



基于图像的虚拟试穿技术 Image-based Visual Try-on

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目录

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- 作者介绍
- 研究动机
- 本文方法
- 实验效果
- 总结反思

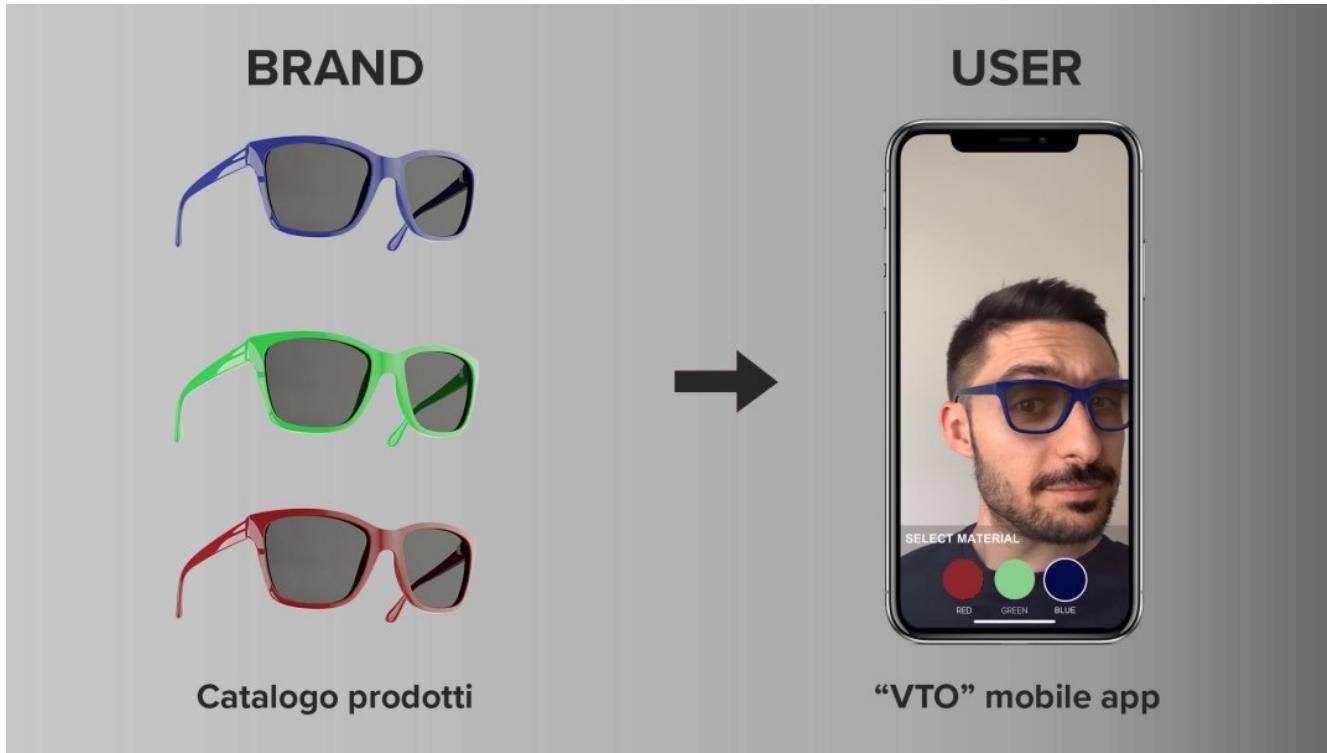
- 作者介绍
- 研究背景
- 本文方法
- 总结反思



研究背景

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- 基于图像的虚拟试穿
 - ◎ 广泛应用于元宇宙、电商等领域





研究背景

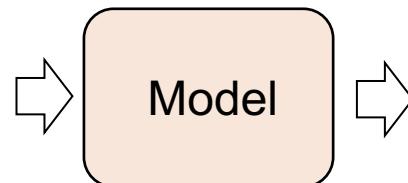
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- 基于图像的虚拟试穿
 - 问题定义

Target Person

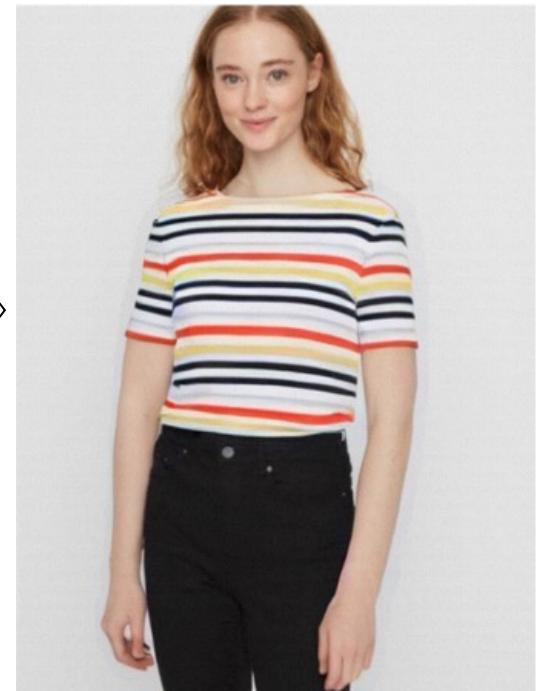


Garment



Model

Output





研究背景

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□ 任务挑战

- 人体姿态一致性
- 服饰Logo、纹理清晰度
- 衣服和人体姿态的协调性

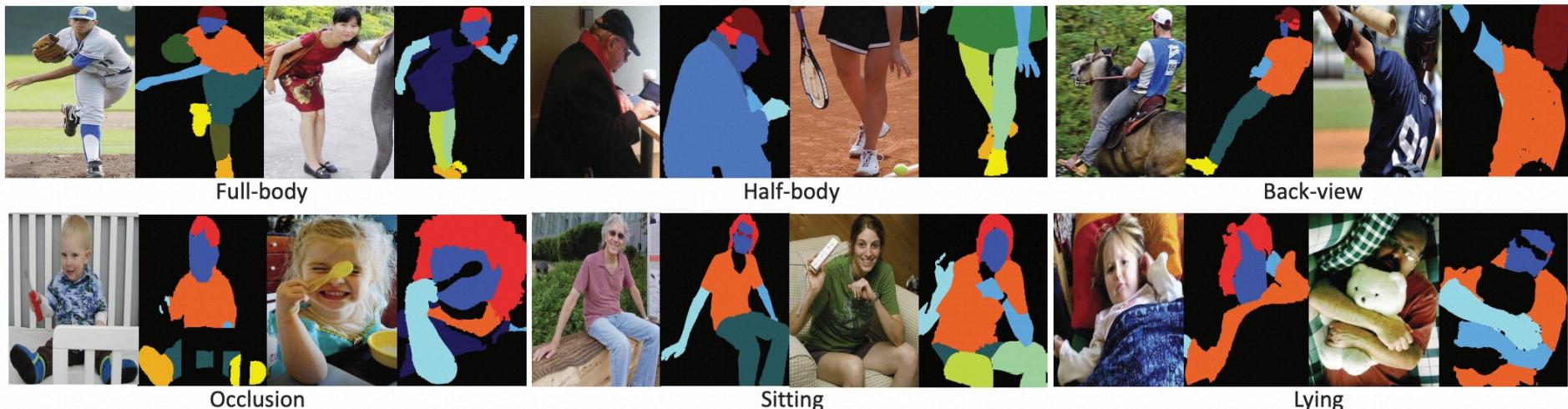


研究背景

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- 人体解析 (Human Parsing)
 - 提取出人脸、皮肤、头发、衣服等

(c) LIP



■ Face ■ UpperClothes ■ Hair ■ RightArm ■ Pants ■ LeftArm ■ RightShoe ■ LeftShoe ■ Hat ■ Coat ■ RightLeg ■ LeftLeg ■ Gloves ■ Socks ■ Sunglasses ■ Dress ■ Skirt ■ Jumpsuits ■ Scarf



研究背景

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- 人体关键点定位
 - 提取人体姿态信息信息
 - OpenPose



研究背景

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□ 常用数据集

- DressCode: 5w+ pairs, 1024 x 768
- VTON-HD: 1w+ pairs, 1024 x 768



- 作者介绍
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方法介绍-方法1

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VITON: An Image-based Virtual Try-on Network

Xintong Han, Zuxuan Wu, Zhe Wu, Ruichi Yu, Larry S. Davis
University of Maryland, College Park

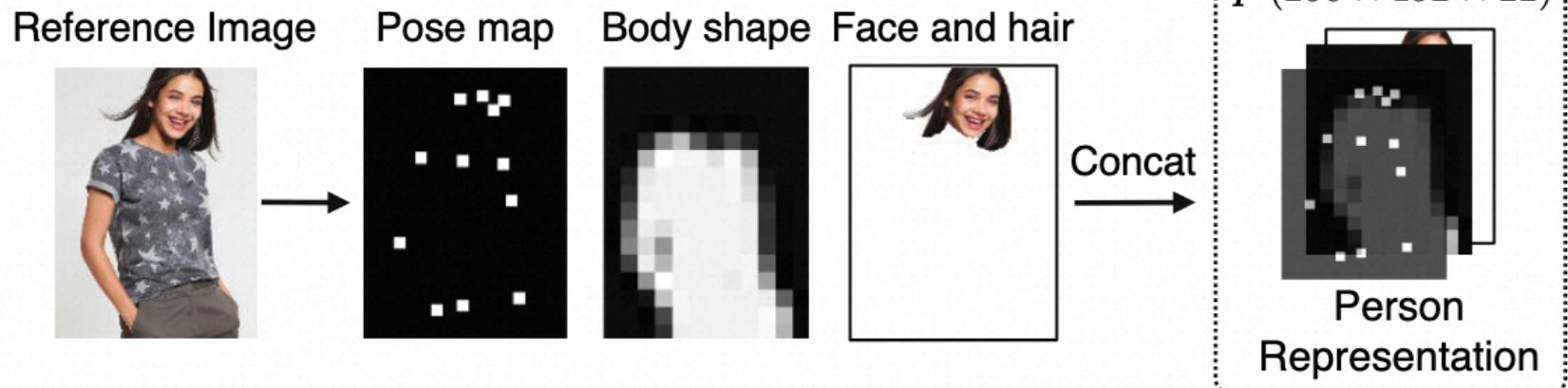
{xintong, zxwu, zhewu, richyu, lsd}@umiacs.umd.edu

方法介绍-方法1

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□ VITON

- ◎ A clothing-agnostic person representation

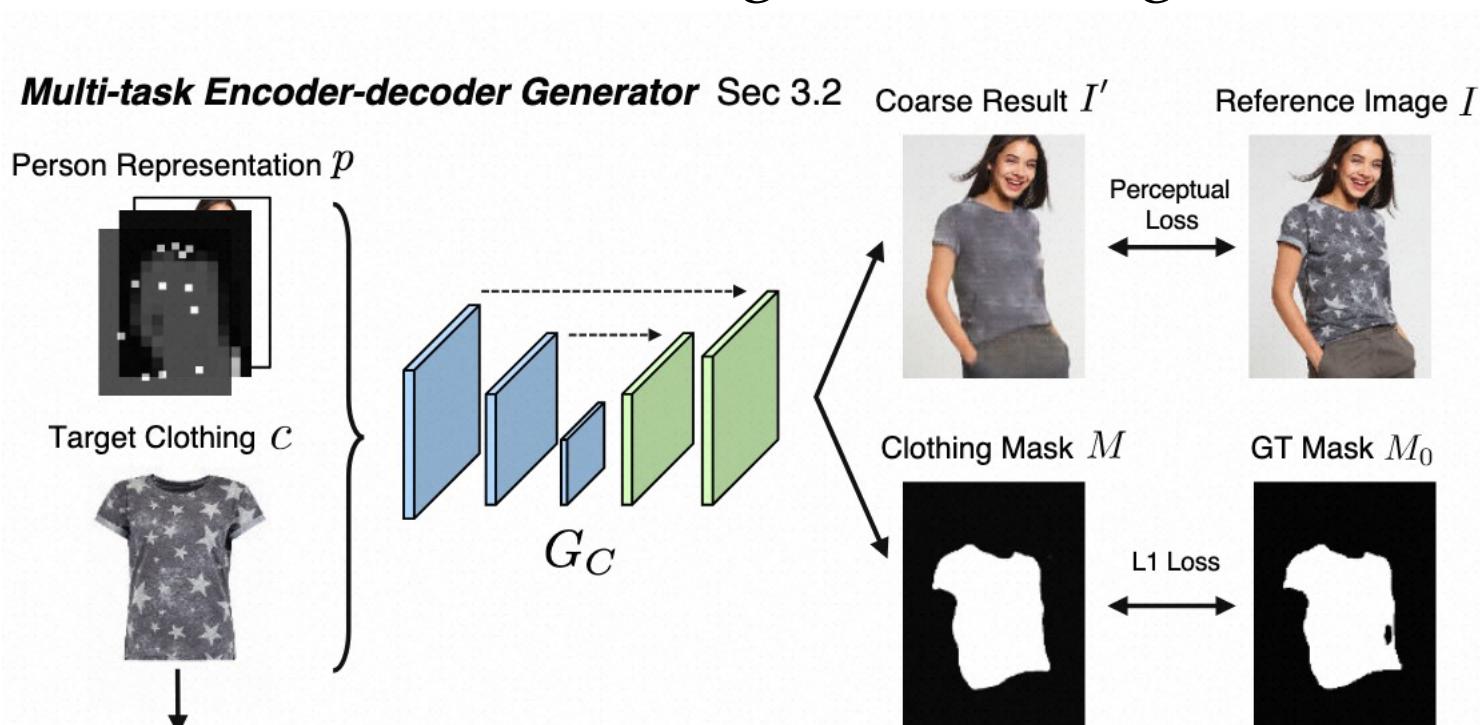


方法介绍-方法1

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□ VITON

- ◎ an encoder-decoder generator stage



方法介绍-方法1

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□ VITON

◎ a refinement stage

Target Clothing C



Clothing Mask I



Shape Context Matching

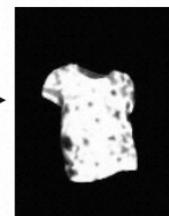
Warped Clothing c'

Coarse Result I'



Refinement Network Sec 3.3

Composition Mask α



Refined Result \hat{I}



Reference Image I



Perceptual Loss

$$\hat{I} = \alpha \odot c' + (1 - \alpha) \odot I'$$



方法介绍-方法2

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Toward Characteristic-Preserving Image-based Virtual Try-On Network

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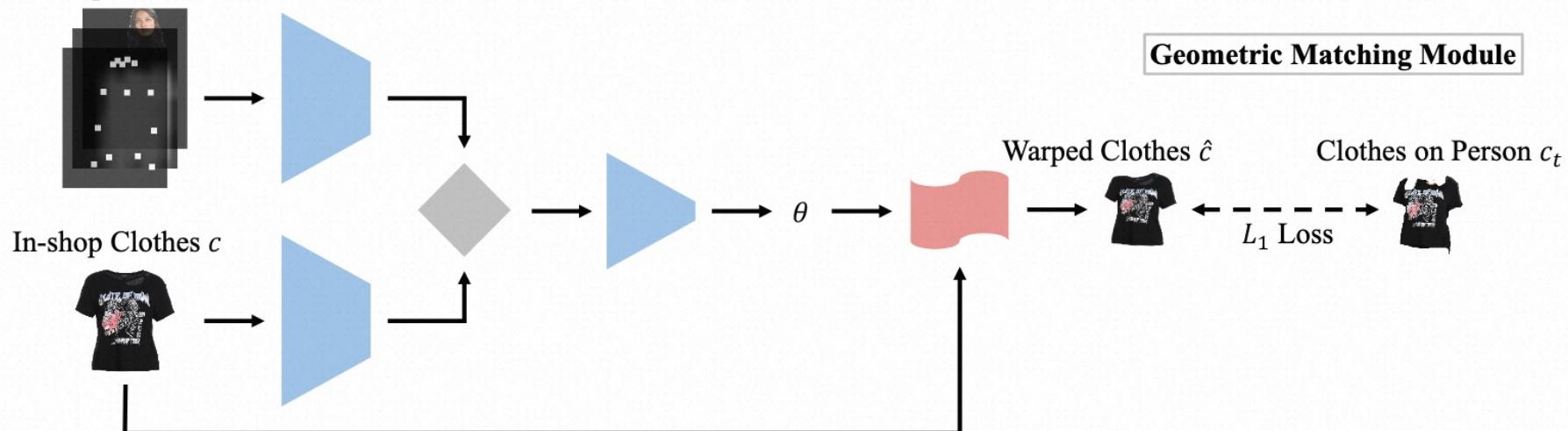
方法介绍-方法2

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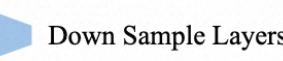
□ CP-VTON

◎ Warping Network

Person Representation p



Geometric Matching Module



Down Sample Layers



Up Sample Layers



Correlation Matching



TPS Warping



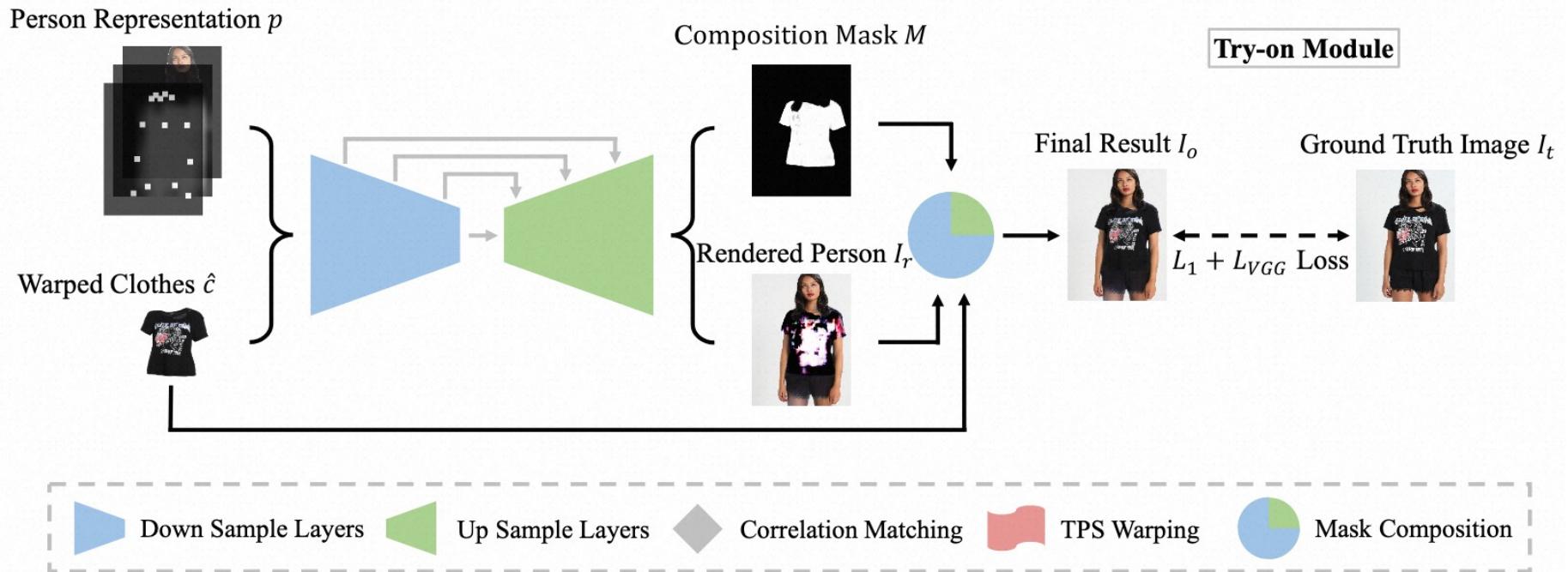
Mask Composition

方法介绍-方法2

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□ CP-VTON

◎ Generation Network





方法介绍-方法3

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Paint by Example: Exemplar-based Image Editing with Diffusion Models

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Shuyang Gu²

Bo Zhang²

Ting Zhang²

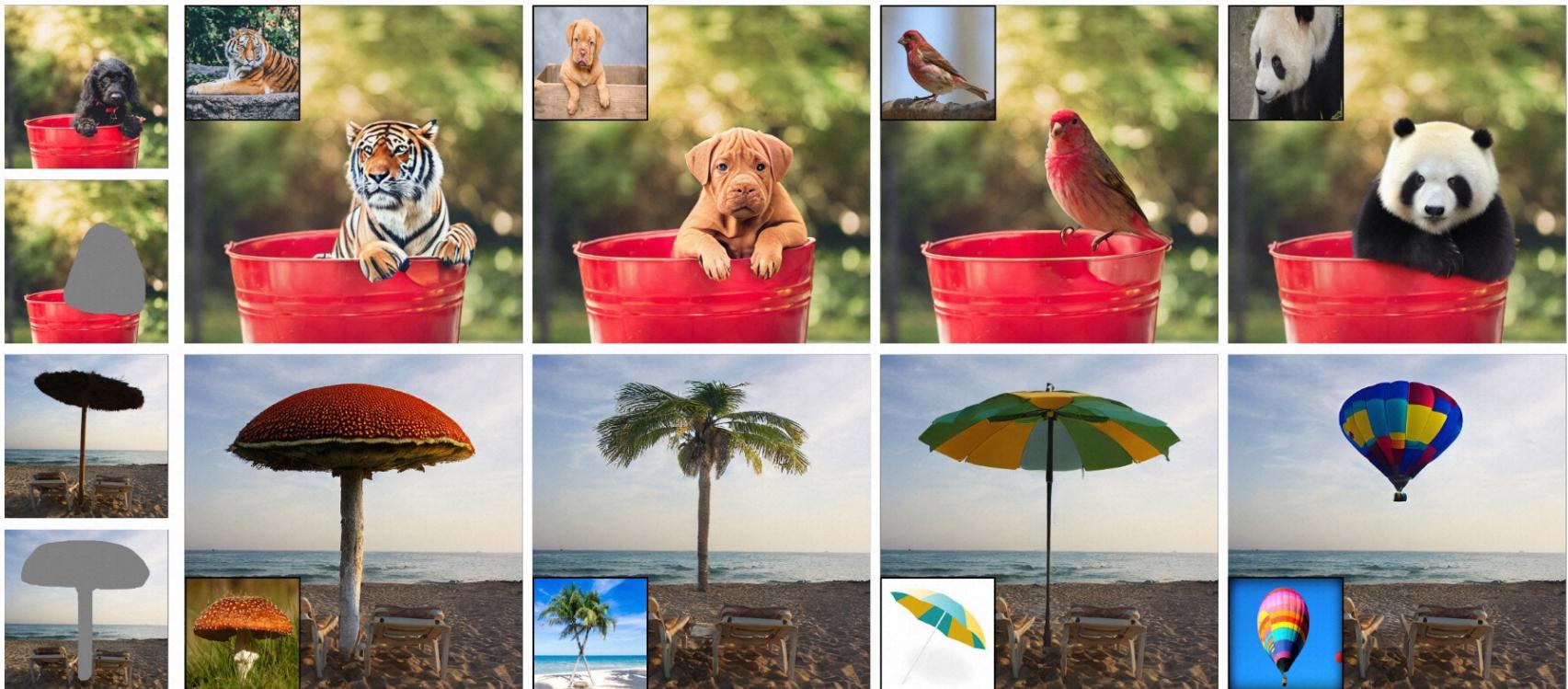
Xuejin Chen¹

Xiaoyan Sun¹

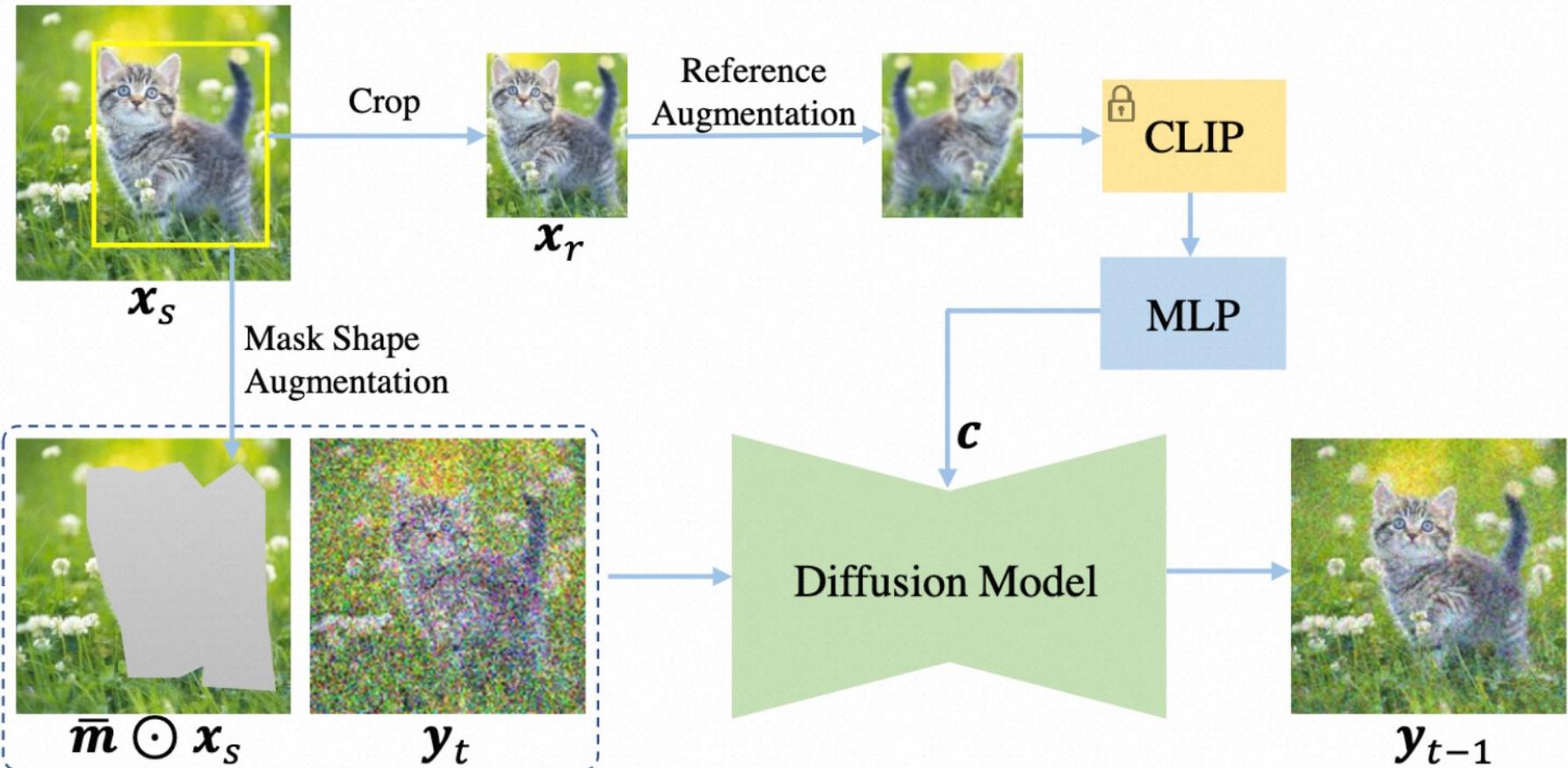
Dong Chen²

Fang Wen²

¹ University of Science and Technology of China ² Microsoft Research Asia



方法介绍-方法3





方法介绍-方法3

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Person & Clothes



Paint by Example





方法介绍-方法4

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LaDI-VTON: Latent Diffusion Textual-Inversion Enhanced Virtual Try-On

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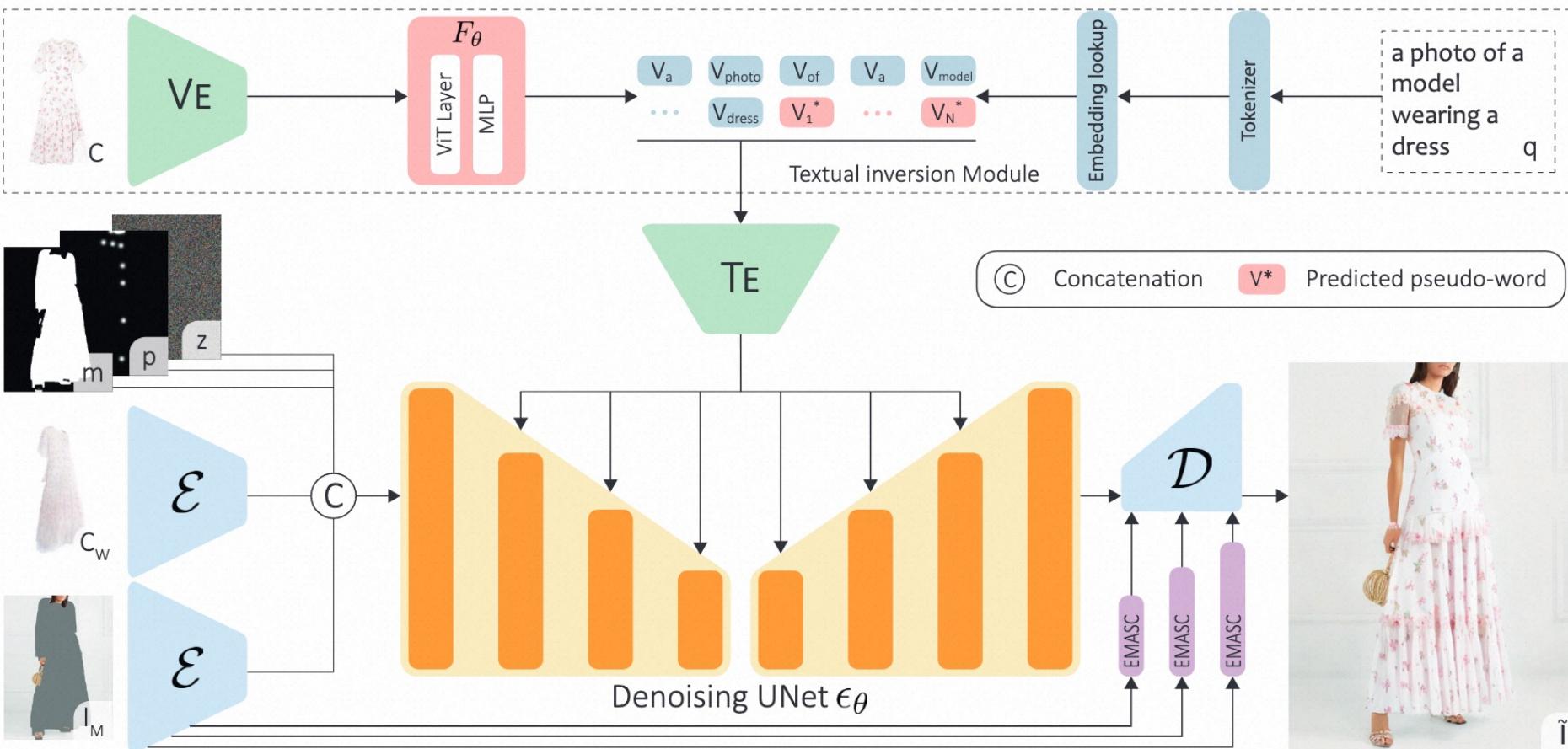
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方法介绍-方法4

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□ LaDI-VTON

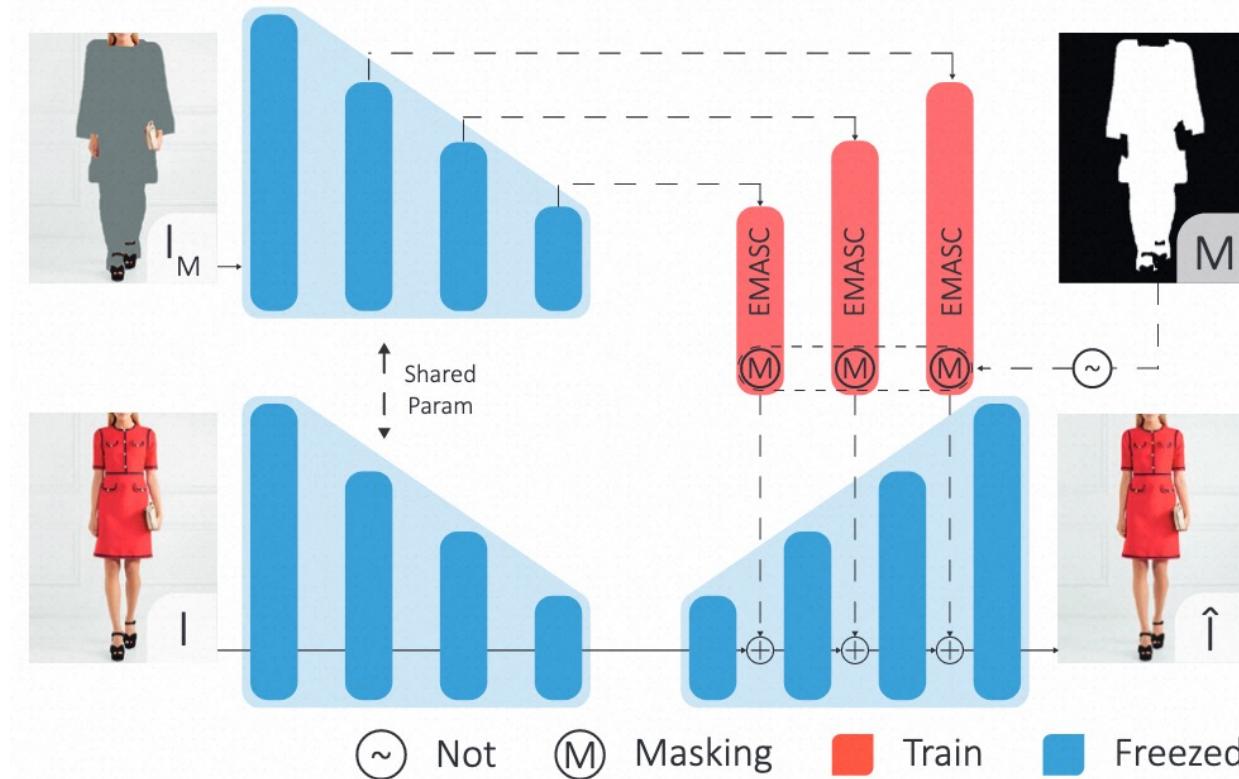


方法介绍-方法4

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□ LaDI-VTON

◎ Enhanced Mask-Aware Skip Connections



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总结反思

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- <https://github.com/minar09/awesome-virtual-try-on>
- 本质上是基于condition的图像inpainting任务
- 很多任务都可以用SD进行重构，带来了一些机会

Thank for your attention !