Pipeline -Wildfire prediction

Step 1: Create Conda Environment

```
conda create --name wildfire_env python=3.9.12 -y
conda activate wildfire_env
```

Step 2: Install pytorch Libraries
For CPU platforms**:**

```
conda install pytorch==2.1.0 torchvision==0.16.0
torchaudio==2.1.0 cpuonly -c pytorch
```

For GPU platforms, we have tested it on CUDA 11.8.

```
conda install pytorch==2.1.0 torchvision==0.16.0 torchaudio==2.1.0
pytorch-cuda=11.8 -c pytorch -c nvidia
```

Step 4: Install Required Libraries:

```
pip install -U openmim
mim install mmengine
mim install "mmcv==2.1.0"
```

Step 5: Git Clone the mmseg Repo

```
git clone https://github.com/open-mmlab/mmsegmentation.git
cd mmsegmentation
pip install -v -e .
```

Step 6: Install all the necessary libraries listed in the req.txt file provided in the code folder:

```
pip install -r req.txt
```

Step 7 : Install Krpano
Download and install Krpano from the official `Krpano website`.
After completing the installation, update the configuration file "*code/wildfire_prediction/config/config.py*" at line 28 :

```
KRPANO_TOOL_PATH="<path_to_installed_krpano>/krpano-1.22.2/krpanotools
"
```

Replace `<path_to_installed_krpano>` with the absolute path to your Krpano installation.

Step 8: Run the Main Script
Navigate to the folder containing "*code/wildfire_prediction/main.py*" and run the script to process the input images and generate the final results:

```
python main.py
```

The result will be saved in the following folder:

`code/wildfire_prediction/output/`: All data required for marzipano

Step 9: Install Marzipano and Visualize Results

Download and install Marzipano from the official Marzipano .

or

```
git clone https://github.com/google/marzipano.git
cd marzipano
npm install marzipano
npm run dev
```

Copy the pano folder "*code/wildfire_prediction/7b947867-7ab5-435e-9cdb-a7306f71bdbe*" into the *"code/wildfire_prediction/output"* folder:
Move the *"code/wildfire_prediction/output"* folder to the demos directory of your Marzipano installation. The folder structure should look like this:

```
output/
├── hotspots.xml                    # Hotspot configurations
├── index.html                      # Entry point for Marzipano
├── index.js                        # JavaScript logic for the viewer
├── merged_sphere_level_3.jpg       # Merged panoramic sphere image
└── 7b947867-7ab5-435e-9cdb-a7306f71bdbe  # Pano folder
```

Run the Marzipano demo server `http://localhost:8080/demos/output` and view the results.

If you need to test on a different panorama, update the INPUT_FOLDER from configurations in the "*code/wildfire_prediction/config/config.py*" file, and re-run the script to process the new input.