

# Project Infrastructure

## Infrastructure

We strongly recommend using python3 and Tensorflow if you use deep learning. You have access to two compute resources: Unlimited CPU usage on euler and limited GPU usage on Azure. Note that the difference in speed is typically a factor between 10 and 100. Do any debugging on euler and use your GPU hours wisely once you are relatively sure that your model is bug-free.

### 0.1 Running on Azure

**Machine setup** In your group email address you should find a link that allows you to access the Azure group portal. Under [2] you can create a new machine from a template by clicking 'edit'. Copy-paste the json code from [3], click 'save', enter username and password and click 'purchase'. After about one hour, the machine will show up under 'virtual machines' as GpuVM. There will also be another machine called TransferVM. Please stop this one after an hour – otherwise it will cost you money. Click on GpuVM to see it's IP address and ssh onto it.

**Tensorflow setup** To run python3 with tensorflow, please follow these steps

- Add

```
export LD_LIBRARY_PATH="$LD_LIBRARY_PATH:/usr/local/cuda/lib64:/usr/local/cuda/extras/CUPTI/lib64"
export CUDA_HOME=/usr/local/cuda
```

at the end of your ~/.bashrc file

- Run

```
sudo apt-get upgrade nvidia-settings
sudo reboot
```

Once the machine is booted again, tensorflow 1.0.0 will be available.

### 0.2 Running on Euler

Please see the wiki on how to use euler, in particular on how to request certain amounts of memory and compute power [1].

Run

```
module load new gcc/4.8.2 python/3.6.0
```

to get a running python tensorflow implementation. Before you allocate dozens of cores, use `bjob_connect` and `top` to investigate how many cores tensorflow is actually using. Often this not more than four. In any case you **must** set `inter_op_parallelism_threads` and `intra_op_parallelism_threads` in tensorflow to match the number of cores that you ordered when submitting jobs. The admins keep an eye on this.

## References

- [1] [http://brutuswiki.ethz.ch/brutus/EULER\\_for\\_beta\\_users#Useful\\_bsub\\_options](http://brutuswiki.ethz.ch/brutus/EULER_for_beta_users#Useful_bsub_options)
- [2] <https://portal.azure.com/#create/Microsoft.Template>
- [3] <https://polybox.ethz.ch/index.php/s/6gdlnBdi7jbo0mr>