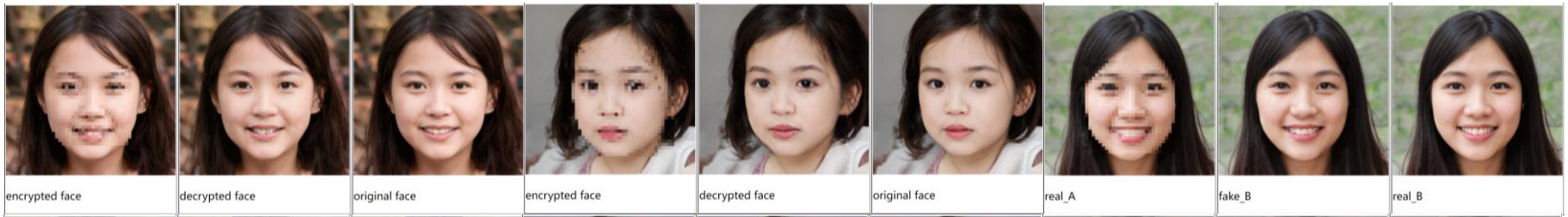
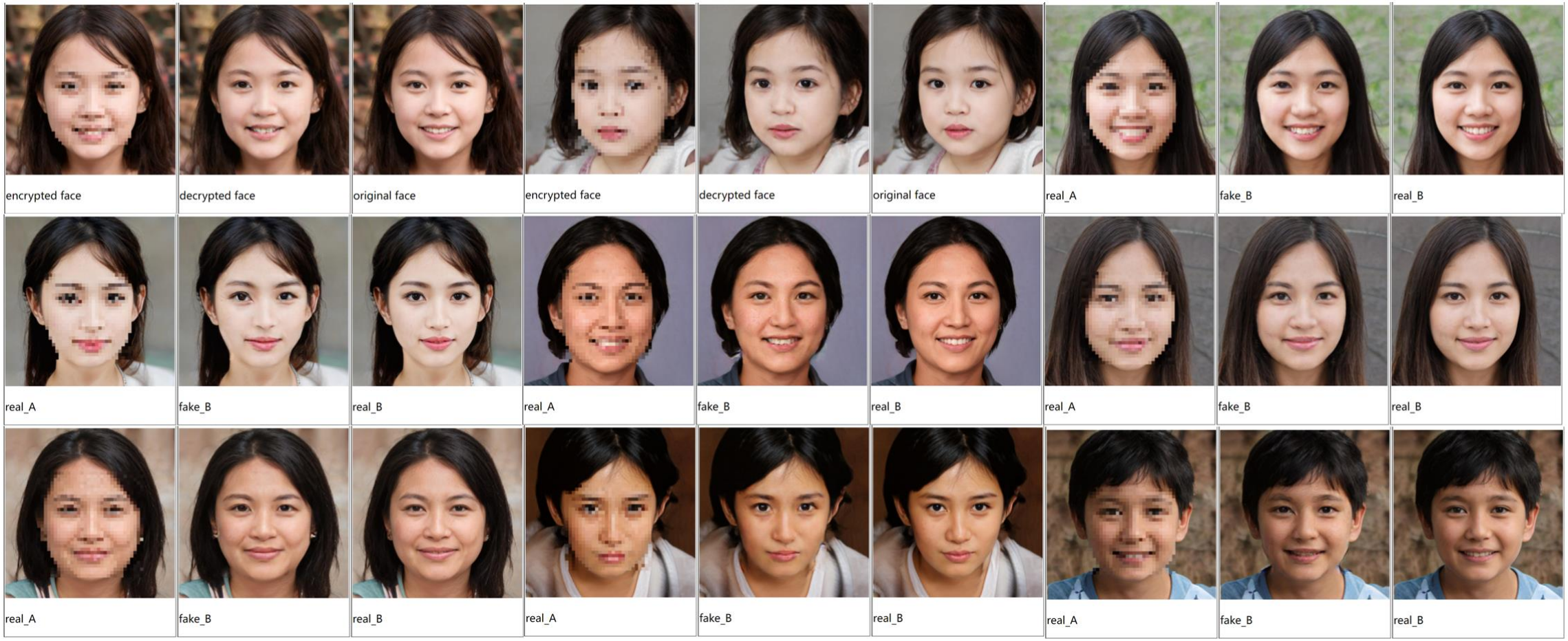


encrypted face	decrypted face	original face	encrypted face	decrypted face	original face	real_A	fake_B	real_B
real_A	fake_B	real_B	real_A	fake_B	real_B	real_A	fake_B	real_B
real_A	fake_B	real_B	real_A	fake_B	real_B	real_A	fake_B	real_B

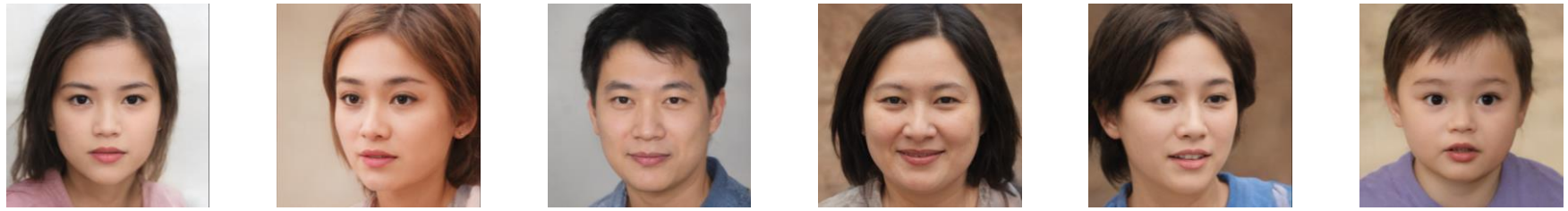

encrypted face
decrypted face
original face
encrypted face
decrypted face
original face
real_A
fake_B
real_B
real_A
fake_B
real_B
real_A
fake_B
real_B
real_A
fake_B
real_B
real_A
fake_B
real_B
real_A
fake_B
real_B
real_A
fake_B
real_B

Original

Blurred

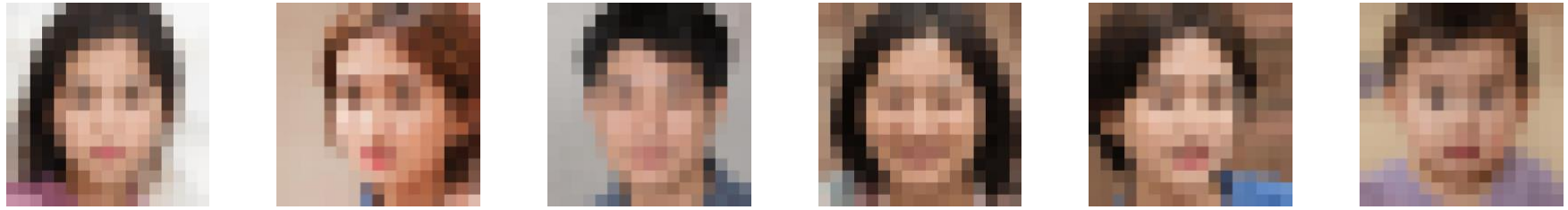
Aged

Recoverd



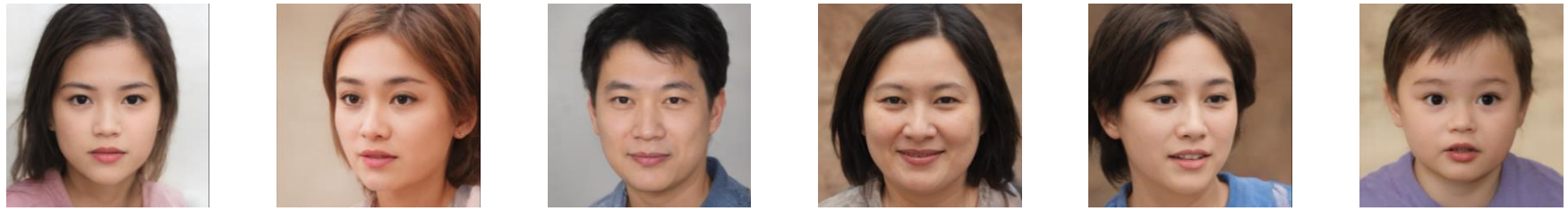
Original

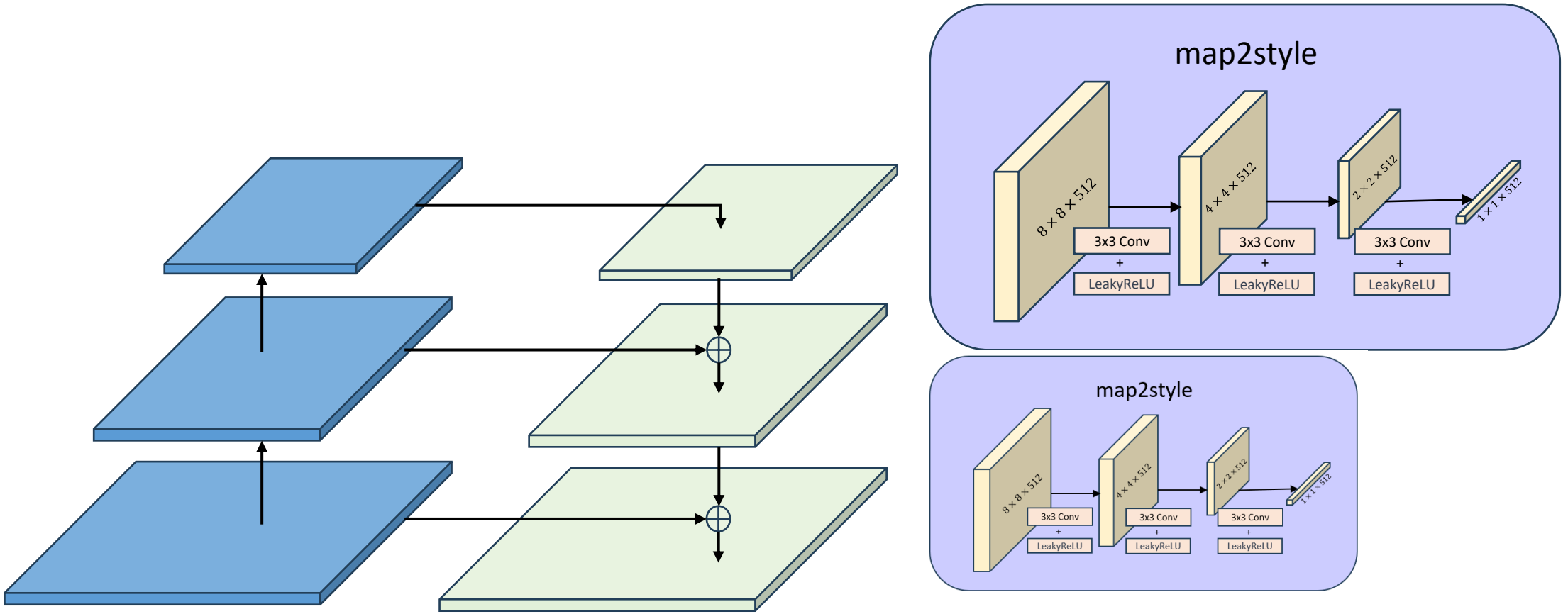
Blurred



Aged

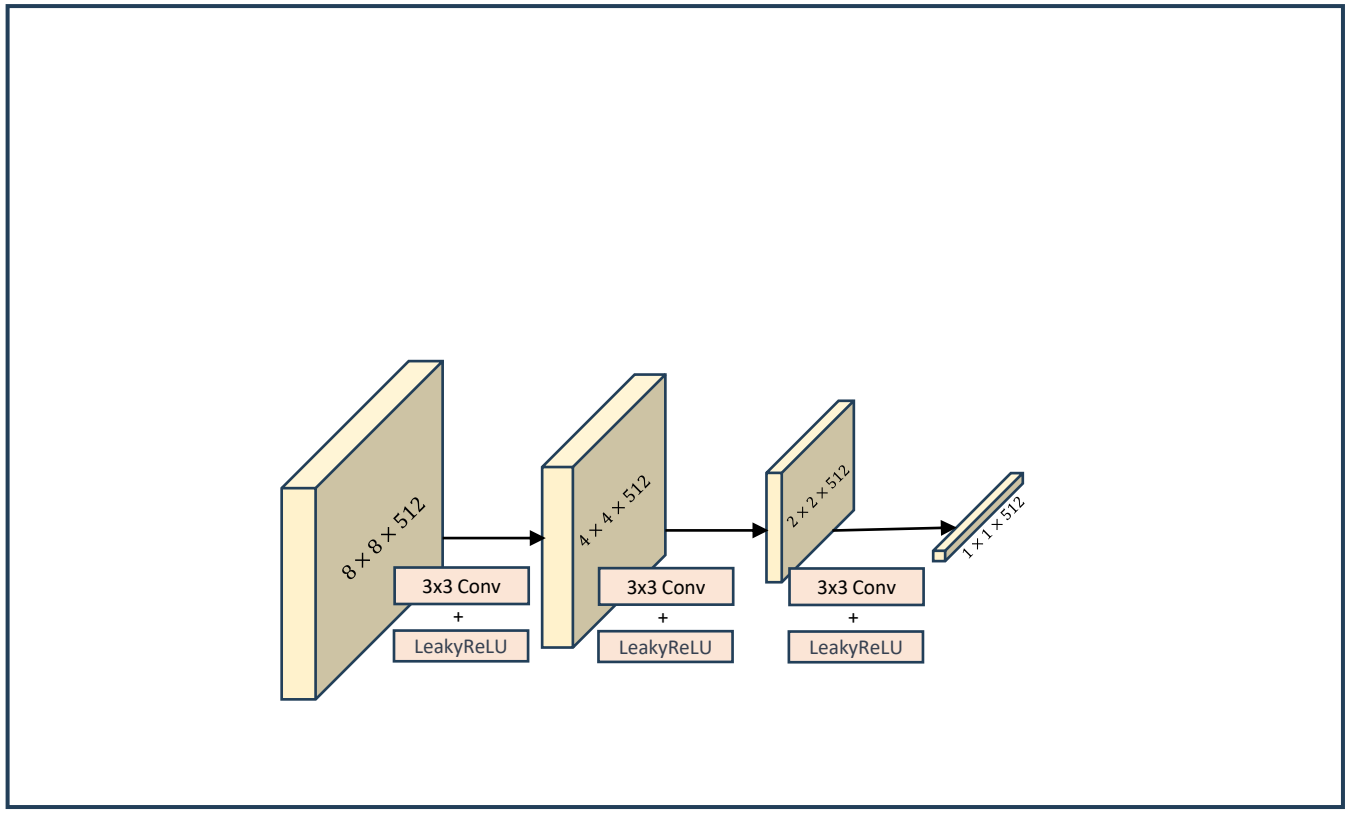
Recoverd

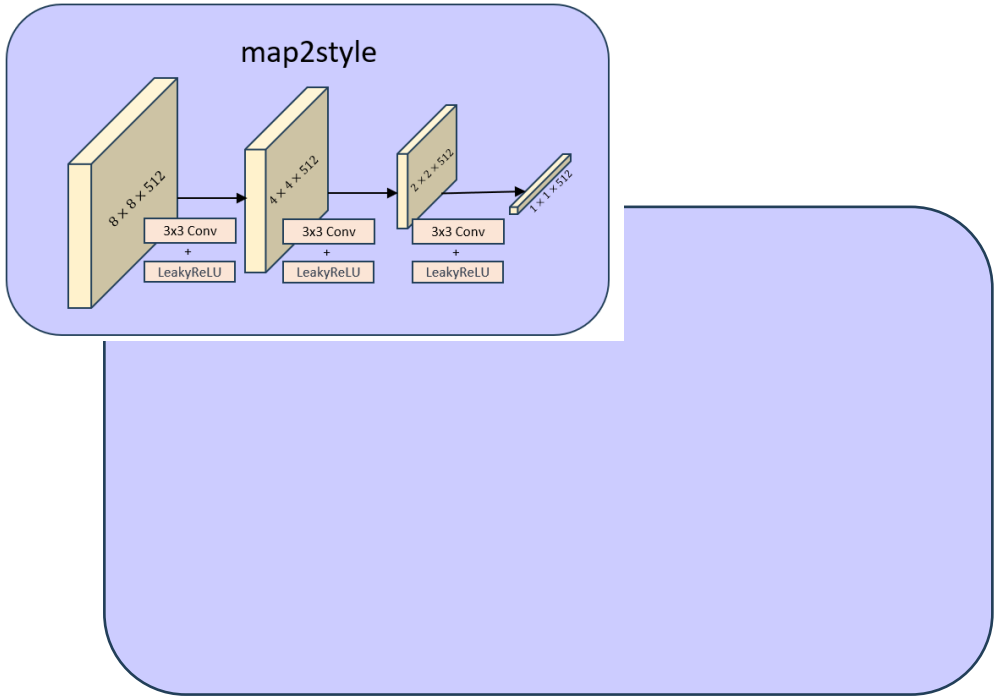


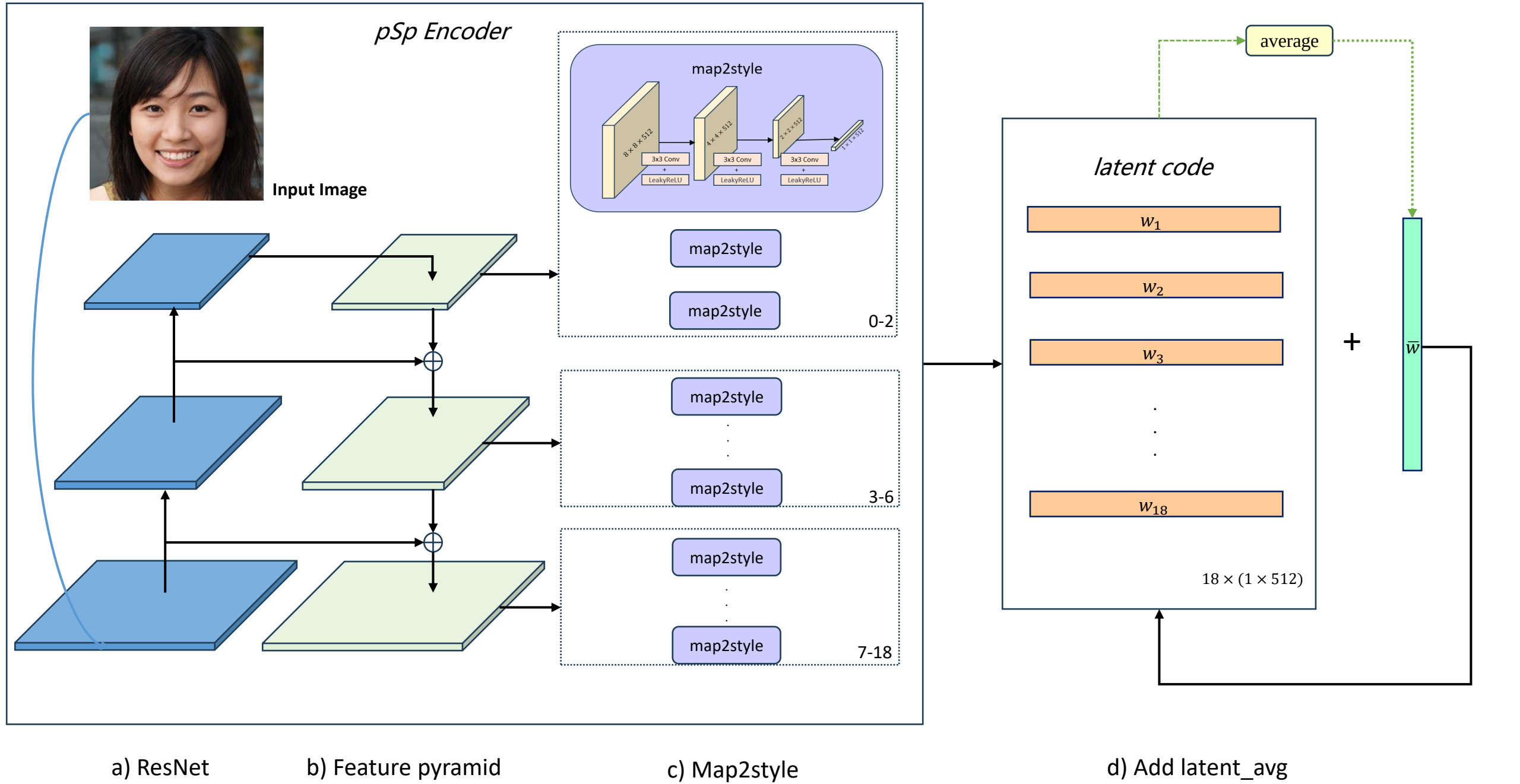


a)ResNet b)Feature pyramid

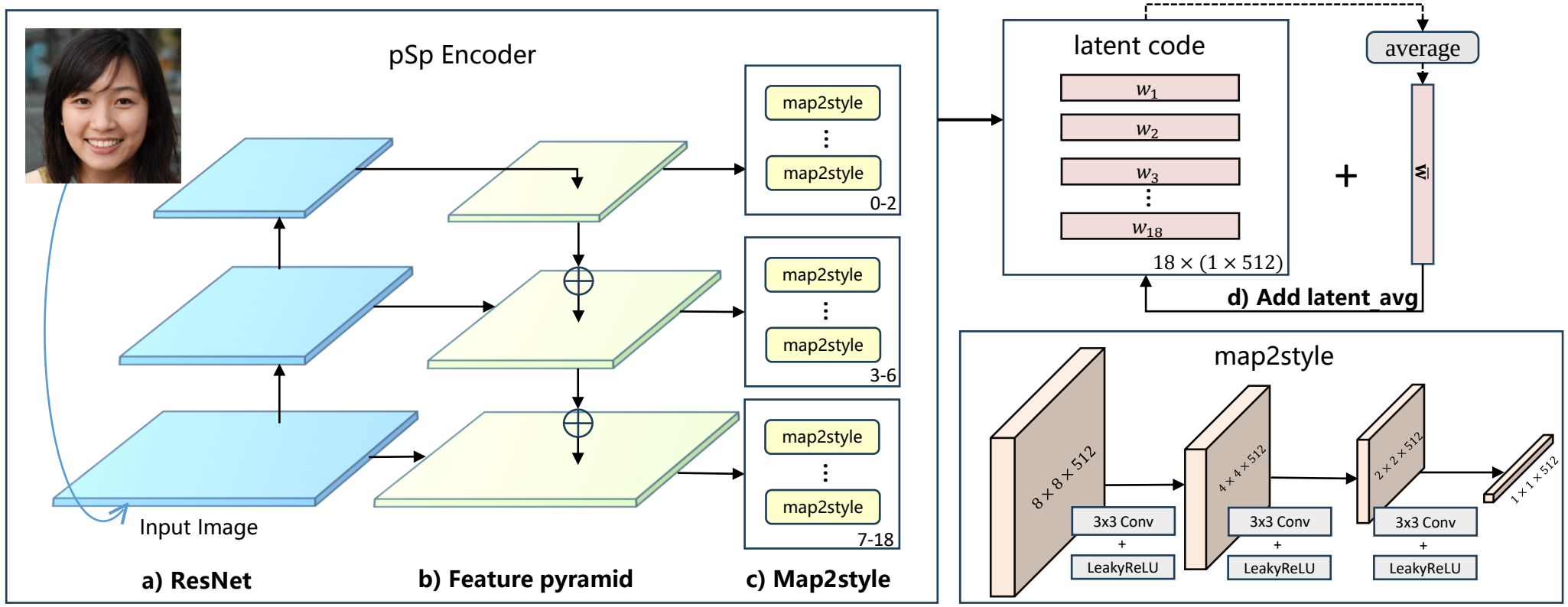
map2style

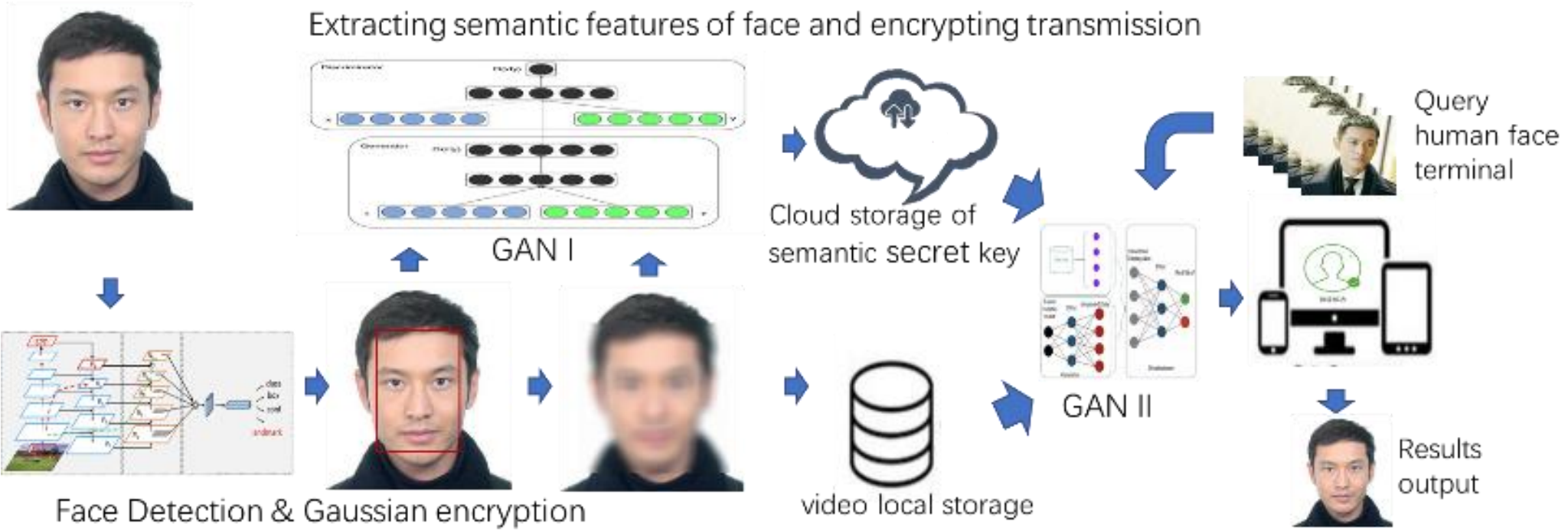

8 × 8 × 512
3x3 Conv
+
LeakyReLU
4 × 4 × 512
3x3 Conv
+
LeakyReLU
2 × 2 × 512
3x3 Conv
+
LeakyReLU
1 × 1 × 512


map2style
8 × 8 × 512
3x3 Conv
+
LeakyReLU
4 × 4 × 512
3x3 Conv
+
LeakyReLU
2 × 2 × 512
3x3 Conv
+
LeakyReLU
1 × 1 × 512

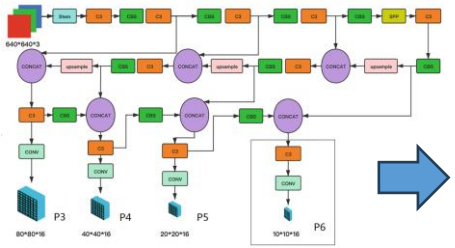


a) ResNet b) Feature pyramid c) Map2style d) Add latent_avg

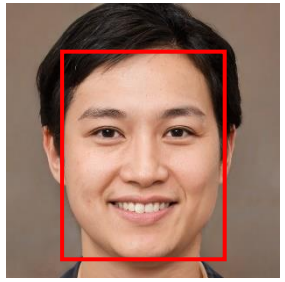

pSp Encoder
map2style
map2style
0-2
map2style
map2style
3-6
map2style
map2style
7-18
Input Image
a) ResNet
b) Feature pyramid
c) Map2style
latent code
w_1
w_2
w_3
w_{18}
$18 \times (1 \times 512)$
average
$\bar{w}$
+
d) Add latent_avg
map2style
$8 \times 8 \times 512$
$4 \times 4 \times 512$
$2 \times 2 \times 512$
$1 \times 1 \times 512$
3x3 Conv
+
LeakyReLU
3x3 Conv
+
LeakyReLU
3x3 Conv
+
LeakyReLU

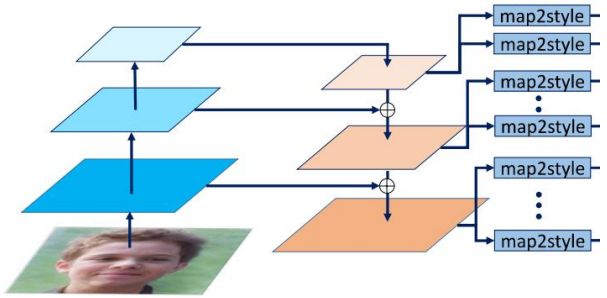

Extracting semantic features of face and encrypting transmission
GAN I
Cloud storage of
semantic secret key
Query
human face
terminal
GAN II
Face Detection & Gaussian encryption
video local storage
Results
output

Extracting semantic features of face and encrypting transmission

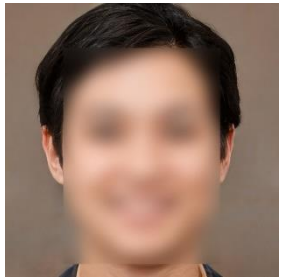


Face Detection & Gaussian encryption

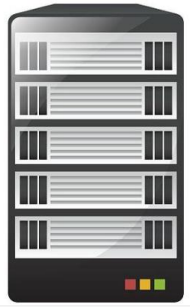




Encoder

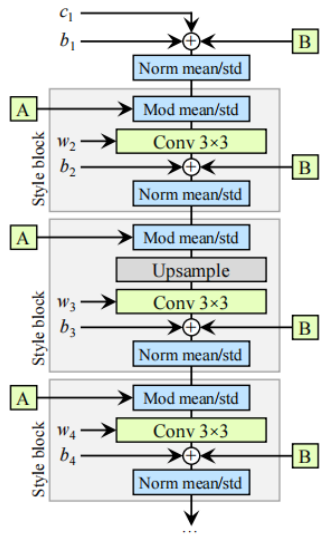


Cloud storage of semantic secret key

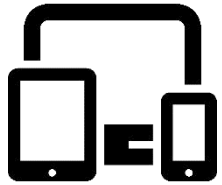


video local storage

Query human face terminal



GAN generator



Results output