

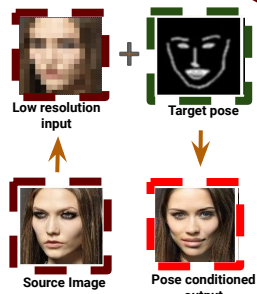


We propose an **unpaired** image-to-image translation method where a **face hallucination** network guides a **pose-synthesis** network to **manipulate** the input low resolution image **according to the target pose**.

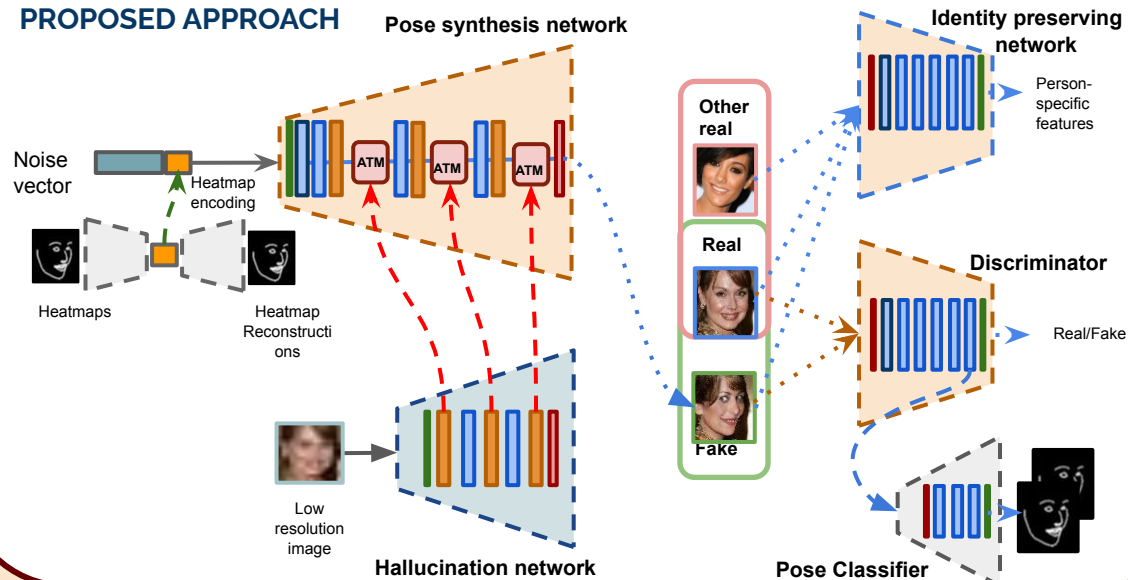
We introduce an **Appearance Transfer Module**, a fully trainable **spatially-aware** module to deal with the **misalignment** between the **hallucination features** and those generated by the **pose synthesis network** defined as a conditional GAN.

We also propose **pose preservation** and **identity preserving** methods that are trained in an **unsupervised** way, using an **auxiliary** pose classifier and identity classifier.

Demonstrates both **quantitatively** and **qualitatively** the capability of the method to achieve high quality images that are both conditioned on target poses and source appearances.



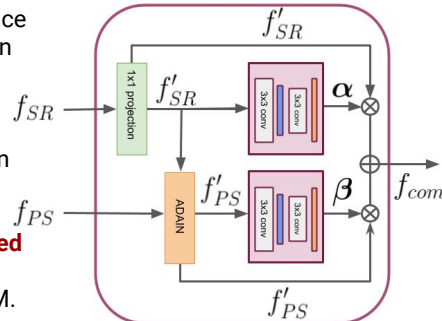
PROPOSED APPROACH



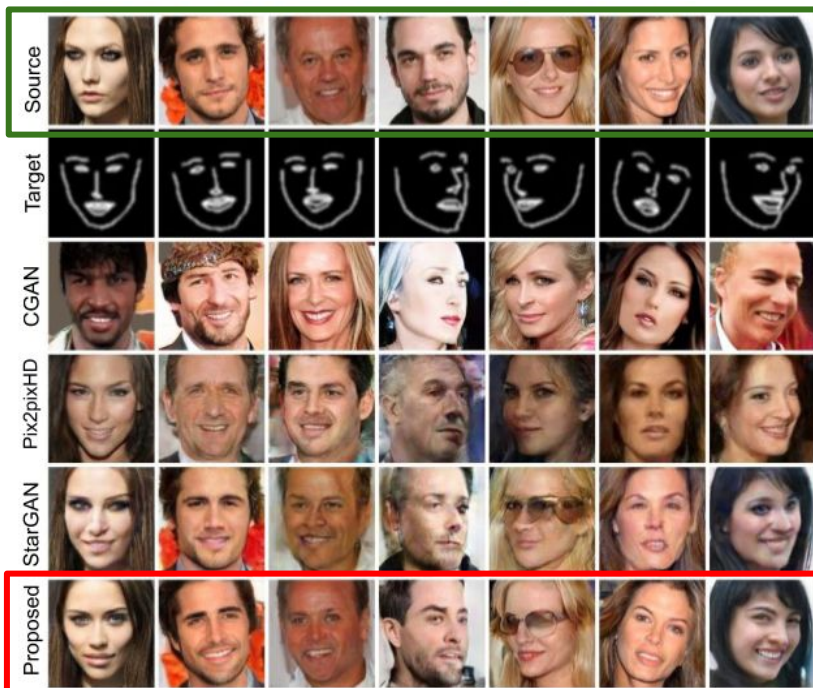
APPEARANCE TRANSFER MODULE

Uses Adaptive Instance Normalisation to align **feature statistics**.

Combines features from the hallucination network with the pose-synthesis network, as a **weighted combination** that is **learned** from the ATM.



SYNTHESIS RESULTS



QUANTITATIVE RESULTS

Evaluation of generated images using **FID** and **inception score** metrics for quantifying perceptual quality.

Achieves state-of-the-art performance with respect to other **unpaired generation** methods.

CelebA	Method	FID↓	IS↑
	Real data	0.01	3.49
	CGAN	7.40	2.42
	Pix2pixHD	41.68	2.62
	StarGAN	12.78	2.55
	Ours	6.14	2.65

Our method has applications in character **animation**, data **anonymization**, data **augmentation** and **generalisation** techniques.

Source
Image

Target
Landmarks

Output
Image

