**Forest Model Active Learning Instructions**

**Step 1: Code Download**

git clone <https://github.com/saugatadhikari/forest_model_AL.git> and put it in your desired folder in UAB’s Cheaha server. Please only use the code in main branch.

**Step 2: Dataset Download**

1. Download the 2 zip files from the links below, extract them in the path below: /forest\_model\_AL/backend\_code/data\_al/repo
   1. <https://drive.google.com/file/d/1K2CvEzfFoScoX1GPEJVitCx--1MqQLrS/view?usp=sharing>
   2. <https://drive.google.com/file/d/1tKCRrIB87D1LhdQvBGflVm9Tk0MPTsuF/view?usp=sharing>
2. Download the zip file from the link below and extract it in the path below: /forest\_model\_AL/: <https://drive.google.com/file/d/1NRuM28U9ve5vathoLCr6zrngeA_mfKhU/view?usp=sharing>
3. Download the zip file from the link below and put them in a folder that’s convenient to you in your local computer. You will need to upload the files present in this folder later to the frontend: <https://drive.google.com/file/d/1rDTTfttb0SyBBVTotJ-HFG9wcAbattSg/view?usp=sharing>

**Step 3: Environment Setup**

1. GPU env setup in Cheaha (one time thing)
   1. cd to /forest\_model\_AL/
   2. open environment.yml file, replace ‘BlazerId’ with your BlazerId, and save the file
   3. Run this command to install a new virtual env with all the requirements
      * conda env install -f environment.yml
   4. Activate the installed environment using and make sure the environment is activated:
      * conda activate al\_env

**Step 4: Machine Allocation on Cheaha**

1. **Amperenodes**:

srun --ntasks=1 --cpus-per-task=1 --mem-per-cpu=32000 --time=12:00:00 --partition=amperenodes --job-name=JOB\_NAME --gres=gpu:1 --pty /bin/bash

1. **Pascalnodes**:

srun --ntasks=1 --cpus-per-task=1 --mem-per-cpu=32000 --time=12:00:00 –partition=pascalnodes --job-name=JOB\_NAME --gres=gpu:1 --pty /bin/bash

Try to use Amperenodes as first priority since it is faster than Pascalnodes. After the machine is allocated, you will see something like this in your terminal: **blazerid@c0xxx**. Please note down **c0xxx**, this is your machine id which will be used in Step 5 below.

**Step 5: ssh into the allocated machine**

**Important: Please follow the instructions below in the exact order (otherwise it might not work):**

**Terminal 1:**

1. Login to cheaha: ssh [BlazerId@cheaha.rc.uab.edu](mailto:BlazerId@cheaha.rc.uab.edu)
2. ssh into allocated machine: ssh c0xxx (this is the id of machine allocated at Step 4
3. module load Anaconda3
4. conda activate al\_env
5. cd into forest\_model\_AL/backend\_code/data\_al and run **python data\_maker\_al.py. Note: This step is only a one time thing!**
6. cd into forest\_model\_AL/backend\_code/
7. Run flask app: flask --debug run --host=0.0.0.0 --port=5005

**Terminal 2:**

1. Login to cheaha: ssh [BlazerId@cheaha.rc.uab.edu](mailto:BlazerId@cheaha.rc.uab.edu)
2. ssh into allocated machine: ssh c0xxx (this is the id of machine allocated at Step 4
3. cd into forest\_model\_AL/src/client/
4. Run frontend app:
   1. export LD\_LIBRARY\_PATH=””
   2. npm run dev

**Terminal 3:**

ssh -L 5005:c0xxx:5005 [BlazerId@cheaha.rc.uab.edu](mailto:BlazerId@cheaha.rc.uab.edu) from local machine’s terminal (remember to replace c0xxx with your machine id from Step 4)

**Terminal 4:**

ssh -L 8082:c0xxx:8082 [BlazerId@cheaha.rc.uab.edu](mailto:BlazerId@cheaha.rc.uab.edu) from local machine’s terminal (remember to replace c0xxx with your machine id from Step 4)

**Step 6: Running the application from local computer**

* Open a browser (Google Chrome preferred)
* Navigate to chrome://settings/system and enable “**Use hardware acceleration when available**”, without this the application does not work!

A screenshot of a black box

Description automatically generated

* Run localhost:8082 in the browser
* Enter your BlazerId in Student ID box, and test region id in the Test Region ID box
* Upload elevation png and RGB png for respective test regions and submit

**What to Submit?**

* A zip file with individual folders for all the test regions. Individual folders should be named Region\_X\_TEST (X is the region id). These folders each should contain 2 files below:
  + Final PNG File of the forest map that you downloaded from the frontend for this test region
  + Latest model checkpoint saved in /forest\_model\_AL/backend\_code/saved\_models\_forest/Region\_X\_TEST/.

**Known issue:**

Frontend, sometimes, cannot call backend 127.0.0.1:5005 for some reason. If that happens:

1. go to Terminal 3 and type “exit” and Enter
2. go to Terminal 1 and hit Ctrl + C
3. run this command again on Terminal 1: flask --debug run --host=0.0.0.0 --port=5005
4. go to Terminal 3 and run this command: ssh -L 5005:c0xxx:5005 [BlazerId@cheaha.rc.uab.edu](mailto:BlazerId@cheaha.rc.uab.edu)
5. Try to run the application on frontend and see if it hits the backend this time