Tutorial 1 - ENGN6528

Brief Introduction to Matlab/Python/clab

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5 Aug. 2020

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Matlab

Obtaining and Installing

MATLAB is a numerical computing environment, which is available to all ANU staff, HDR and undergraduate students.

Excellent documentation covering the ANU MATLAB site license already exists - you can access it at http://matlab.anu.edu.au. You can also obtain the req uired information to install the software, as well as downloadable ISO images.

Please note that you can only access the site http://matlab.anu.edu.au from an ANU network - it is unavailable from outside ANU.

Matlab Tutorial

- intro.m
- improc.m
- myfunction.m
- myotherfunction.m

Python

Obtaining and Installing

Python is a great general-purpose programming language on its own, but with the help of a few popular libraries (numpy, scipy, matplotlib, opencv, imageio) it becomes a powerful environment for scientific computing.

Do not mess up with the default python of the operation system, virtual environment is highly recommended.

Virtual Environment

- Anaconda

IPython

In this tutorial we will use IPython/Jupyter Notebook, a notebook lets you write and execute Python code in your web browser. Notebooks make it very easy to tinker with code and execute it in bits and pieces; for this reason notebooks are widely used in scientific computing.

ipython totorial
python_tutorial.ipynb

Python Script & Running

demo.py

E.g.

```
import numpy as np

def xxx():
    return
if __name__ == '__main__':
    print("Hello world from Python")
```

IDE

- Pycharm: good for interactive debugging

Terminal

```
python helloWorld.py
```

Clab

How to Write a Good Report

Play Video

Lab Submission

ZIP file:

- **single** source code file named "*.m" or "*.py"
- other materials required

Lab report format quality:

- **task index**:
  e.g. "Task-1: The Question 1. Your first question under this theme"
- answer to the key with **justification**: results only is not enough
- put **reference** if necessary
- **code snippet** with reference in the text and comments. For embedded code format as *imfilter()*
- **figure, table**: with **caption**, **visual friendly** figure quality and font size
- **no handwriting allowed**

Questions?