Installation of libraries:

Firstly, create an anaconda environment by using the following command in the anaconda prompt: `conda create -n supresenv python=3.9`

Activate the conda environment by using the following command: `conda activate supresenv`

To install libraries the requirements.txt file should be used. Inside the Super Resolution 22 folder use the command to install libraries: `$ pip install -r requirements.txt`

Installation of GDAL:

Binary wheels for rasterio and GDAL are created by Christoph Gohlke and are available from his website.

To install rasterio, simply download both binaries for your system (rasterio and GDAL) and run something like this from the downloads folder, adjusting for your Python version.

The files are already downloaded in the “GDAL Installation” folder. If not available then download it from the above link. Then run the following commands.

```
$ pip install -U pip
$ pip install GDAL-3.4.3-cp39-cp39-win_amd64.whl
$ pip install rasterio-1.2.10-cp39-cp39-win_amd64.whl --user
```

Tensorflow GPU Installation:

Step 1: Install Visual Studio community edition:
https://visualstudio.microsoft.com/vs…

For the following steps verify instructions from www.tensorflow.org/install/gpu

Step 2: Verify your GPU is actually supported for deep learning:
https://developer.nvidia.com/cuda-gpus

Step 3: Figure out your GPU model: (450.0 + versions required)
https://www.nvidia.com/download/index…

Step 4: Download and install CUDA Toolkit. On or above Version 11.0

https://developer.nvidia.com/cuda-too…

Step 5: Download cuDNN.
You need to sign up for the Nvidia developer program (free)
Extract all folder contents from cuDNN into the following location:
`C:\program files\Nvidia GPU computing toolkit\CUDA\v11.0`

Step 6: Install tensorflow
`$ pip install tensorflow`

Step 7: Verify the installation

```
import tensorflow as tf
print("Num GPUs Available: ", len(tf.config.list_physical_devices('GPU')))
```

Libraries and Versions:

Numpy : 1.23.5
TensorFlow : 2.12.0 (App and Proposed Model) | 2.6.4 (SRGAN Model)
SkImage (scikit-image) : 0.19.2
Keras : 2.12.0
Patchify : 0.2.3
GDAL : 3.4.1
RasterIO : 1.3.6
PLI (Pillow) : 9.2.0