

$\Sigma\Sigma_{Job}$: Sums_{Job} (**S**imple **U**tility for
Multiple-**S**ervers **J**ob **S**ubmission)

Lu Lu

Mar 29, 2019 @Crunch Seminar

To run a job...

From division machine without free GPUs

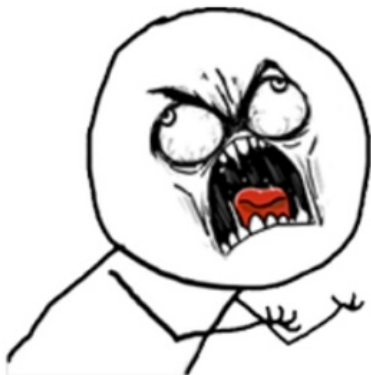
1. `ssh jueying`
2. `nvidia-smi`: If no free GPU, go to step 1
3. `cd ~/project/codes`
4. `CUDA_VISIBLE_DEVICES=0 python main.py`

From personal computer

1. `scp -r codes dam:~/project/codes`
2. `ssh dam`
3. `ssh jueying`
4. `nvidia-smi`: If no free GPU, go to step 1
5. `cd ~/project/codes`
6. `CUDA_VISIBLE_DEVICES=0 python main.py`
7. `scp dam:~/project/codes/ml.dat .`

One week later...

Cause I am lazy, I am crazy.



Sums_{Job} (**S**imple **U**tility for **M**ultiple-**S**ervers **J**ob **S**ubmission)

- ▶ A simple Linux ***command-line utility*** which ***submits a job*** to one of the ***multiple servers*** each with limited resources.

Features

- ▶ Simple to use: one single submit command is all your need
- ▶ Automatically choose available GPUs among all the servers
- ▶ interactively: just as the job is running in your local machine
 - ▶ Display the output of the job in real time
 - ▶ Kill the job by Ctrl-C
 - ▶ Save the output in a log file
 - ▶ Transfer back the files you specified

\$ gpuresource

Show the status of GPUs on all servers.

```
ll61@apma-gpu-01:~$ gpuresource
chitu Thu Mar 28 11:04:29 2019
[0] GeForce GTX TITAN X | 83'C, 76 % | 3416 / 12212 MB | twang97:python/7659(3395M) gdm:Xorg/4843(5M)
[1] GeForce GTX TITAN X | 85'C, 87 % | 11639 / 12212 MB | twang97:python/20824(11626M)
[2] GeForce GTX TITAN X | 91'C, 100 % | 8407 / 12212 MB | dz8:python/25485(8394M)
[3] GeForce GTX TITAN X | 44'C, 0 % | 1 / 12212 MB |

wuzhui Thu Mar 28 11:04:29 2019
[0] GeForce GTX TITAN X | 83'C, 98 % | 8795 / 12205 MB | qzheng8:python/24893(258M) ydengl:vmd_LINUXAMD64/11873(108M)
[1] GeForce GTX TITAN X | 82'C, 61 % | 8516 / 12207 MB | ydengl:vmd_LINUXAMD64/11873(108M) dz8:python/11973(8393M)
[2] GeForce GTX TITAN X | 81'C, 93 % | 4418 / 12207 MB | ydengl:vmd_LINUXAMD64/11873(108M) dz8:python/21644(4295M)
[3] GeForce GTX TITAN X | 78'C, 55 % | 11640 / 12207 MB | ydengl:vmd_LINUXAMD64/11873(108M) zmao2:python/32568(11516M)

jueying.dam.brown.edu Thu Mar 28 11:04:32 2019
[0] GeForce GTX TITAN | 40'C, 0 % | 0 / 6083 MB |
[1] GeForce GTX TITAN | 41'C, 0 % | 0 / 6083 MB |
[2] GeForce GTX TITAN | 41'C, 0 % | 0 / 6083 MB |
[3] GeForce GTX TITAN | 39'C, 0 % | 0 / 6083 MB |

Available GPU: chitu [3]
```

Figure 1: Demo.

```
$ submit
```

```
$ submit jobfile jobname
```

- ▶ jobfile : File to be run
- ▶ jobname : Job name, and also the folder name of the job

Options:

- ▶ -h, --help : Show this help message and exit
- ▶ -i, --interact : Submit as an interactive job
- ▶ -s SERVER, --server SERVER : Server host name
- ▶ --gpuid GPUID : GPU ID to be used; -1 to use CPU only

Installation

- ▶ Download: <https://github.com/lululxvi/sumsjob>
- ▶ Make it executable (use sudo if needed)

```
chmod +x /opt/sumsjob/gpuresource.py
```

```
chmod +x /opt/sumsjob/submit.py
```

- ▶ Link Sums_{Job} to ~/.local/bin (Assuming ~/.local/bin is in your \$PATH)

```
ln -s /opt/sumsjob/gpuresource.py ~/.local/bin/gpuresource
```

```
ln -s /opt/sumsjob/submit.py ~/.local/bin/submit
```