Windows(64x) Caffe Framework & Deepdream installer

Whats Included?

- **Caffe(64x) precompiled /w all dependencies/libs/third party(gflags, etc) built in.**
- **Anaconda2 64x (python version: 2.5)**
- **Operating System and Vs2013 dependencies.**
- **All BVLC ilsvrc12 imagenets/models pre-integrated.**
- **BVLC /Examples pre-integrated, was missing from windows build.**
- **Third party deepdream/style-transfer projects pre-integrated**
- **Added new scripts; helpful for pre/post-processing in some projects**
- **Pytorch examples & pytorch installation (cpu or gpu; python version 3.5)**
- **BVLC /Data pre-integrated, was missing from windows build. This is for image classification/detection/labeling (etc)**

The caffe executables within this project are very fast, smooth running (can run secondary in background) & more freeze/crash resistant on heavy workloads. Everything here will run perfectly fine on a laptop CPU with no graphics card. In the pytorch environment even the VGG19 network model implementations run flawlessly without GPU. ***(used to crash other caffe installs before project even loaded)***

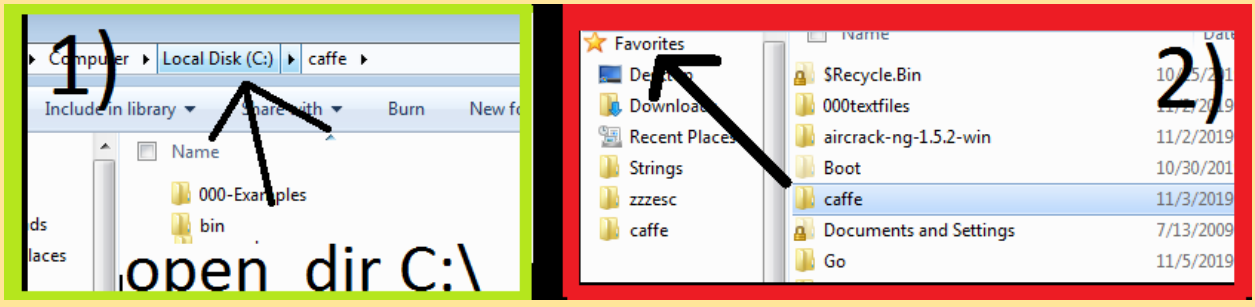
Overview:

Step 1)- Main setup installation
Step 2)- Installation of conda/python packages
Step 3)- Deepdream Tests
Step 4)- Neural Style transfer Tests
Step 5) - Computer Vision; object/image/class detection. Test
Step 6)- Pytorch-Cpu installation & Tests

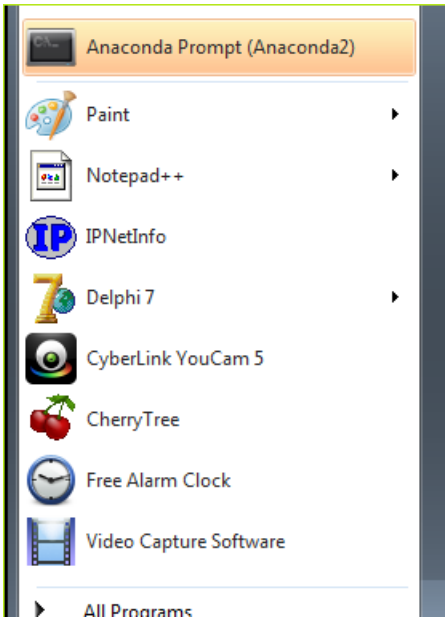
Step 1) - main setup installation

1)- Download setup.zip : here
2)- When finished downloading, right click setup.zip and select 'extract all…'
3)- When extraction is finished, everything will be within a new folder named setup
4)- Open setup folder and right click 1-installer.bat Select RUN AS ADMINISTRATOR
5)- Installer will begin the installation process and guide you step by step.
6)- When installation is finished, restart the computer..

Right click your desktop, select *New* —> *Shortcut*, type **C:\caffe** & enter, click our new shortcut than move up to parent directory ***C:*** (img1) than drag the caffe folder to your favorites like img2



Create faster shortcut to Conda Prompt By opening the start menu, —> *All Programs* —> *Anaconda3 (64-bit)* —> *Anaconda Prompt (Anaconda2)*. Then right click and select (pin to start menu), you can also create a desktop shortcut if you wish.



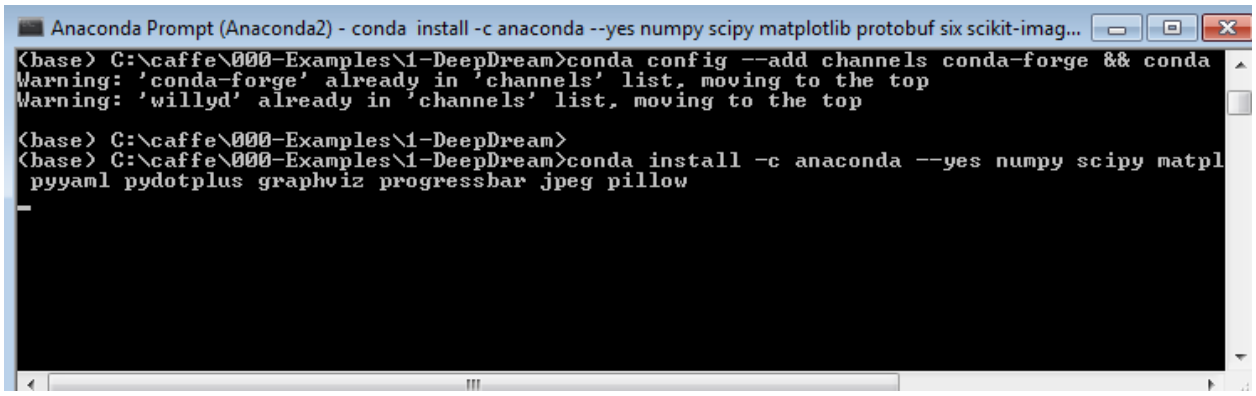
Our new faster conda shortcut, now on first page of start menu items. is shown above,

Step 2) - installation of conda & python packages

Copy the following 2 commands below into conda and execute them:
If prompted, confirm yes by typing letter Y and pressing ENTER
If any package is not found, or giving difficulties, skip/remove that particular package from list

conda config --add channels conda-forge && conda config --add channels willyd

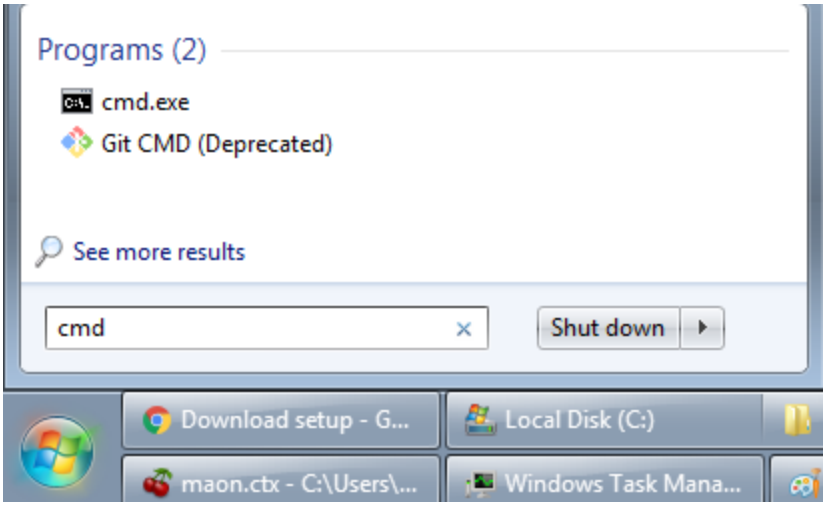
conda install -c anaconda --yes numpy scipy matplotlib protobuf six scikit-image pyyaml pydotplus graphviz progressbar jpeg pillow



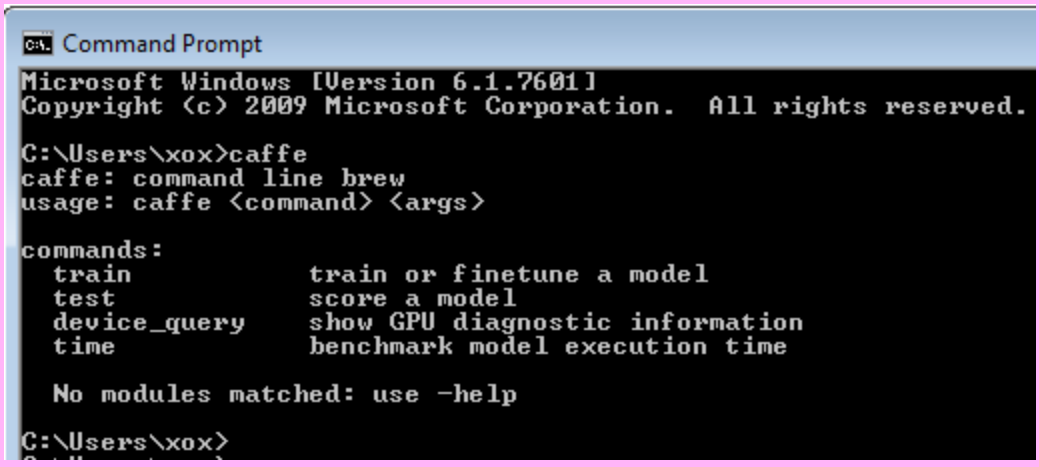
Should look like this, was still loading command when i took the screenshot
Than enter the following 4 commands, **line by line**. And execute them:

cd C:\caffe\000-Examples\2-Style-Transfer
conda install --yes --file requirements.txt
cd C:\caffe\000-Examples\3-PyDeepDream
conda install --yes --file requirements.txt

Open a regular windows command prompt by going to start than typing cmd.exe or by going to all programs —> Accessories —> System Tools —> Command Prompt



In the new cmd.exe (command prompt) window. Type and enter caffe
The output should show the following:

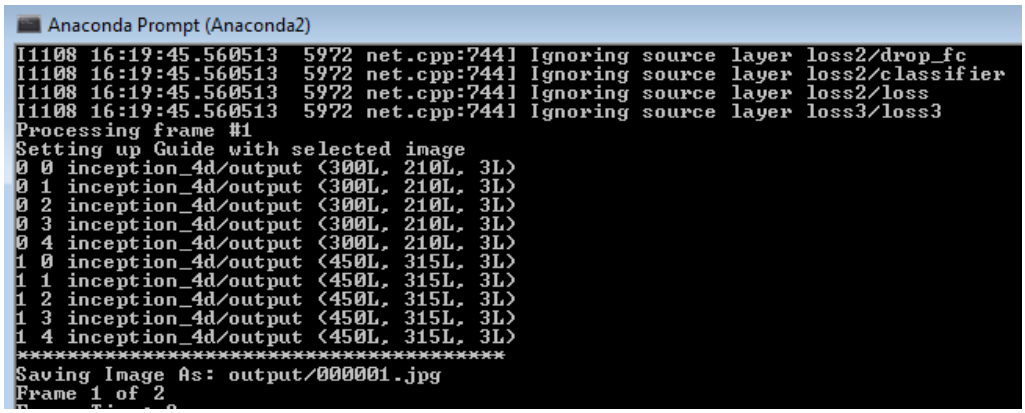


IF YOU RECEIVE AN ERROR, (*IE* MODULE CAFFE NOT FOUND), THAN YOU ARE EITHER MISSING DEPENDENCIES OR YOUR PATH IS NOT CONFIGURED CORRECTLY *FOR WHATEVER REASON* Otherwise if caffe was successfully recognized, than continue:

Step 3) - DEEPDREAM TESTING & TUTORIAL

the following lines are a single command. Copy it into your conda prompt and execute. This sets conda working location to deepdream project folder than launches deepdream /w arguments.

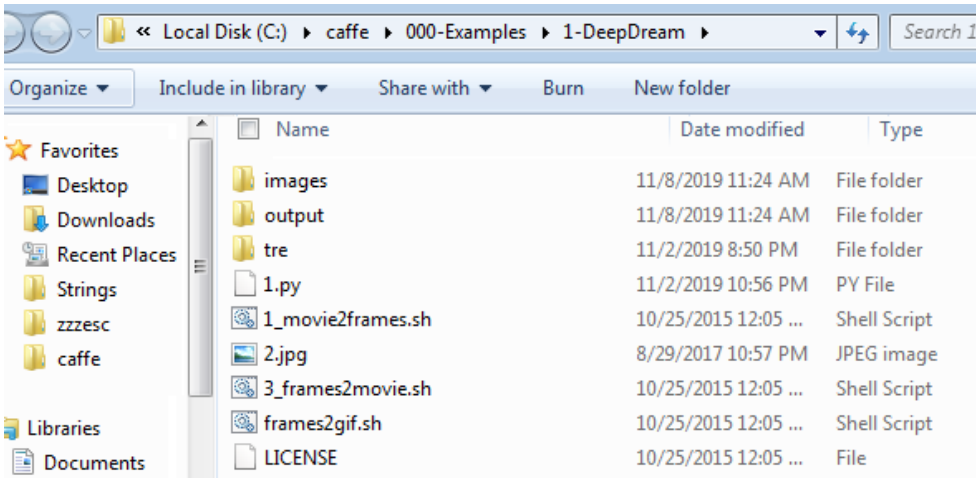
cd C:\caffe\000-Examples\1-DeepDream && python 1.py -i images -it jpg -t ../../models/places365-googlenet -m places365-googlenet.caffemodel -v 2 -o output -gi 2.jpg -b loop --octaves 2 -s 4



^ *The result should look something like this, ends with "No such file 000002.jpg"* ^

Execute this command in conda prompt

explorer.exe C:\caffe\000-Examples\1-DeepDream



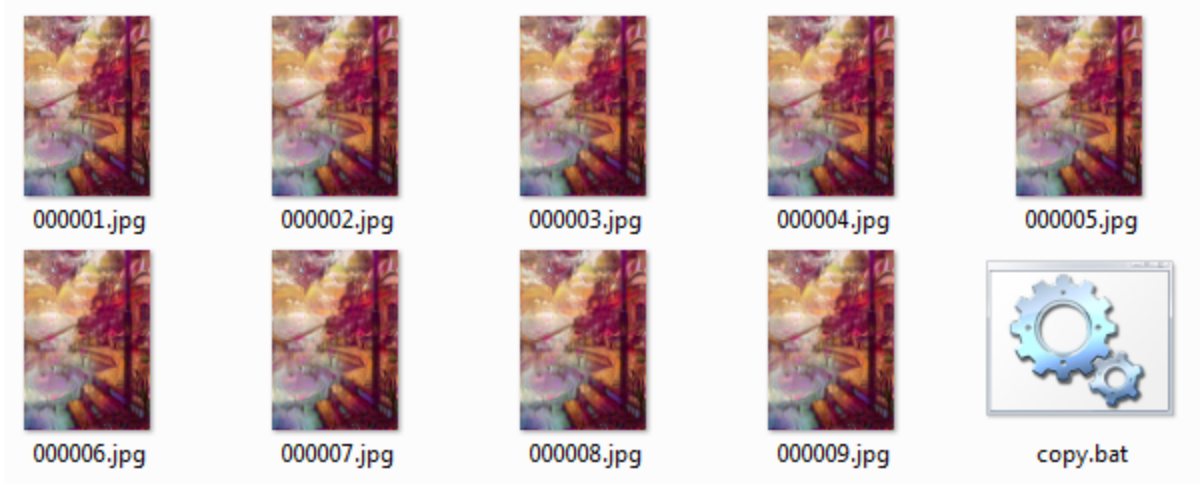
The deep-dream project directory should open in a new window.

The ***images*** folder is where you put the images you want to have deepdreamed

The ***output*** folder will display the deepdreamed results.

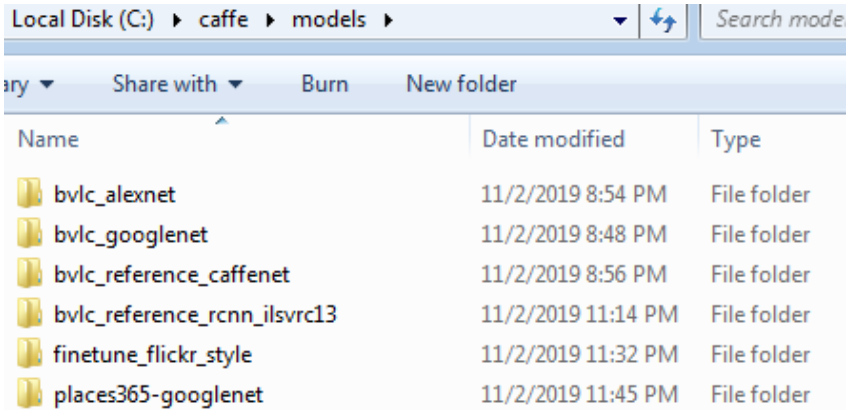
Our earlier deepdream command should have produced a new image in the **output** folder, here is the before and after *(barely noticable, src img was already glitched)*

If you open the **images** folder and run **copy.bat** file, it will create 8 copies of the photo named 000001.jpg, with the resulting names in sequential numerical order ending at 000009.jpg



*pressing up arrow key in conda window will show our command history, if we rerun our deepdream command again it will glitch the new copies we made in **images**, here is the result (animated)*

The *C:\caffe\models contains several more models/imagenets you can use,*



in the following command we use caffenet model instead, we also added a new parameter -l (layer) and specified pool5 as our working layer.

python 1.py -i images -it jpg -t ../../models/bvlc_reference_caffenet -m bvlc_reference_caffenet.caffemodel -v 2 -o output -gi 2.jpg -b loop --octaves 2 -s 4 -l pool5

Photo 8 result, ***model:*** *caffenet* ***layer:*** *pool5*

You can deepdream a video by extracting its frames and putting them in IMAGES folder than taking the OUTPUT results and making a new video from them at the same FPS as original
You can make animated gifs as well, from the same photo in an animated loop as I did above or different photos from an animation and recreating a deepdreamed GIF
For more information & commands read the original github: ***here***
Special thanks to github user https://github.com/graphific, all credit for this amazing deepdream project goes to him

Step 4) - STYLE TRANSFER_____

The following is my favorite of all the style transfer projects on github, the main page is here, all credit and thanks go's to GitHub user: https://github.com/fzliu for this project.

cd C:\caffe\000-Examples\2-Style-Transfer && python style.py -c images/content/johannesburg.jpg -s images/style/starry_night.jpg -m googlenet --gpu-id -1 -v -n 50 -l 500

The command took the image on left with style image in middle and painted the 3rd photo

python style.py -c images/content/johannesburg.jpg -s images/style/starry_night.jpg -m caffeenet --gpu-id -1 -v -n 50 -l 500

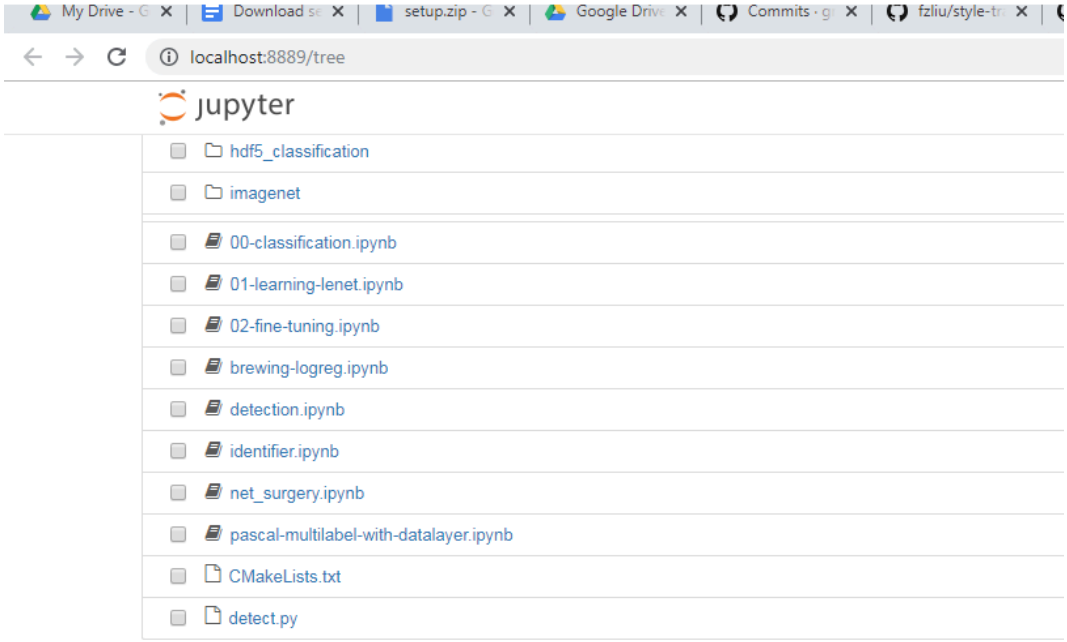
^ Replacing googlenet with caffenet model in the command produced this ^

Step 5) - COMPUTER VISION & OBJECT DETECTION_____

Enter the following 2 commands in conda prompt, ***Line by Line***

Cd C:\caffe\examples

Jupyter notebook



A local webserver will start and should look like this, scroll down and double click ***identifier.ipynb*** *to load a new tab with this project. Use the run button on top to execute each code snippet throughout tutorial. Despite using a very confusing photo, the project successfully identified the image class with high accuracy & printed useful analysis statistics/score*

```
Out[21]: [(0.09630962, 'n04120489 running shoe'),
          (0.08062418, 'n02835271 bicycle-built-for-two, tandem bicycle, tandem'),
          (0.07689409, 'n04482393 tricycle, trike, velocipede'),
          (0.06782706, 'n04509417 unicycle, monocycle'),
          (0.033079024, 'n03125729 cradle')]
```

Step 6) - Pytorch, tensorflow & keras implimentation_____ _____

It was very easy to install pytorch-cpu on top of caffe, pytorch is used for all new deeplearning & advanced projects. We created a new isolated mini-environment in conda running python 3.5 via the following commands, execute them **line by line**!

```
conda create -n tensorflow python=3.5
activate tensorflow
conda install pytorch torchvision cpuonly -c pytorch
conda install -c conda-forge tensorflow keras matplotlib numpy pillow
scikit-image scipy pandas
```

When the above commands are finished installing, try the following:

```
Cd C:\caffe\000-Examples\5-pytorch && python neural_style_tutorial.py
```