

# Rockfish GPU Tutorial with PyTorch installation guide

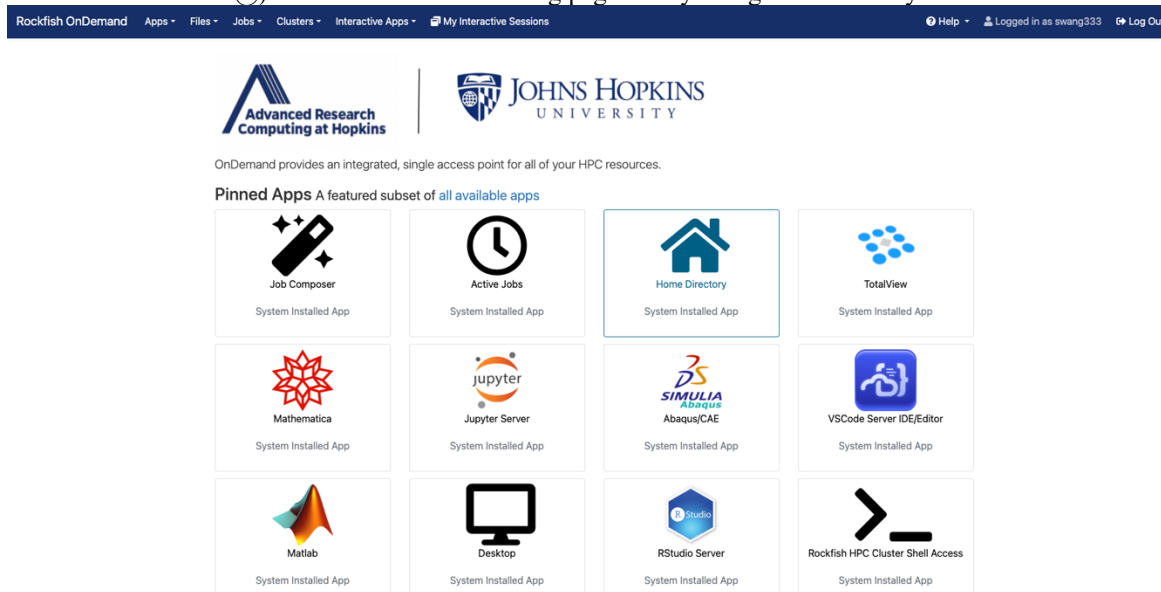
By Siyu Wang

## Before we start:

- 1, Make sure that you are on the Hopkins internet connections, otherwise you need to connect to the Hopkins VPN.
- 2, If you are using MacBook, make sure that your system is not hiding your IP address in the privacy settings, or you need to connect to the Hopkins VPN as well.

## Steps:

- 1, Copy and paste this URL (<https://portal.rockfish.jhu.edu/>) into your browser (Chrome recommended, Safari is tested to be working as well)
- 2, Login using your Rockfish username and password. (Notice that the username is your Hopkins ID or your Hopkins email address before @). You will see the following page after you login successfully.



3, We will be using **VSCode** so click on **VSCode Server IDE/Editor**. You should see the page as shown in the screen shot below. After selecting your desired GPU configurations, click “**Launch**”. A job will be processed in the Rockfish server. Sometimes when the resources you requested in the Rockfish cluster are occupied, you may need to wait until other people’s section is completed. So, check the “***I would like to receive an email when the session starts***” to receive notifications.

Interactive Apps

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Mathematica

Matlab

ParaView

TotalView

Genomics

IGV Desktop

Servers

Jupyter Server

RStudio Server

**VSCode Server IDE/Editor**

**VSCode Server IDE/Editor** version: v0.4.0-2-g8fda96d

This app will launch a **VS Code** server using **Code Server** on **Rockfish** cluster.

Session

Rockfish

Account

none

if users needs to use a different account and GPU. Default is primary PI combined with '\_' for instance: \_gpu (default: none)

Wall Time

5

Wall time on Rockfish is 72 hours. Maximum 72

Number of nodes

1

Number of compute nodes (48 cores per node). Maximum 2 to defq and bigmem, and Maximum 1 to GPUs nodes.

Node type

A100

- **defq - Standard Compute** These are standard HPC machines. Rockfish has 648 of these nodes with 48 cores and 192 GB of memory. All compute nodes have 192 GB of RAM. Chosing "defq" as the node type will decrease your wait time.
- **bigmem - Large Memory** These are HPC machines with very large amounts of memory. Rockfish has 23 bigmem nodes with 48 cores and 1.5 TB of RAM.
- **GPU Enabled** These are HPC machines with GPUs. Rockfish has 17 nodes with 4 **NVIDIA Tesla A100 GPU** and 1 node with 4 **NVIDIA Tesla V100 GPUs**. They have the same CPU and memory characteristics of standard compute.

4, Now we are inside the **VSCode IDE**. We need to now install **Pytorch**.

```

1 import numpy as np
2 import torch
3 print(torch.cuda.is_available())
4
5

```

```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
_ipynw_lab_nb_ext_conf -> jupyterlab -> jupyterlab_server[version">=0.2.0,<0.3.0"]>=1.0.0,<2.0.0"]>=1.1.0,<2.0.0"]>=1.1.5,<2.0.0"]>=2.10,<3"]>=2.3,<3'
Package mccabe conflicts for:
python-language-server -> mccabe[version">=0.6.0,<0.7.0']

```

### ***Installing Pytorch:***

1) Since the user does not have access to use ***sudo*** command, and the server's python version is too low i.e. ***python 3.6***. It is ideal for us to install ***Anaconda*** and perform our other installations in the ***conda environment***.

2) Luckily, within Rockfish, ***Anaconda*** already exist as modules, so to install Anaconda, type "***module load Anaconda***" in the terminal. To verify if the loading is successful, type "***Python --version***" and "***conda --version***" in the terminal. If the returned value == "***python version 3.8***" and "***conda 4.8.3***" then the conda environment is loaded.

3) Because the installed anaconda has a specific version i.e. ***4.8.3***, therefore we need to install an older version of ***PyTorch (i.e. 1.7.1)*** and ***torchvision (i.e. 0.8.2)*** to assure compatibility. Also, since in this example I'm using CUDA version 10.2. To install pytorch and torchvision, type

```
conda install pytorch==1.7.1 torchvision==0.8.2 torchaudio==0.7.2 cudatoolkit=9.2 -c pytorch
```

This step might take a long time to compile.

4) To verify if your installation is correct, start a new python file and run in terminal:

```
import torch
import torchvision
print(torch.cuda.is_available())
print(torch.__version__)
print(torchvision.__version__)
```

If in the terminal it returns:

*True*

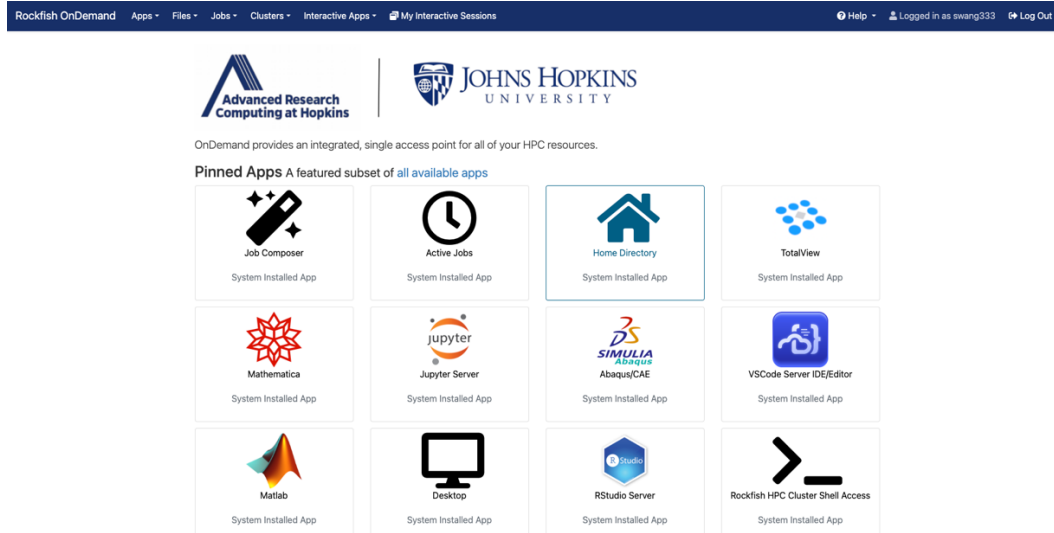
*1.7.1*

*0.8.2*

Then the installation process is successful!

## 5, Manipulate data transfer

1) Go back to the **Homepage => Home Directory**



2) To upload file, click “**Upload**” button on the top right you can then upload your data or other files into the server.

