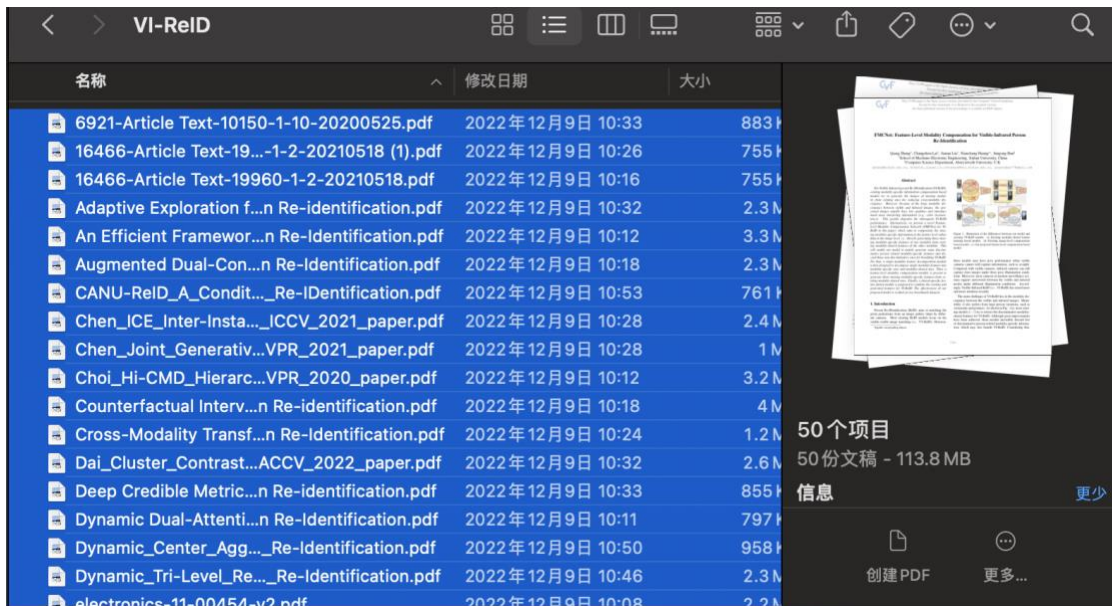


# Weekly Report

12.12

Things accomplished this week:

1. Collated the minutes of the 12.12 meeting and made the first sketches of the project pipeline.
2. Collated VI-ReID and Unsupervised method related papers, which can be used as future reference.



This will be followed up with a mind map to categorize and prepare for related works.

3. watched the next two lessons of COMPUTER GRAPHICS

Sep 30 **Introduction to Geometry**  
(Thu) [video]

Oct 01 (Fri) A1.5 due / A2 released

Oct 05 **Meshes and Manifolds**  
(Tue) [video]

4. Learned the basic principles of the Adversarial Network and the formulas related to Stackelberg Games (e.g. the formula for the payoff function in Adversarial Training as a Stackelberg Game)

During this part of the learning process, I had a few ideas.

1) Since the camera is fixed, it may have the same pose and angle when different pedestrians pass by, which would produce incorrect results in clustering.

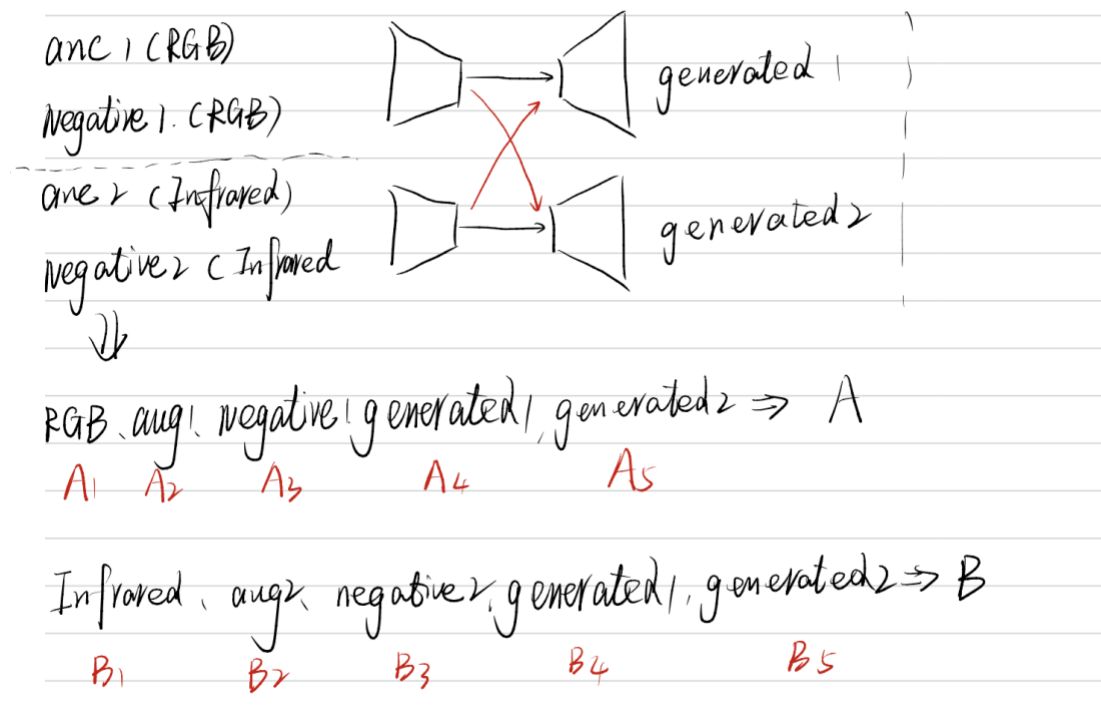
2) How can we optimise the adversarial network when the input image is an obscured body of a pedestrian.

3) How to assign follower and leader between Classifier and Adversary, and whether it is possible to create a partner/complement to be added because VI is multimodal.

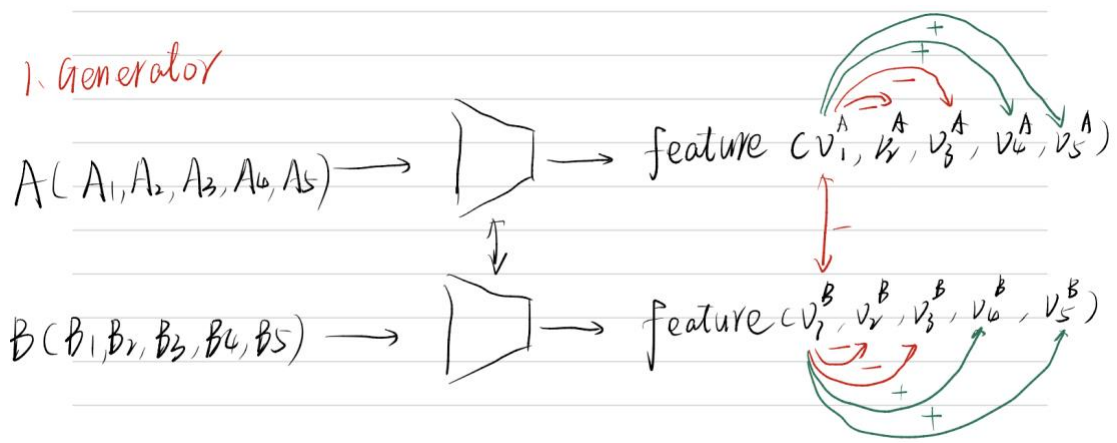
4) How do we accurately match the pseudo label to the image after clustering (how to optimise the optimal transport)

5. Presented my idea about the pipeline at the group meeting

I propose that when generating hard negative samples, since our dataset is visible and infrared, we should also consider hard negative samples of different modalities in the adversarial network. My proposed model structure is shown below

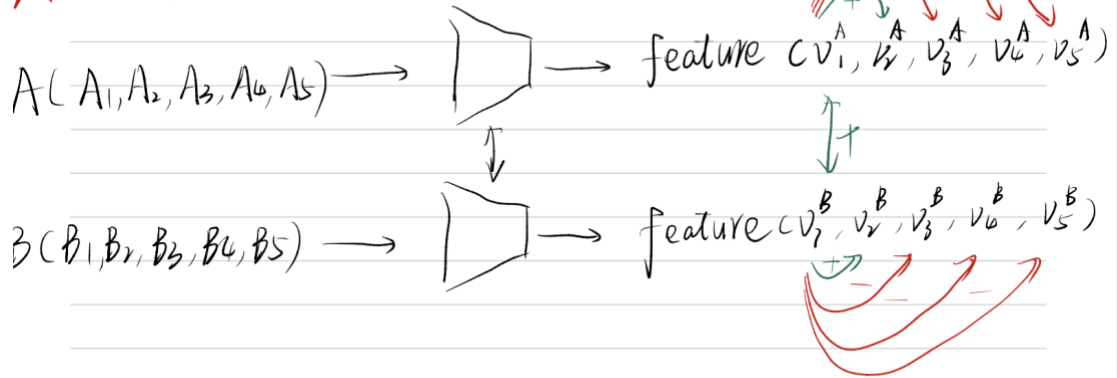


Here the modalities complement each other so that the model can be more robust when using one modal to find pedestrians with the same ID in another modal. At the same time, this can also enhance the confusion ability of generated according to the complementary advantages between modalities.



In the Generator stage, I propose to shorten the distance between anc and generated features of different modalities. And the distance between the anc of different modes can be increased, which can enhance the confusion of the hard negative sample (can it be proved in the comparison experiment that the confusing ability of the hard negative sample obtained by our module (the score obtained in the discriminator) is better high)

2. contrastive



6. Learned the basic principles and formula derivation of Optimal Transport

This part will be sorted out next week, I found that I was struggling to read the formula derivation...In the next step, I will strengthen my understanding of the calculation process and functionality of the formulas(the work plan for next week)