Dynamic	Yes (JIT)	Yes
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+ <sup>1</sup>
License	Commercial	Open source

<sup>1</sup><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/e974ce4c-c656-411b-bed6-011b794362ff>

Or download the demo here:

[https://github.com/DeepakGuru1998/Matlab-with-Python/blob/main/pythonFromMatlab\\_demo.mlx](https://github.com/DeepakGuru1998/Matlab-with-Python/blob/main/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:

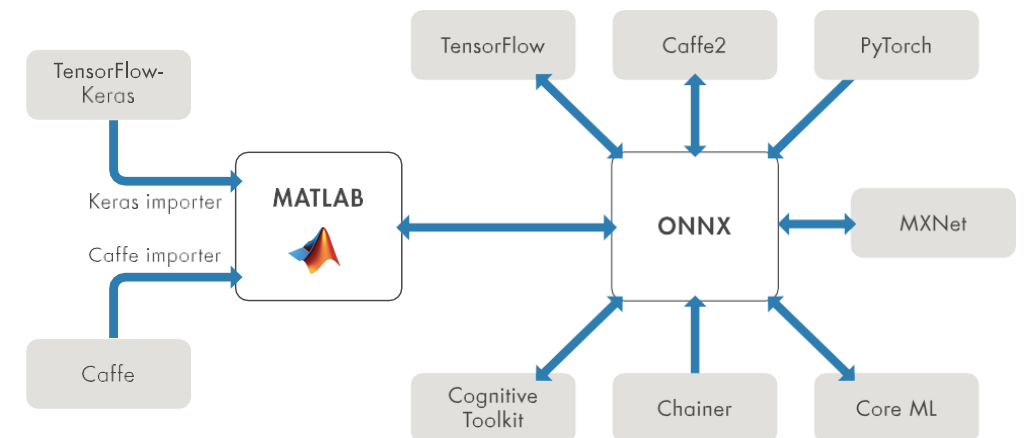
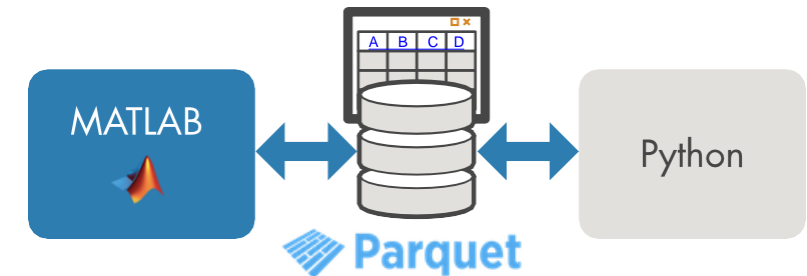
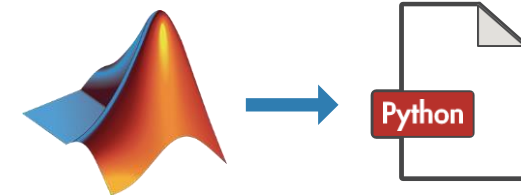
<https://www.mathworks.com/help/matlab/matlab-engine-for-python.html>

Download demo here:

[https://github.com/DeepakGuru1998/Matlab-with-Python/blob/main/matlabFromPython\\_demo.ipynb](https://github.com/DeepakGuru1998/Matlab-with-Python/blob/main/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
  - **Demo** : [Link](#) (Download the live script from here)
- Neural networks
  - Export to Open Neural Network Exchange format
  - Import Keras model: `importKerasNetwork`
  - Import Caffe model: `importCaffeNetwork`
  - Demo: [Link](#) (Download the live script from here)






# Other resources

- [MATLAB with Python](#)
- [MATLAB homepage](#)
- [Python homepage](#)
- [On demand Webinar - Using MATLAB with Python together](#)
- [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



Continue

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.

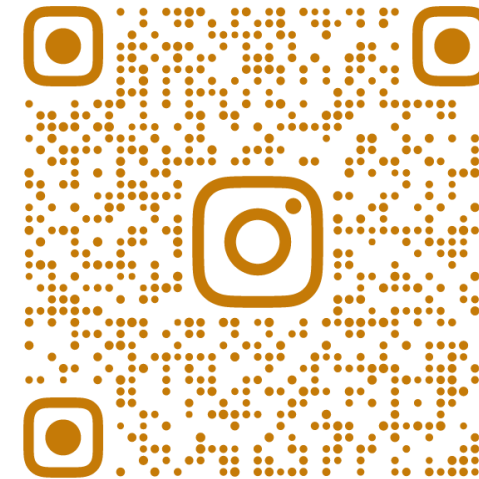
About the Presenter

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.



## Facebook group

- Join the MATLAB@Chalmers Facebook group
  - Stay up to date with all events being hosted
  - Posts about MATLAB & Simulink resources
  - Instagram: @matlab\_chalmers
  - Post (outdated) memes
  - Any event suggestions?
- Email me: [deepakg@student.chalmers.se](mailto:deepakg@student.chalmers.se)



**MATLAB\_CHALMERS**

# Do you want to become a MATLAB Student Ambassador like me ?

Check out this link Below:

<https://www.mathworks.com/company/jobs/opportunities/24624>

## **Responsibilities**

- Promote awareness and usage of MathWorks tools.
- Drive student events and activities to promote awareness and usage.
- Establish community at school and with Social Media for students.

## **Minimum Qualifications**

- Candidates must be pursuing a bachelor's or master's level degree.
- Experience with MATLAB
- Candidates for this position must be authorized to work in Sweden or be able to obtain work authorization with an internship offer.

Thank you for attending!