Supplementary materials : Deep Graphics Encoder for Real Time Video Makeup Synthesis from example

1. Interactive Demo

To illustrate the performance of our framework, we share an interactive demo for automatic lipstick synthesis from example, available at http://ec2-3-224-169-8.compute-1.amazonaws.com/copy_param_demo. Given an example reference image uploaded by the user, we estimate the corresponding lipstick graphics parameters using our deep graphics encoder and display them on screen. Then, we render the estimated lipstick on an example portrait image. However notice that this interactive application is hosted on a server for demonstration purposes, and does not reflect the inference speed of the real-time pipeline that needs to run locally for better performance.

2. Example videos

We provide example videos of makeup synthesis from example images using our framework on typical virtual-try-on videos. These videos are accessible at the following url :

- https://youtu.be/GmciY9rUMOw for lipstick synthesis.
- https://youtu.be/0dMrf0yZvUw for eye-shadow synthesis.

3. Training graphics parameter distribution

A particularity of our framework is that we fully control the distribution of graphics vector used to train our deep graphics encoder. Thus, we propose to sample the training graphics vector from a distribution that is both realistic and diverse. To obtain a realistic data distribution, the graphics parameters are sampled using a multivariate normal distribution fitted on real rendering parameters set by makeup experts to simulate real cosmetics. Furthermore, we also sample graphics parameters using a uniform distribution, in order to reinforce data diversity and improve our model performance on extreme makeup examples. Each of these distributions are illustrated in figure 1.

4. Additional Qualitative examples

In this section we display additional examples of the performance of our framework for lipstick and eye-shadow synthesis from example images. Figures 2 and 3 presents these results on panelists with various skin tones.

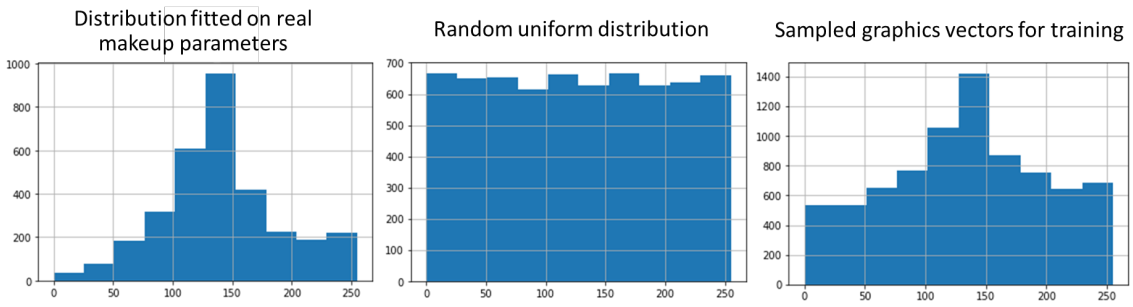

Figure 1. The training distribution of graphic parameters is a mixture of uniform distribution for diversity, and a distribution fitted on real makeup data for realism.

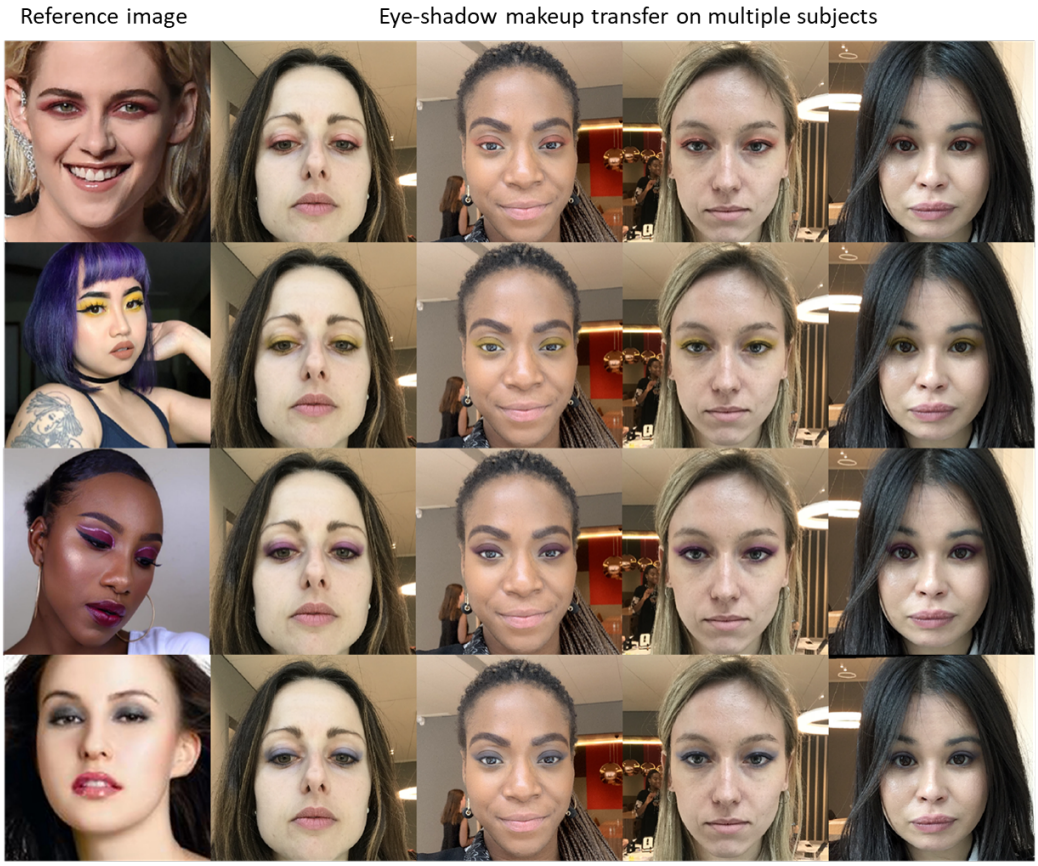

Figure 2. Eye-shadow synthesis from example image