**Install**:  
 > Python 3.6+, PyTorch 1.7.0+  
 > dependencies:   
 RAFT (ECCV 2020, optical flow), Detectron2 (segmentation)  
 please refer to <https://github.com/facebookresearch/robust_cvd>

> apt-get install ffmpeg

> pip3 install opencv-python scipy tqdm path imageio scikit-image pypng

**Execute**

* reconstruct depth and pose of a video:  
  > python3 geometry\_optimizer.py [video-path] --name [output-path]  
    
  e.g. > python3 geometry\_optimizer.py test.mp4 --name test  
  (the results would be saved to “outputs/test” folder)
* stabilize the video after 3D reconstruction:  
  > python3 rectify.py [your-video-path] [--name same-as-above] [--stability default=12]  
    
  e.g. > python3 rectify.py test.mp4 --name test  
  (the results would be saved to “outputs/test” folder)