Keras/Tensorflow Installation Instructions

# Python version

## Mac OSX

1. Create a folder (e.g. `tf\_test`) on the desktop
2. Open a terminal and go to this folder (`cd ~/Desktop/tf\_test`)
3. Create a virtual environment (`virtualenv .venv`) You may need to install this with `pip install virtualenv`
4. Activate it (`source .venv/bin/activate`)
5. Check python version (`which python`) (should be < 3.9)
6. Install numpy, pandas, matplotlib, tensorflow and keras packages with pip (e.g. `pip install numpy`)
7. install jupyter notebook: `pip install notebook`, and then launch the server with `jupyter notebook`
8. In the notebook, import tensorflow with `import tensorflow as tf`
9. Now build a simple model
   1. `from tensorflow.keras import models`
   2. `from tensorflow.keras import layers`
   3. ` model = models.Sequential(layers.Dense(units = 16, activation = ‘relu’, input\_shape = (20,)))`
10. When you are done, you can deactivate the virtual environment by typing `deactivate` in the terminal window

## Windows

1. Create a folder (e.g. `tf\_test`) on the desktop
2. Open a terminal (e.g the Anaconda prompt window) and go to this folder (`cd Desktop/tf\_test`)
3. Create a virtual environment (`virtualenv .venv`). You may need to install this with `pip install virtualenv`
4. Activate it (`.\.venv\Scripts\activate`)
5. Check python version (`which python`) (should be < 3.9)
6. Install numpy, pandas, matplotlib, tensorflow and keras packages with pip (e.g. `pip install numpy`)
7. install jupyter notebook: `pip install notebook`, and then launch the server with `jupyter notebook`
8. In the notebook, import tensorflow with `import tensorflow as tf`
9. Now build a simple model
   1. `from tensorflow.keras import models`
   2. `from tensorflow.keras import layers`
   3. ` model = models.Sequential(layers.Dense(units = 16, activation = ‘relu’, input\_shape = (20,)))`
10. When you are done, you can deactivate the virtual environment by typing `deactivate` in the terminal window

# R version

## Mac OSX

1. Create a folder (e.g. `tf\_test`) on the desktop
2. Open a terminal and go to this folder (`cd ~/Desktop/tf\_test`)
3. Create a virtual environment (`virtualenv .venv`) You may need to install this with `pip install virtualenv`
4. Activate it (`source .venv/bin/activate`)
5. Check python version (`which python`) (should be < 3.9)
6. Install numpy, pandas, matplotlib, tensorflow and keras packages with pip (e.g. `pip install numpy`)
7. Open RStudio
8. Run this command in RStudio: `Sys.setenv(RETICULATE\_PYTHON = "/Users/username/Desktop/tf\_test/.venv/bin/python")`
9. Load tensorflow libraries: `library(tensorflow)`
10. Check tensorflow version: `tf\_config()`
11. Load keras: `library(keras)`
12. Build a simple model: `model <- keras\_model\_sequential() %>% layer\_dense(units = 16, activation = “relu”, input\_shape = c(20))`
13. When you are done, you can deactivate the virtual environment by typing `deactivate` in the terminal window

## Windows

1. Create a folder (e.g. `tf\_test`) on the desktop
2. Open a terminal (e.g the Anaconda prompt window) and go to this folder (`cd Desktop/tf\_test`)
3. Create a virtual environment (`virtualenv .venv`). You may need to install this with `pip install virtualenv`
4. Activate it (`.\.venv\Scripts\activate`)
5. Check python version (`which python`) (should be < 3.9)
6. Install numpy, pandas, matplotlib, tensorflow and keras packages with pip (e.g. `pip install numpy`)
7. Open RStudio
8. Run this command in RStudio: `Sys.setenv(RETICULATE\_PYTHON = "C:/Users/username/Desktop/tf\_test/.venv/Scripts/python.exe")`
9. Load tensorflow libraries: `library(tensorflow)`
10. Check tensorflow version: `tf\_config()`
11. Load keras: `library(keras)`
12. Build a simple model: `model <- keras\_model\_sequential() %>% layer\_dense(units = 16, activation = “relu”, input\_shape = c(20))`
13. When you are done, you can deactivate the virtual environment by typing `deactivate` in the terminal window

Note that this also works if you having trouble installing tensorflow with your existing python version. Follow everything to step 6, then install jupyter notebook: `pip install notebook`, and then launch the server with `jupyter notebook`