

SigSys II and NumMeth: MATLAB tips and resources

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MATLAB

As a tool:

- ▶ Engineering tool, started with LA, now much more
- ▶ Extensive amount of research functionality
- ▶ Widely used at ETH, (engineering) academia in general

As a language:

- ▶ Dynamically-typed and interpreted
- ▶ Great for prototypes, less so for larger projects
- ▶ Powerful, very user-friendly debugger

Available resources

Large amount of tutorials available:

- ▶ MATLAB's searchable [official documentatation](#)
 - ▶ Documentation much more extensive than what `help somecommand`
 - ▶ Scroll down on these pages, often there are even usage examples
- ▶ MATLAB's own [getting started guide](#)
- ▶ MATLAB's online [language fundamentals guide](#)

⇒ Purpose of these slides: Help you better find help on your own

Important in all of programming: Experiment!

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- ▶ Path:
 - ▶ List of folders in which MATLAB looks for functions and classes.
 - ▶ User-settable, defines precedence of functions.

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 - ▶ if else.
- ▶ Scripts, functions, anonymous functions.

Debugging

Tutorial: [Mathworks website](#)

- ▶ Start debugger if error is found: `dbstop if error`
- ▶ Continue running the code normally: `dbcont`
- ▶ Exit debugger: `dbquit`

Alternatives

▶ Octave

- ▶ Free “clone” of MATLAB.
- ▶ Not all the same functionality, but code almost the same.
- ▶ Has a GUI.

▶ Python

- ▶ Free, also after you graduate.
- ▶ Widely used in different fields, Deep Learning - TensorFlow, PyTorch.
- ▶ Some useful packages: NumPy, SciPy, SymPy, control.
- ▶ Less unified, sometimes less well-documented and “ready-to-use”.

Recommendation: Start with MATLAB, keep an eye on Python.