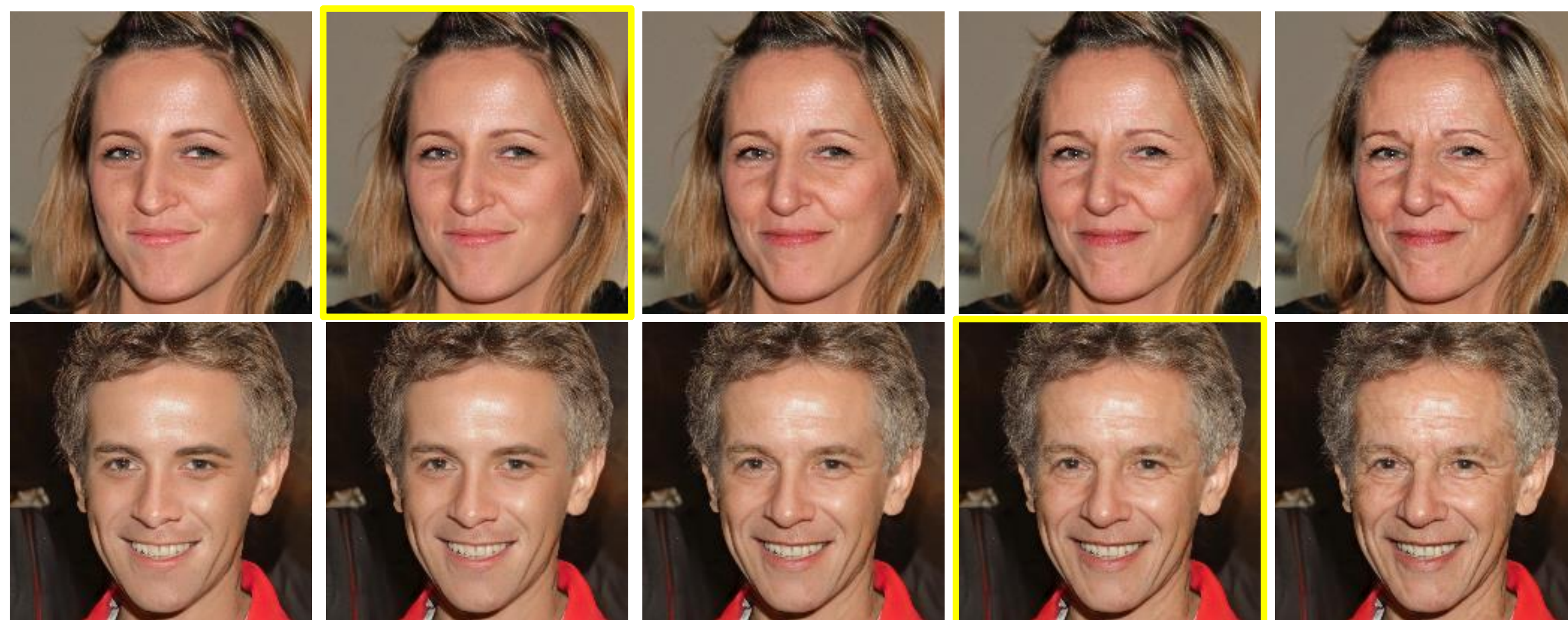


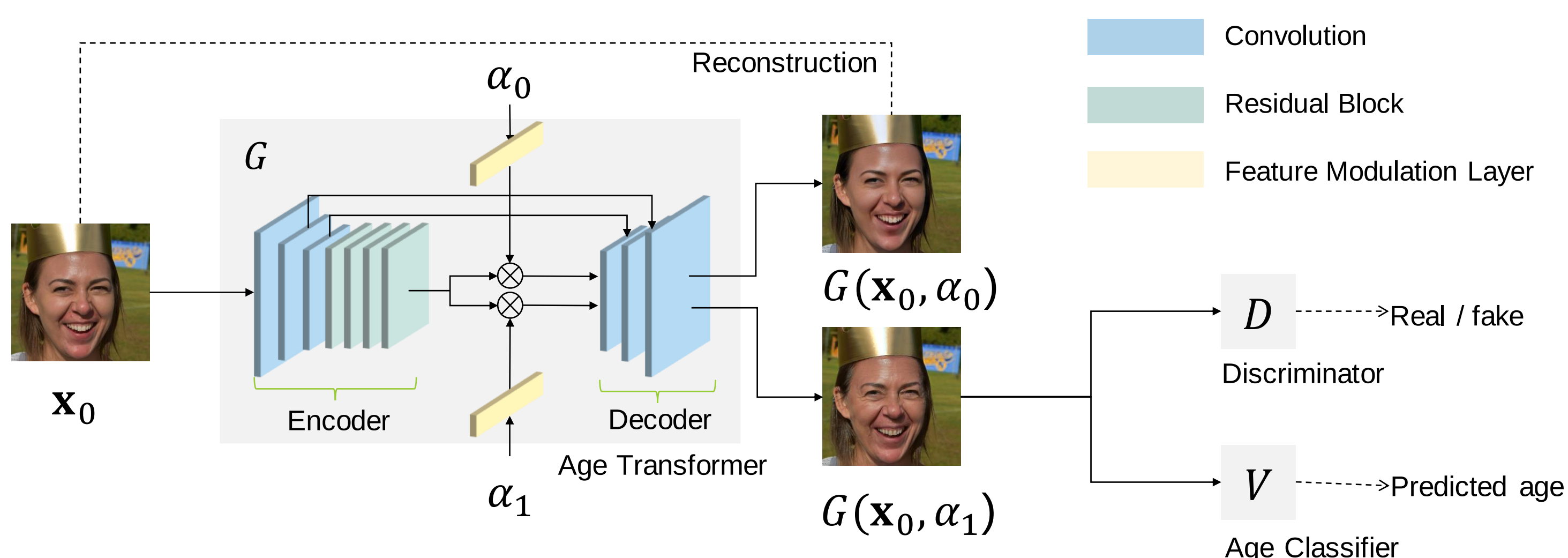
Goal : Photo-realistic age editing on high resolution images

Our results 

- Input : image in yellow frame
- Output : image of the same person at any required target age in the range $\{20, \dots, 69\}$ at resolution 1024×1024 .



Age Transformer Network



Training

$$\begin{aligned} \mathcal{L}_{recon} &= E_{x_0 \sim p(x)} [||G(x_0, \alpha_0) - x_0||_1] \\ \mathcal{L}_{GAN}(G) &= E_{x_0 \sim p(x)} E_{\alpha_1 \sim q(\alpha|\alpha_0)} [(D(G(x_0, \alpha_0)) - 1)^2] \\ \mathcal{L}_{GAN}(D) &= E_{x_0 \sim p(x)} E_{\alpha_1 \sim q(\alpha|\alpha_0)} \left[(D(G(x_0, \alpha_0)))^2 \right] + E_{y \sim p(y)} [(D(y) - 1)^2] \\ \mathcal{L}_{class} &= E_{x_0 \sim p(x)} E_{\alpha_1 \sim q(\alpha|\alpha_0)} [\ell_{CE}(\alpha_1, V(G(x_0, \alpha_1)))] \end{aligned}$$

Contribution

- A simple architecture**
 - Use a single network for both aging and de-aging.
- Continuous age transitions**
 - Feature modulation layer acts directly on the latent space and allows for continuous age transitions.
- Photorealistic results**
 - Achieve artifact-free, sharp and photorealistic results on high-resolution face images.

Continuous face age editing



- ✓ Little artifacts on high resolution images
- ✓ Continuous aging effects

✗ Fail to generate gray hair for old target age