# Instructions for running Dsen2 - Super-Resolution of Sentinel-2 Images

Super-Resolution of Sentinel-2 Images: Learning a Globally Applicable Deep Neural Network

Download the repository at https://raw.githubusercontent.com/lanha/DSen2

## Requirements

- tensorflow-gpu (or tensorflow)
- keras
- nupmy
- scikit-image
- argparse
- imageio
- matplotlib (optional)
- GDAL >= 2.2 (optional)

## Installation instructions for Anaconda-3

**NOTE:** seems to work only (?) with tensorflow==1.14. For v>=2 it breaks... 😦 Not sure if it works with tensorflow-gpu

1. *Install Anaconda/Python-3.7*

2. *Create a new environment*

```
conda create -name "dsen2"
```

3. *Run the remaining installation commands in the new environment:*

```
pip install argparse

conda install scikit-image

conda install imageio

conda install -c conda-forge gdal

conda install -c conda-forge tensorflow==1.14

conda install -c conda-forge keras
```

## Usage instructions

- In Windows button/search go to "Anaconda Prompt (Anaconda 3)"
- Navigate to the DSen2 repository folder
- Inside that directory, go to folder "testing"
- Run the **s2_tiles_supres.py** python script (which will use a pre-trained deep neural network) for a single sentinel image/scene

Here's an example (replace image input and output paths...):

```
python s2_tiles_supres.py
D:/DATA/S2/L2A/S2B_MSIL2A_20190530T112119_N0212_R037_T29TNF_20190530T132835.SAFE/M
TD_MSIL2A.xml
C:/MyFiles/temp/S2/S2B_MSIL2A_20190530T112119_N0212_R037_T29TNF_20190530T132835.ti
f --copy_original_bands
```

Wait like two or three hours!?.... 😕