

# Social media filters: Beautification for humans but a critical issue for AI

Nelida Mirabet-Herranz  
*dept. of Digital Security*  
*EURECOM*  
Sophia Antipolis, France  
mirabet@eurecom.fr

## ABSTRACT / SUMMARY

Face retouching is a widespread procedure available across a huge spectrum of modern applications. Among them, social media offer different filters to beautify face pictures for humans by performing operations such as skin smoothing, adding virtual makeup, as well as deforming biometric features, for instance by widening the eyes or making the nose thinner. Even if filters are not primarily used to compromise AI-based facial processing tools, they can affect the estimation of some parameters.

Human face images encode different types of biometric information. Some biometric traits such as weight and heart rate are also an indicator of both physical aspect and health condition. The impact of filters in tasks such as age, ethnicity or weight estimation is bigger than the one of lossy compression, a subject largely studied by the image processing community. The performance of gender classifiers improves for woman subjects when beautification filters are used, unraveling some form of bias. On the contrary, filters that apply skin smoothening can erase some microsignals such as HR from the videos. In conclusion, we proved that the use of filters has many sides. On one hand, they are a disturbing factor in AI models and introduce bias in training. On the other hand, they reveal some model unfairness and can be used to conceal some signals.