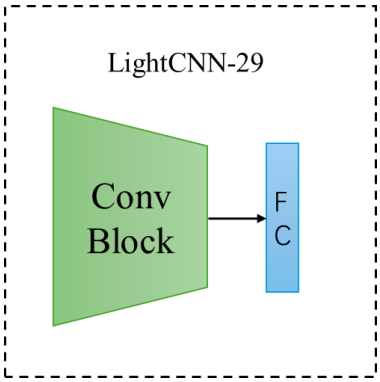
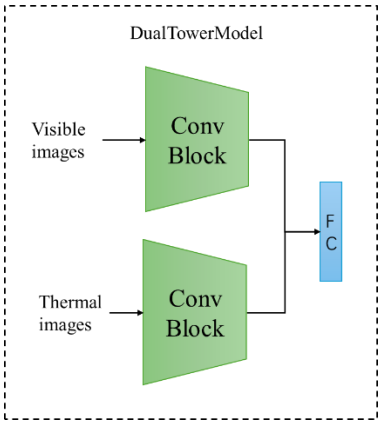
DSG-HFR: Heterogeneous Face Recognition using heterogeneous face images generated by DSG

Model

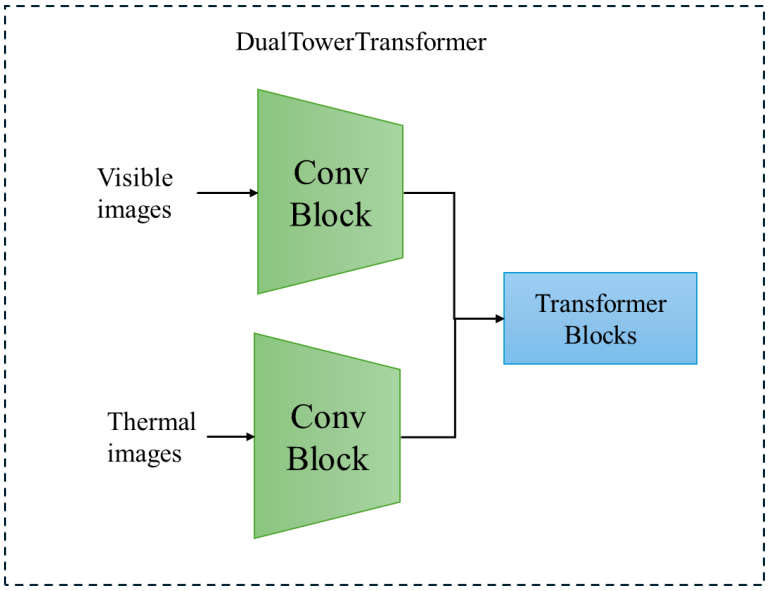
The project provides three kinds of network to train. The first one is named network_29layers_v2_cosface in lightcnn.py, the second one is named DualTowerModel in dual_tower.py and the last one is named DualTowerTransformer in dual_tower.py.



DualTowerModel: two LightCNN, one for visible images and another for thermal images.



DualTowerTransformer: two LightCNN, one for visible images and another for thermal images. Only the convolution blocks of LightCNN are used (the final full-connected layer is discarded). Then, two simple transformer encoder blocks are used for both visible and thermal features.



Loss

Because all generated images by DSG have specific class label, the CosFace loss can be applicable to the both real and generated data, which is different from DVG-Face.

Total_loss = CosFace _loss + contrastive_loss

Protocols

We randomly select 70 identities with 955 paired VIS-Thermal face images as the training set and 205 thermal images from the rest are adopted as the probe set and 1154 visible images as the gallery set.