

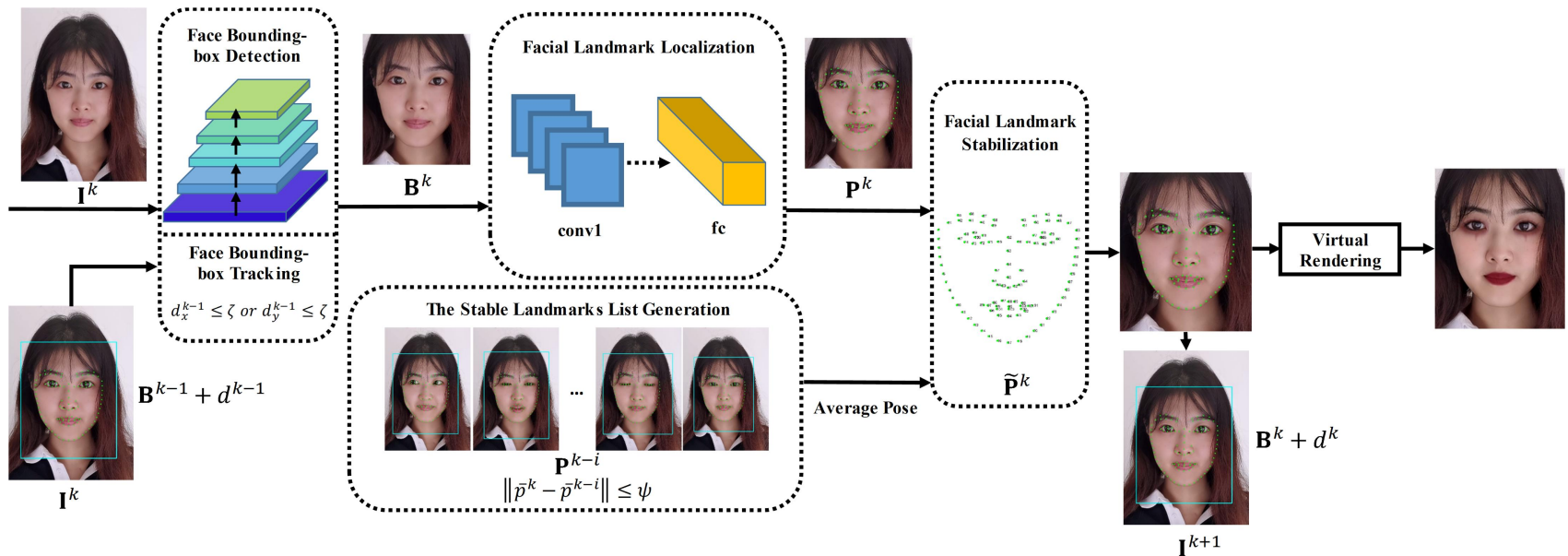
ARCosmetics: A Real-Time Augmented Reality Cosmetics Try-on System

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Problems & Ideas

- Problems: The virtual cosmetic try-on system is hard to offer a fast, accurate, and stable result, influenced by processing speed and quality of facial landmarks.
- Ideas: We design a face tracker to avoid detecting faces in every frame. We incorporate dynamic weighted Wing loss to train our facial landmark localization network and adopt an online hard keypoints mining to get the accurate result. Furthermore, during the selfie video recording, the unstable landmark causes an uncomfortable feeling for the users. Therefore, we present an effective landmark stabilization module to stabilize obtained landmarks in the selfie video.



Overview. Our system contains four modules: a light-weight face detector and tracker, a facial landmark detector, a landmark stabilization module and a rendering module.

Main Contributions

- Contributions:
 - We build a novel virtual cosmetic try-on system for mobile devices with the proposed landmark, which can offer fast, accurate, and stable try-on results.
 - We design a very fast face tracking module and a facial landmark localization module using dynamic weighted Wing loss. We also present an effective landmark stabilization method to fulfill the system requirements.
 - Our system is evaluated through a series of experiments and user studies. The results and feedback show that our method can generate realistic effects using a selfie video.

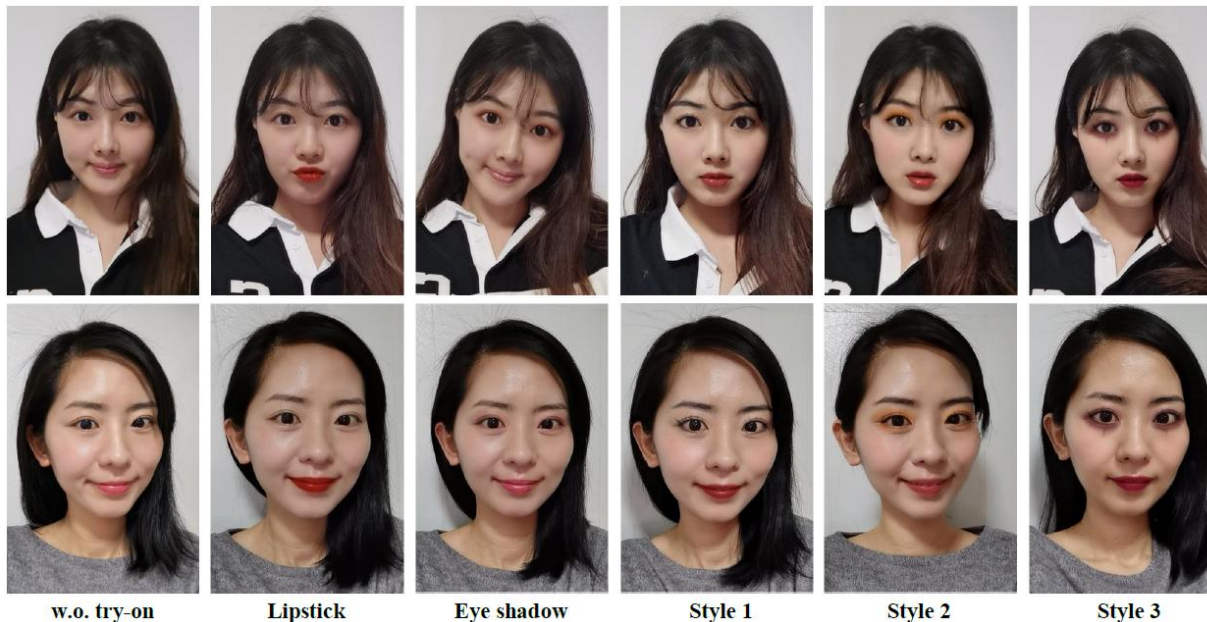


Illustration of the original sample and generated samples with lipstick, eye shadow and three combined styles using several try-on products. Samples are from different frames while capturing the selfie video.