



# GAN & ITS APPS

BML PROJECT

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# CONTENT & Ý Chính

1. Model/Mô Hình
2. Pipeline/Hệ Thống
3. APPs/Ứng Dụng
4. DEMO

# GAN IN ONE

## Choice of Latent Space

Reconstructs the input image

Semantically meaningful for editing

Semantic Diffusion, Real Image Editing

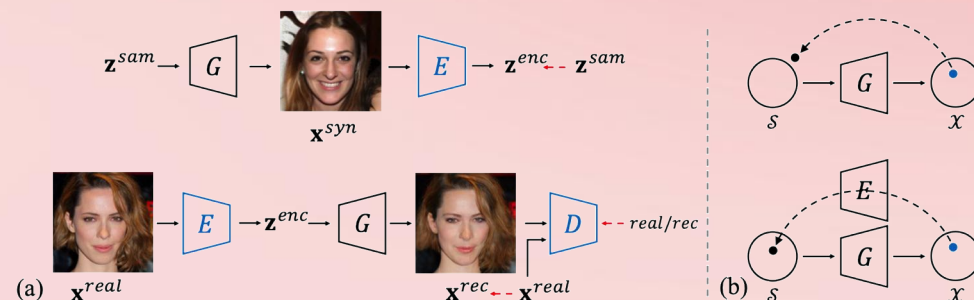
# APPs

## In-Domain GAN Inversion

Paper: In-Domain GAN Inversion for Real Image Editing, Xiaomi AI Lab, 16 Jul 2020

In-Domain GAN Inversion

5



## GAN inversion techniques

### Domain-Guided Encoder

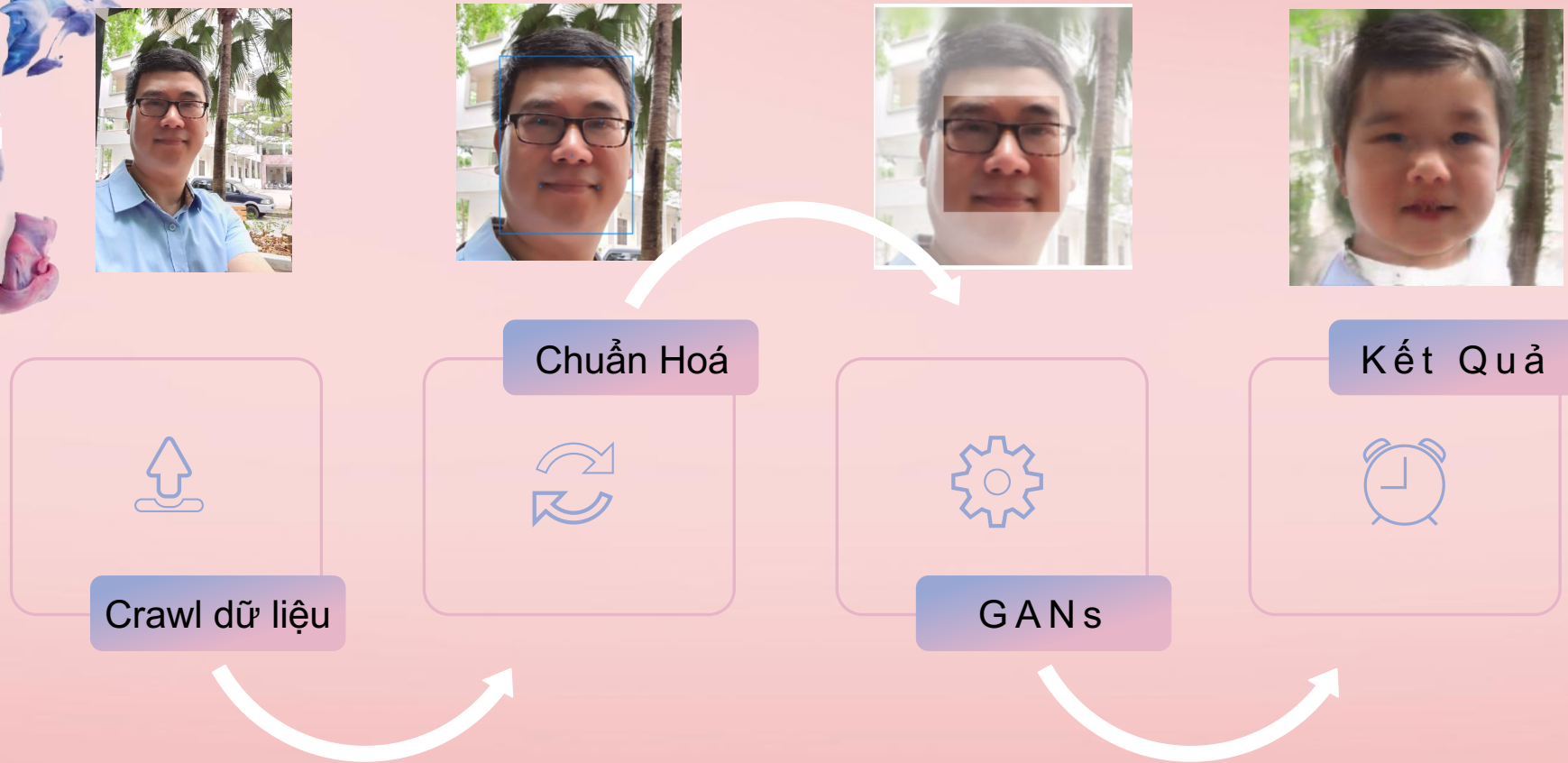
The output of the encoder is fed into the generator to reconstruct the input image such that the objective function comes from the image space instead of latent space

### Domain-Regularized Optimization

- + the domain-guided encoder is trained with real images .
- + employ the discriminator to compete with the encoder.



# Pipeline HỆ THỐNG



Pretrained Deep models: MTCNN, GAN-InDomain, Aging Gan, StyleGan, DCGANs



# APPs Ứng Dụng



## Semantic Diffusion (Lan Toả Nội Dung)

Diffuse the target face to the context  
and makes them compatible





## Real Image Editing (Sửa)

Age

Pose

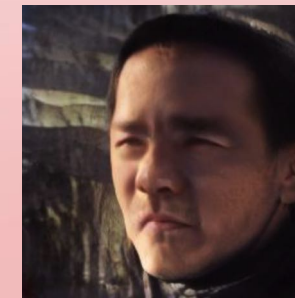
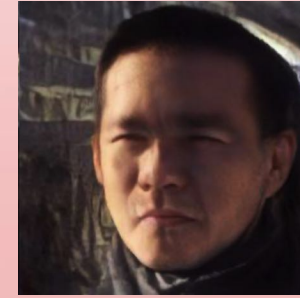
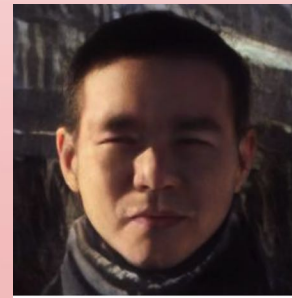
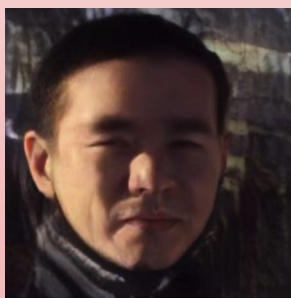
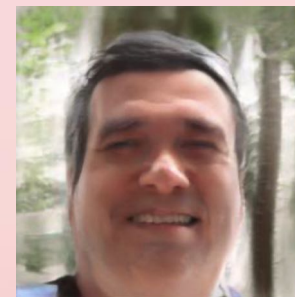
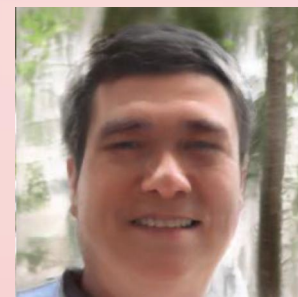
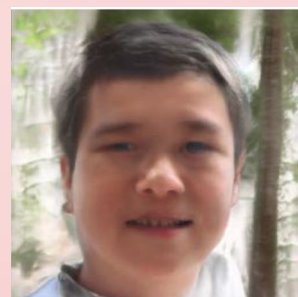
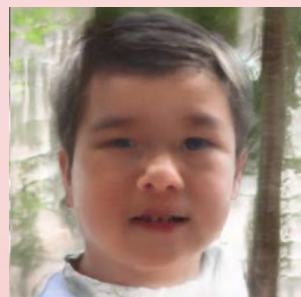
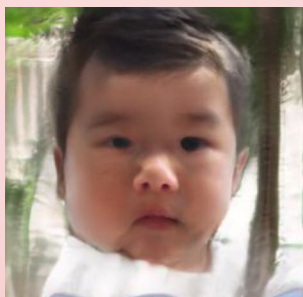
Eyes

Gender



## Optimized Loss (Tối Ưu)

Semantic manipulation with respect to various facial attributes.







# APPs Ứng Dụng



## Interpolation (Nội Suy)

+ Linearly interpolating two inverted codes





THANK  
&  
Cảm Ơn

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