

Figure 1: LDFA Pipeline with example images from Cityscapes [1]

Goal:

The goal of this work was to protect personal identity in self-driving environment with generalized generative models in the context of the general data protection regulation (GDPR). The anonymization protects the data privacy of vulnerable road users rather resource effective by using available methods

Contribution:

We show that general diffusion models are equally fitted for face anonymization in comparison to recent, specialized face anonymization methods. We show that the mean average precision (mAP) of a face detection network inferred on images, which are anonymized with LDFA, is higher compared to recent GAN-based methods.

Comparison to baseline: We compared our method to several naïve and learning based methods.

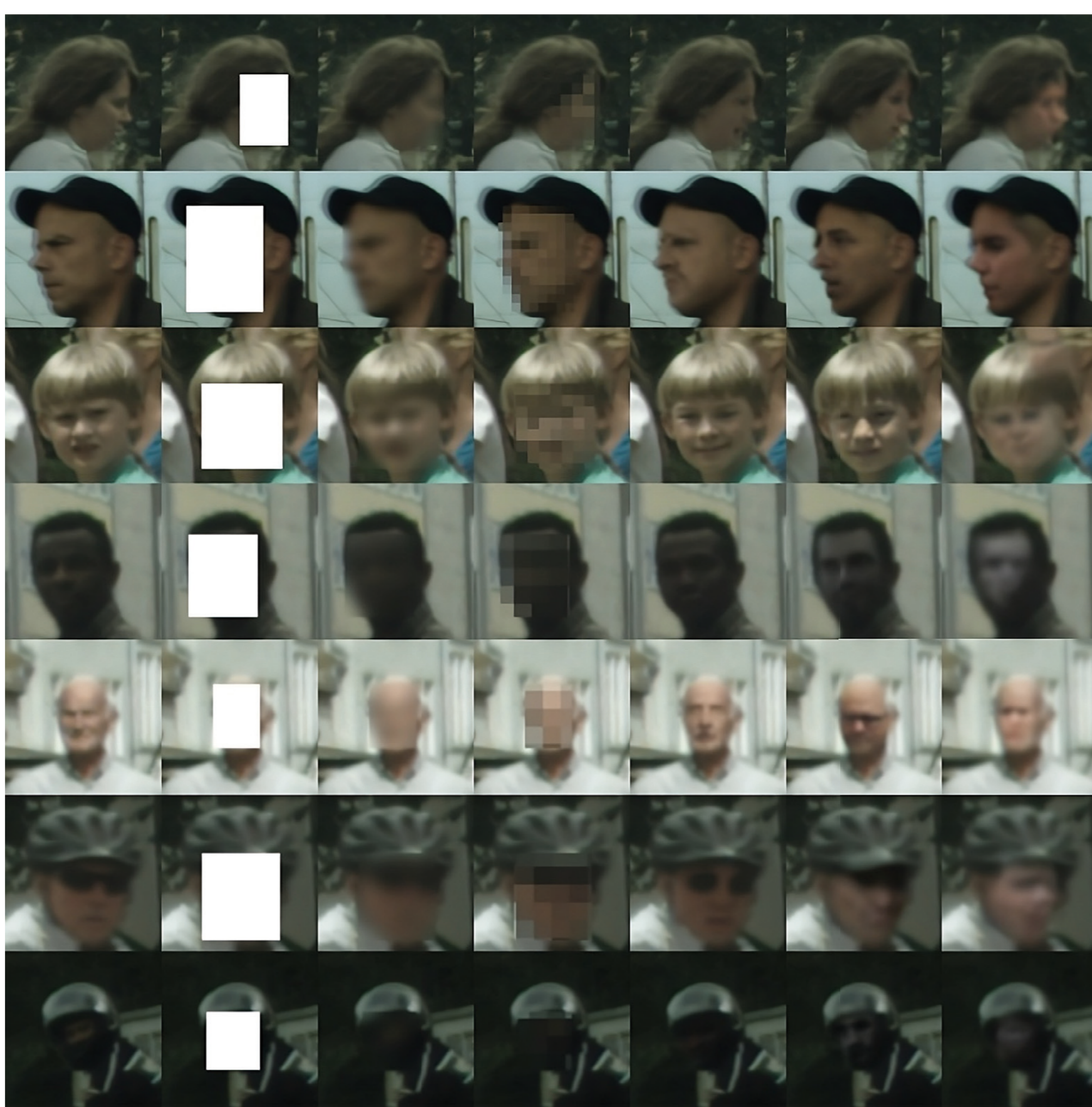


Figure 2: Comparison to baseline. The applied methods (from left to right) are: None (original image), Crop, Gauss, Pixel, LDFA, Deep Privacy, Deep Privacy 2. [1]

Face Detection:

In this experiment we investigate the impacts of face anonymization methods on a recent face detector. We evaluate with the mean average precision of a face detector network on data that was anonymized by different methods.

Model	mAP	mAP _s	mAP _m	mAP _l
Gauss	0.372	0.304	0.699	0.467
Crop	0.001	0.000	0.003	0.000
Pixel	0.215	0.169	0.422	0.279
Deep Privacy	0.566	0.532	0.656	0.794
Deep Privacy 2	0.520	0.473	0.665	0.087
LDFA (ours)	0.675	0.665	0.693	0.316

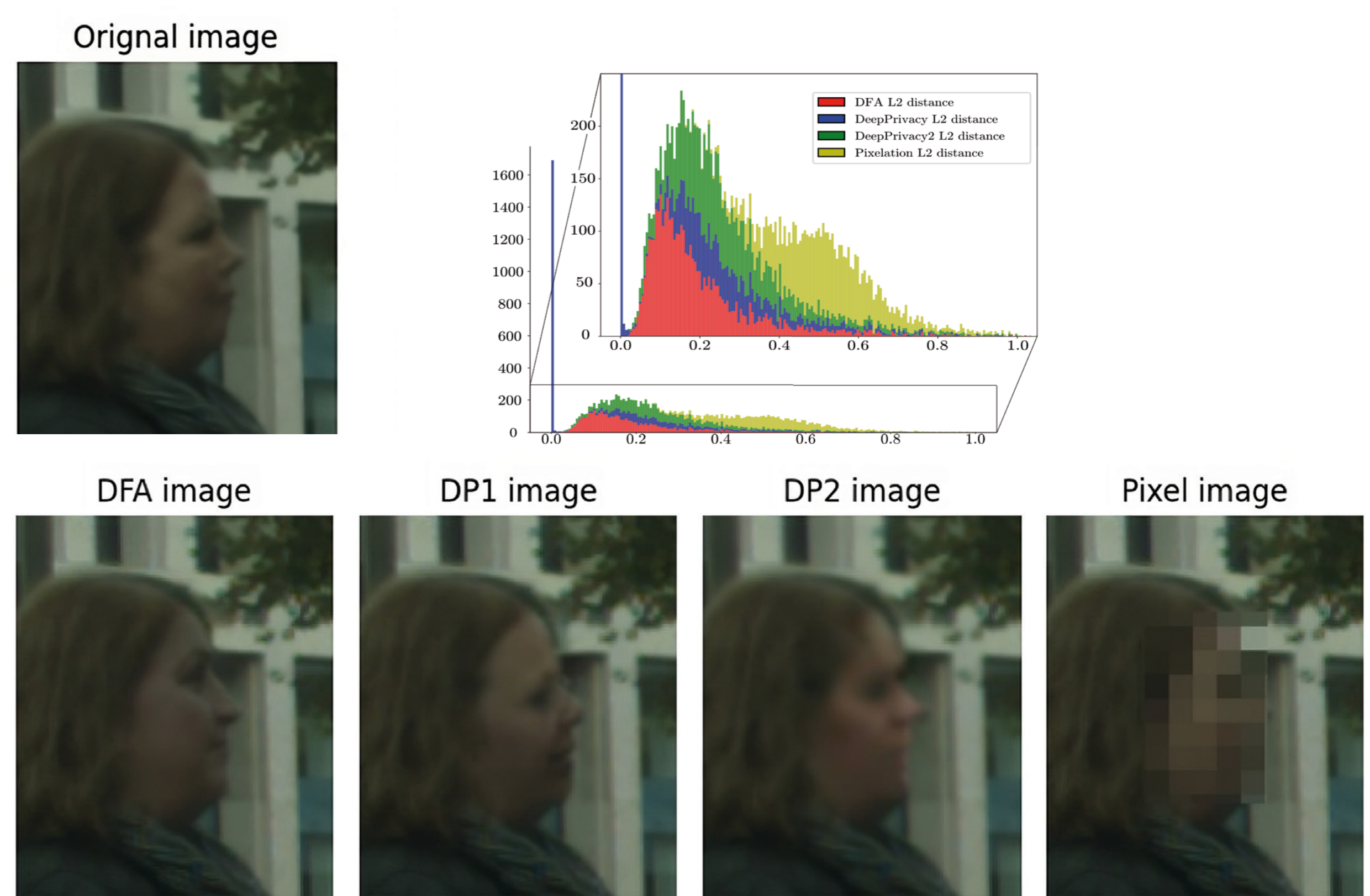
Results:

Examples of the anonymized data our method generates in comparison to the original data. We randomized the position of the anonymized data to get a little quiz. Find the solution next to the QR.



Level of Anonymization:

In contrast to face recognition, for anonymization, embeddings of a face and of the corresponding anonymized version should be dissimilar.



TBTTBBBT

Code available:

[https:// github.com/KIT-MRT/latent_diffusion_face_anonymization](https://github.com/KIT-MRT/latent_diffusion_face_anonymization)

References:

- [1] Marius Cordts, et al.. The cityscapes dataset for semantic urban scene understanding. In Proc. Of CVPR
- [2] Klemp, M., Rösch, K., Wagner, R., Quehl, J., & Lauer, M. (2023). LDFA: Latent Diffusion Face Anonymization for Self-driving Applications. In Proc. Of CVPR

Partners



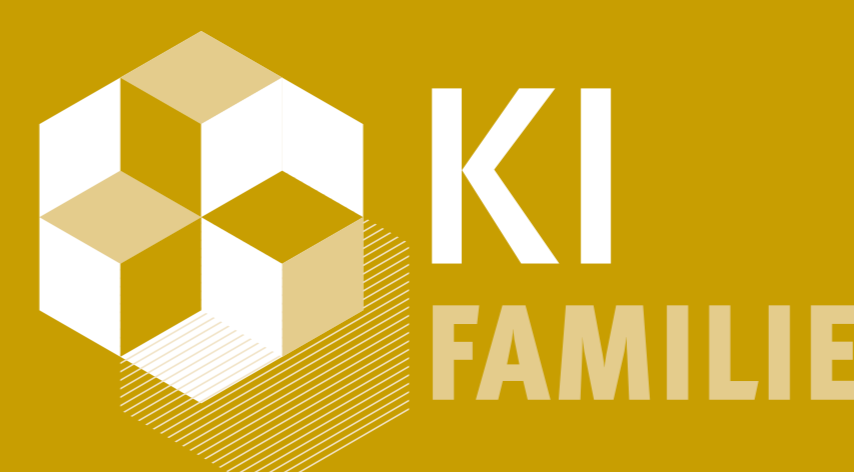
External partners



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