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Setting Up TensorFlow with GPU For Jupyter Lab

A complete guide to getting TensorFlow setup with Jupyter Lab to use a CUDA GPU for enhanced processing on Windows 11

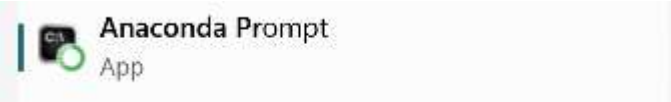
Prerequisites:

- Physical Nvidia GPU that supports CUDA
- Windows 11
- Python 3.10

Step 1. Install Anaconda

https://www.anaconda.com/download

Open Anaconda Prompt



Step 2. Create Conda Environment

Once in the Anaconda Prompt, run:

```
conda create -n py310 python=3.10
```

```
conda activate py310
```

Step 3. Install Cuda and cuDNN

```
conda install -c conda-forge cudatoolkit=11.2 cudnn=8.1.0
```

Confirm installation with

`conda list cudatoolkit` then `conda list cudnn`

Step 4. Install TensorFlow (GPU version)

```
python -m pip install "tensorflow<2.11"
```

Step 5: Verify GPU is Working with TensorFlow

Open Python with

```
python
```

Then run the following code to see if TensorFlow detects your GPU

```
import tensorflow as tf

print(tf.config.list_physical_devices('GPU'))
```

```
>>> tf.config.list_physical_devices('GPU')
[PhysicalDevice(name='/physical_device:GPU:0', device_type='GPU')]
```

```
print(tf.test.is_gpu_available())
```

```
memory:  -> device: 0, name: NVIDIA GeForce RTX 3060 Laptop GPU,
True
>>>
```

Step 6: Jupyter Lab

Uninstall previous Jupyter Lab installation, if any. Then install using conda

```
conda install -n py310 jupyterlab
```

Install Jupyter kernel for the environment

```
python -m ipykernel install --user --name=py310 --display-name "Python (py310)"
```

Once inside Jupyter Lab, you should now be able to use the GPU!!

```
[1]: import tensorflow as tf
     print(tf.config.list_physical_devices('GPU'))

     [PhysicalDevice(name='/physical_device:GPU:0', device_type='GPU')]
```

Important: Always Activate!!!

Whenever you re-open Anaconda Prompt, always activate the environment

```
conda activate py310
```

Source

Anaconda GPU Setup https://www.youtube.com/watch?v=QUjtDIalh0k