**Requirement Specification**

#### Task: To train and adapt a Facial makeup network PSGAN and fully trained on all the specified datasets and then apply the fully trained model to a streaming video. Your task is to train the model using the boiler plate code on Github, based on the training data below. You should tweak parameters as described in the research paper to get best trained model also add measurements that measure the improvements during training. Also adapt the boiler plate code if necessary to use multi-GPU mode during training and inference. I as a user should have a streaming or non streaming video and the and a refernce image and then the ouput should be the non make up video or the streaming video with this reference applied and generate a streaming on non video when the PSGAN model applied(Video Makeup Transfer (by simply applying PSGAN on each frame), see boilerplate code and project for more information.

**Boiler plate code:** https://github.com/wtjiang98/PSGAN

**Research paper**: https://arxiv.org/pdf/1909.06956.pdf

**Dataset: Training and test dataset**

* <https://drive.google.com/file/d/1Qvau0v-WhizlBVLzfwAxQAFtCTwkvSgR/view?usp=sharing>
* Download the Makeup-Wild (MT-Wild) dataset [here](https://buaaeducn-my.sharepoint.com/:u:/g/personal/jiangwentao_buaa_edu_cn/EcRNkF2bFY9AomfMfyd_B2ABUyZ7PtSeYoqFJKJbVvwMHg?e=PScTNw)
* <https://www.kaggle.com/petersunga/make-up-vs-no-make-up>
* <http://iprobe.cse.msu.edu/dataset_detail.php?id=3&?title=YouTube_Makeup_Dataset_(YMU)>
* <https://buaaeducn-my.sharepoint.com/personal/jiangwentao_buaa_edu_cn/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fjiangwentao%5Fbuaa%5Fedu%5Fcn%2FDocuments%2FMakeup%2DWild%2Ezip&parent=%2Fpersonal%2Fjiangwentao%5Fbuaa%5Fedu%5Fcn%2FDocuments&originalPath=aHR0cHM6Ly9idWFhZWR1Y24tbXkuc2hhcmVwb2ludC5jb20vOnU6L2cvcGVyc29uYWwvamlhbmd3ZW50YW9fYnVhYV9lZHVfY24vRWNSTmtGMmJGWTlBb21mTWZ5ZF9CMkFCVXlaN1B0U2VZb3FGSktKYlZ2d01IZz9ydGltZT1sNmY4cWdPRDJFZw>

**Deliveries:** A fully trained and evaluated model according to specification above. You must also have documented all the tweaks and changes made from boilerplate code delivered. A report with full evaluation metrics on the model and how it’s trained, you should also add code to load a previous trained model and inference code as well.

The inference code should take an image, a video or streaming video and a reference image (second image) and generate the result: first image or video/streaming video with second image makeups style and generate an output image or video, see boiler plate project and research papper for more information.