Résumé du projet de recherche (Langue 1)

Within the context of the European Network of Excellence VideoSense, the Ph. Student will investigate diverse concepts and methods to protect privacy of recorded people while preserving most of the information hosted by videos. He/she will start by studying the impact of different existing filters (pixelization, blur, mask, etc.) on the protection of the identity of recorded people with regards to the information that can be still deduced from the video after application of filters. At this point, it is important to differentiate machines (automatic algorithms) from humans (visual inspections). If focusing on faces, it would be of interest to check if the face is still detectable, and then if still recognizable. In case of the face is still detectable but no longer recognizable, it would be of interest to evaluate if some semantic traits (i.e. soft biometrics) are such as gender, age, hairstyle are still extractable. Some of the works done on faces could be later also applicable to bodies.

Résumé du projet de recherche (Langue 2)

This study could include the development of a new filter with advanced functionalities such as reversible, progressive, optimal and tunable compromise between intelligibility and privacy. In connection with media, it would be of interest to demonstrate if yes or no, existing filters used by media are really effective to protect people. One concern is video in the sense that most filters protect face images, frame by frame independently. A deep temporal processing of the video may remove the protection. In connection with biometrics, it would be of interest to evaluate how much information from a facial biometric template, extracted from a video example and send towards a database, it is possible to deduce about the original face. This work can be performed with under the hypothesis that templates are based on Local binary patterns. Finally, some emerging new video sensors (webcam mounted on glasses or depth camera embedded on mini drones) can still generate new challenges in privacy in a near future. The thesis subject will be polished annually according to the outputs.