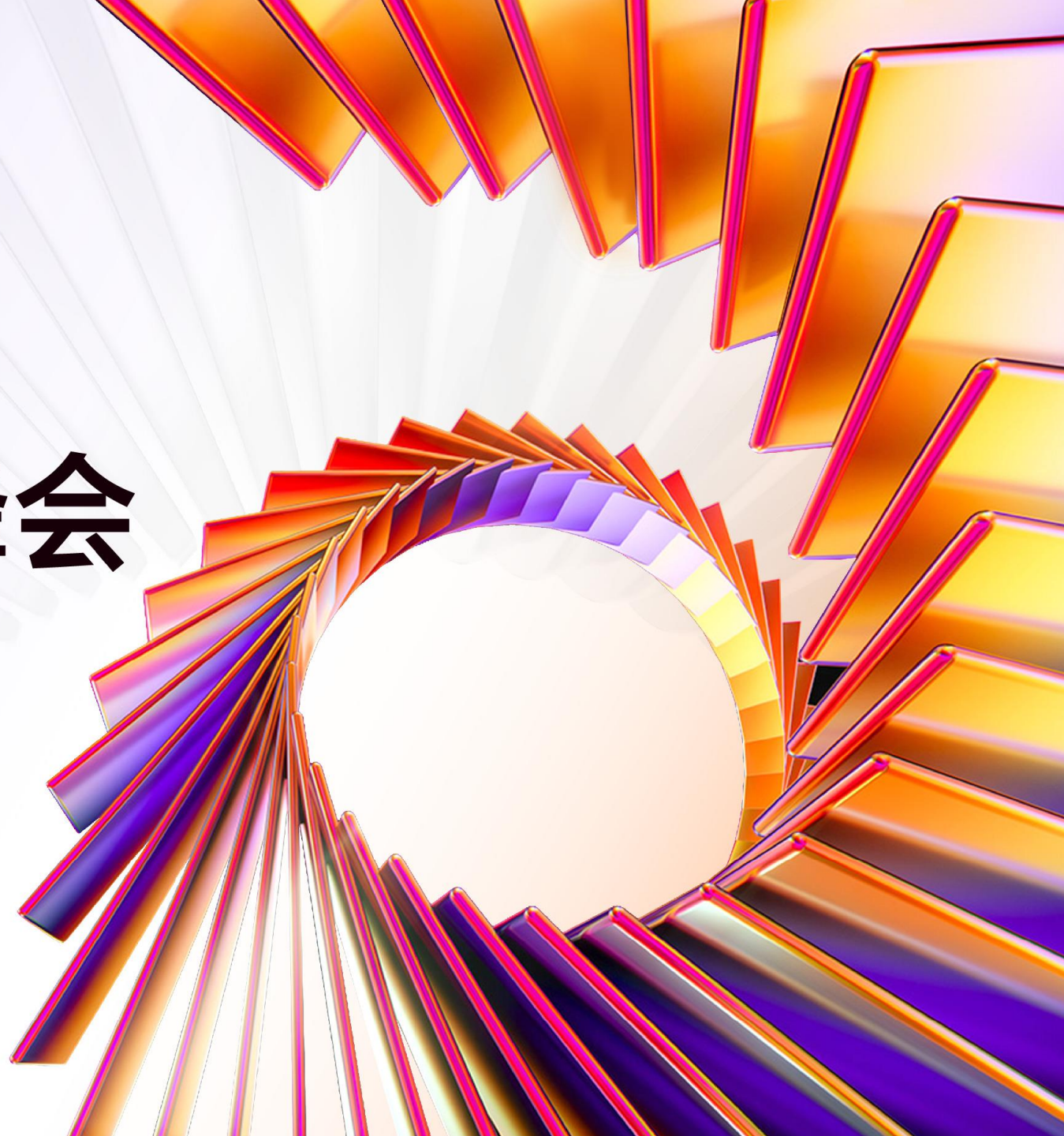
AiDD 6th 2025

2025 AI+ Development Digital Summit

AI+研发数字峰会

拥抱AI 重塑研发

05/23-24 | 上海站



AiDD 7th 2025

2025 AI+研发数字峰会

拥抱AI 重塑研发 AI+ Development Digital Summit

查看会议详情

下一站预告 08/08-09 | 北京站 11/14-15 | 深圳站

北京站论坛设置

- AI+ 金融业务创新
- 具身智能与机器人
- 大模型安全与对齐
- 大模型和 AI 应用评测
- 智能需求工程
- 代码生成及其改进
- 大模型应用开发框架与实践
- 智能存储与检索技术
- 智能体与研发效率工具
- AI+ 新能源汽车
- 智能体经济（Agentic Economy）
- 下一代知识工程
- AI 产品运营与出海策略
- 智能测试工具的开发与应用
- AI 前沿技术探索与实践

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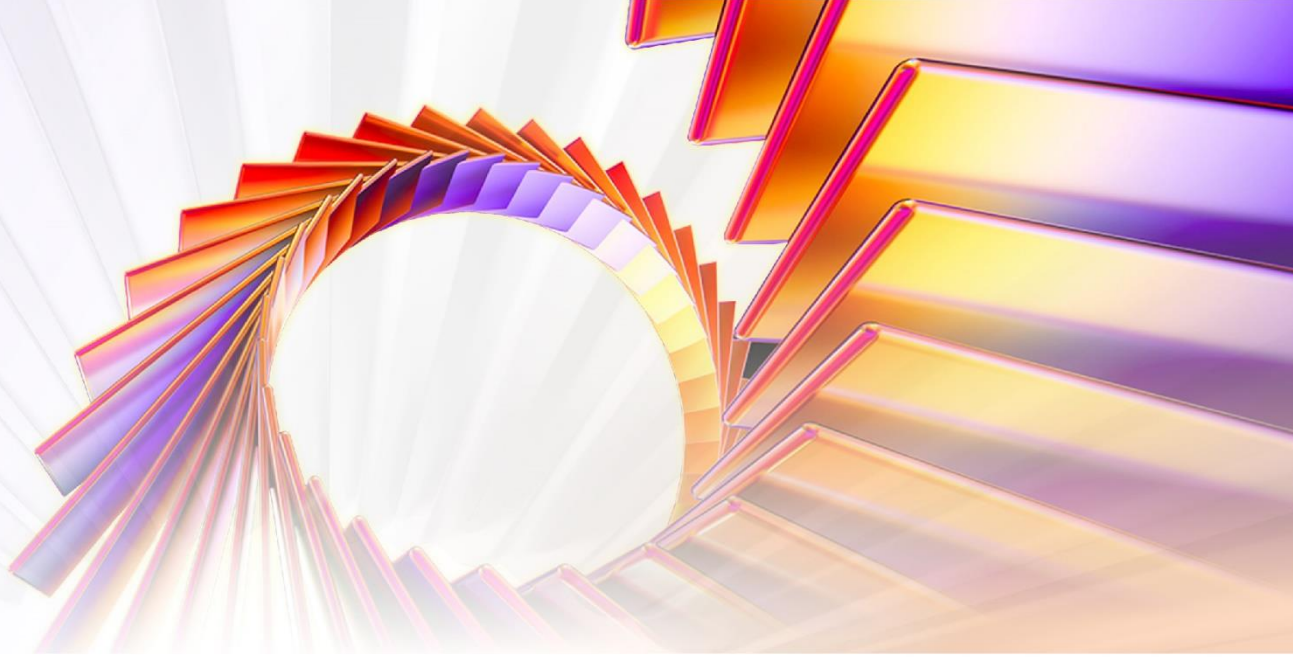

基于视频生成模型Hallo和Champ的数字人构建

朱思语 | 复旦大学

朱思语

复旦大学教授

复旦大学人工智能创新与产业研究院研究员、长聘教授及博士生导师，研究方向为视频与三维生成模型。在CVPR、ICCV、ECCV、PAMI等国际会议和期刊上发表论文60余篇。博士期间，他联合创立了3D视觉公司Altizure，后被苹果公司收购。2017年至2023年，他担任阿里云人工智能实验室总监。他曾任ICCV/AAAI领域主席/程序委员会成员，荣获中国计算机学会杰出工程师奖。

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数字人：生成式应用爆发

角色动画

hedra · DreaminaAI · LEMONSLICE · puppetry · runway · sync.

创作者克隆

Argil · captions · D-ID · Delphi · hedra · HeyGen

直播克隆或换脸

AKOOL · Deep Live Cam · HeyGen · Magicam · Pickle · SwapStream

广告和营销

arcads · captions · creatify · CreatorKit · HeyGen · icon · JOGG · makeugc · MUKUAI · ReelFarm · TikTok Symphony · TOPVIEW · VEED · vidyard · Yuzu Labs

企业

AKOOL · ANAM · Beyond Presence · CICERO · Colossyan · D-ID · elai. · hedra · HeyGen · Hour One · IMMERSIVEFOX · JOGG · synthesia · VEED

AI 虚拟主播

Hallway · HYPER

开发者工具

A2E · AKOOL · ANAM · Beyond Presence · captions · GENIES · hedra · HeyGen · Simli · sync. · tavus

数字人：生成式应用爆发

角色动画

hedra　Dreamina AI

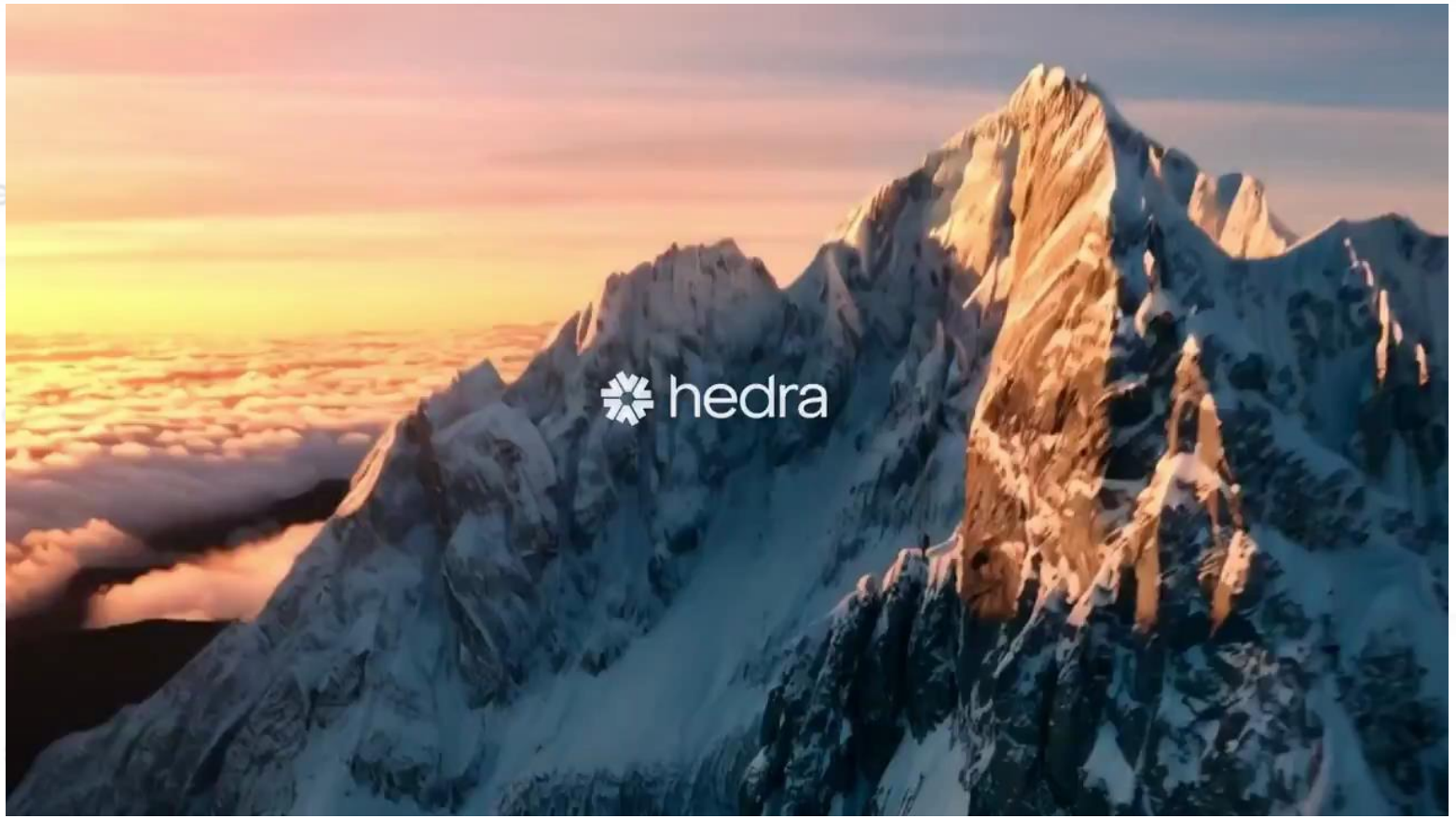
LEMONSLICE　puppetry

runway　sync.

AI 虚拟主播

Hallway　HYPER

A2E　AKOOL　ANAM



数字人：生成式应用爆发

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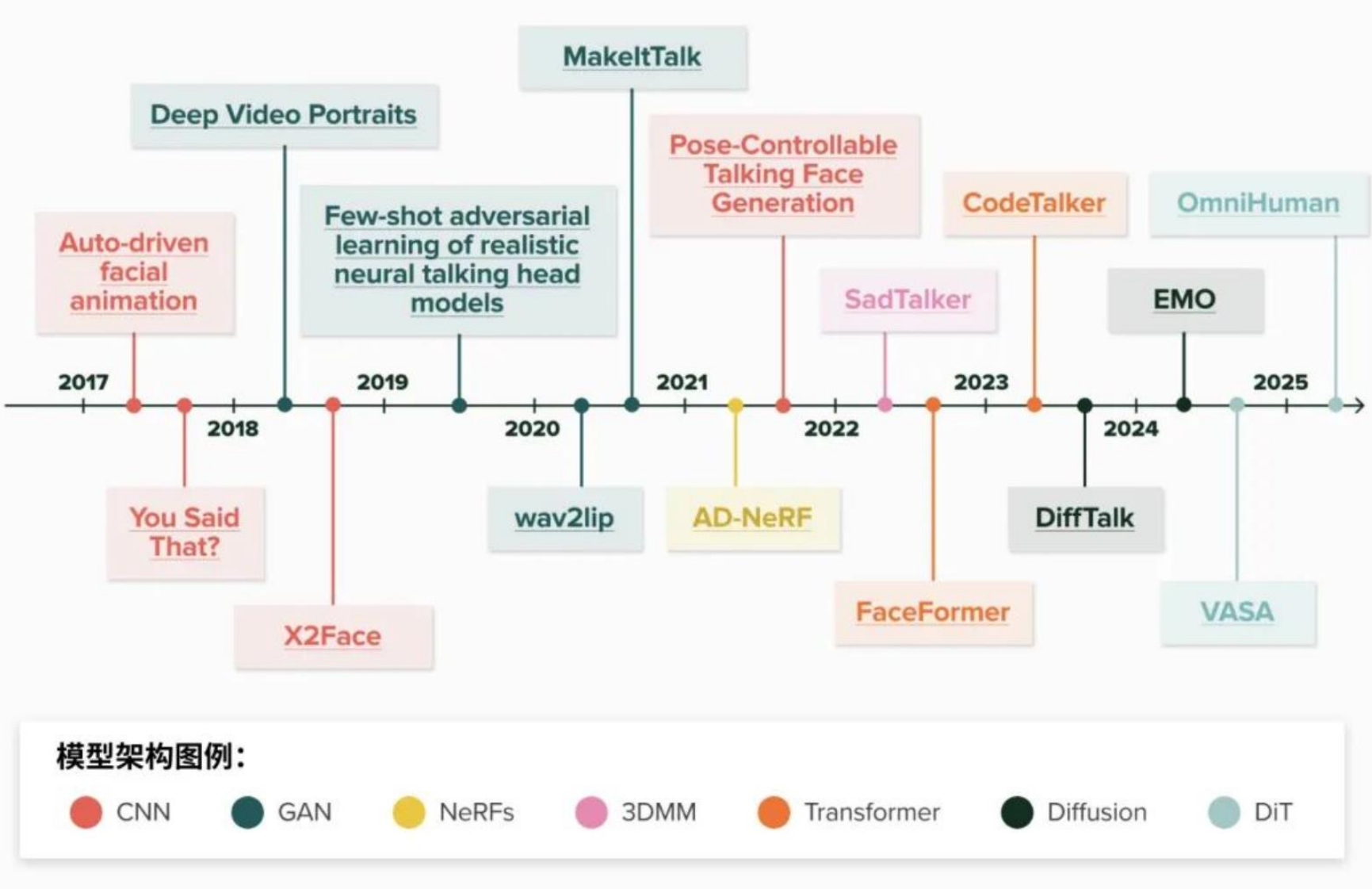
A2E AKOOL ANAM Beyond Presence captions GENIES hedra HeyGen Simli sync. tav

数字人：主流技术方案

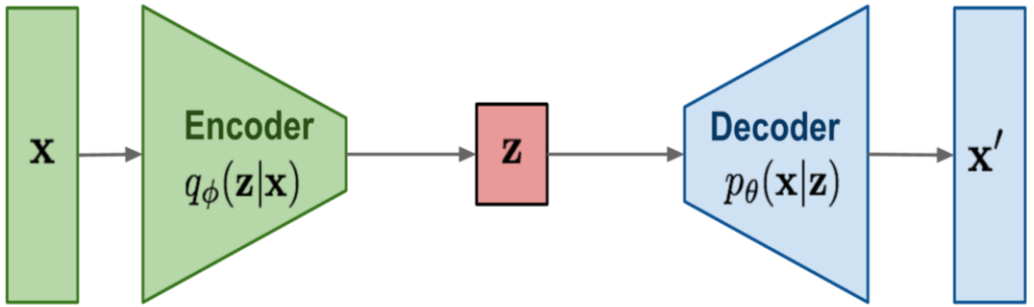

MakeItTalk
Deep Video Portraits
Pose-Controllable Talking Face Generation
CodeTalker
OmniHuman
Auto-driven facial animation
Few-shot adversarial learning of realistic neural talking head models
SadTalker
EMO
2017
2018
2019
2020
2021
2022
2023
2024
2025
You Said That?
X2Face
wav2lip
AD-NeRF
DiffTalk
FaceFormer
VASA
模型架构图例：
CNN
GAN
NeRFs
3DMM
Transformer
Diffusion
DiT

生成式模型的定义

Input

Output

VAE: maximize variational lower bound

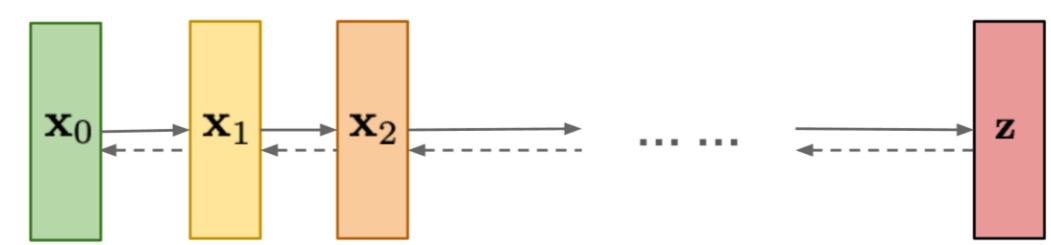


人工智能的关键概念

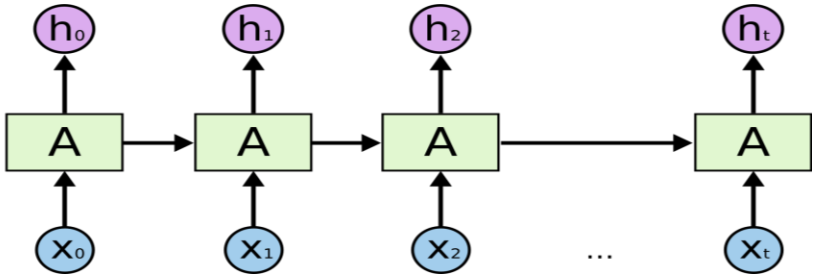
- 人工智能（1956年）
  - 以替代或超越人类智能为目标的计算机智能。
- 机器学习（1990年）
  - 人工智能的一个子领域，通过分析大量数据以识别模式，使计算机系统能自动获取知识并不断改进，从而实现准确决策或预测。
- 深度学习（2012年）
  - 机器学习的一个分支，利用多层神经网络对数据进行处理和决策。
- 生成式AI、大模型（2021年）
  - 基于特定提示、数据或条件，生成新的文本、图像、音频、视频以及分子或材料结构。

视频生成模型的快速发展

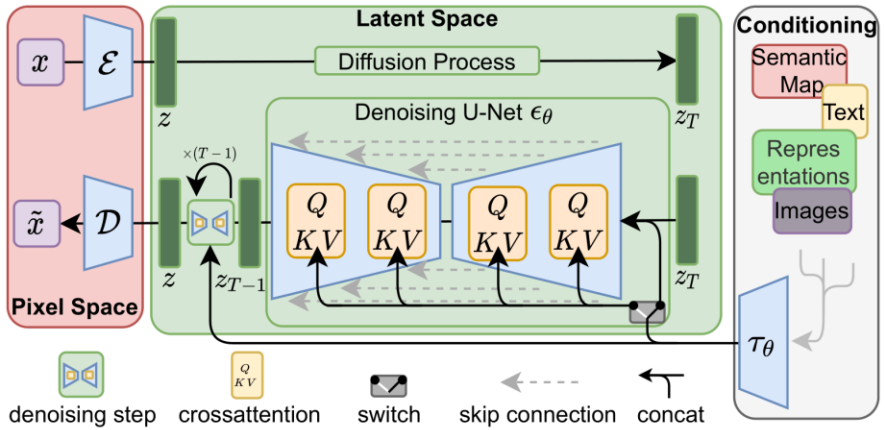
Video Diffusion models



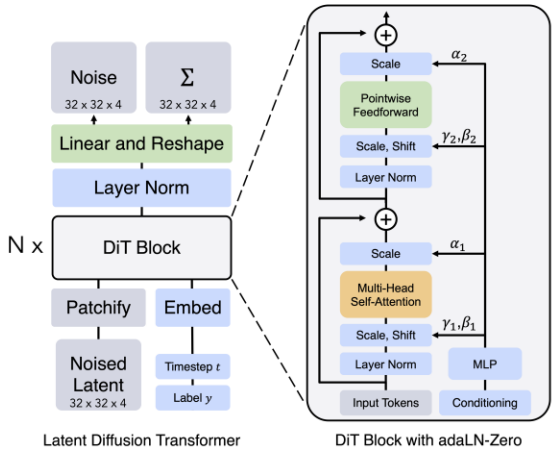
Video Auto-regressive models



Latent Space Diffusion



Diffusion through Transformer



Sora: 世界模拟器?

- Controllable video generation is still chanllenging.
- Can video generation restore the 3D physical world?

- **Appearance**
- **Geometry**
- **Motion & Dynamics**

The Bottleneck of Scaling Law

- Hard to really model the physical word. Failure case in appearance and geometry.

The Bottleneck of Scaling Law

- Hard to really model the physical word! Failure case in motion.

Sora: 世界模拟器?

- Controllable video generation is still chanllenging.
- Can video generation restore the 3D physical world?

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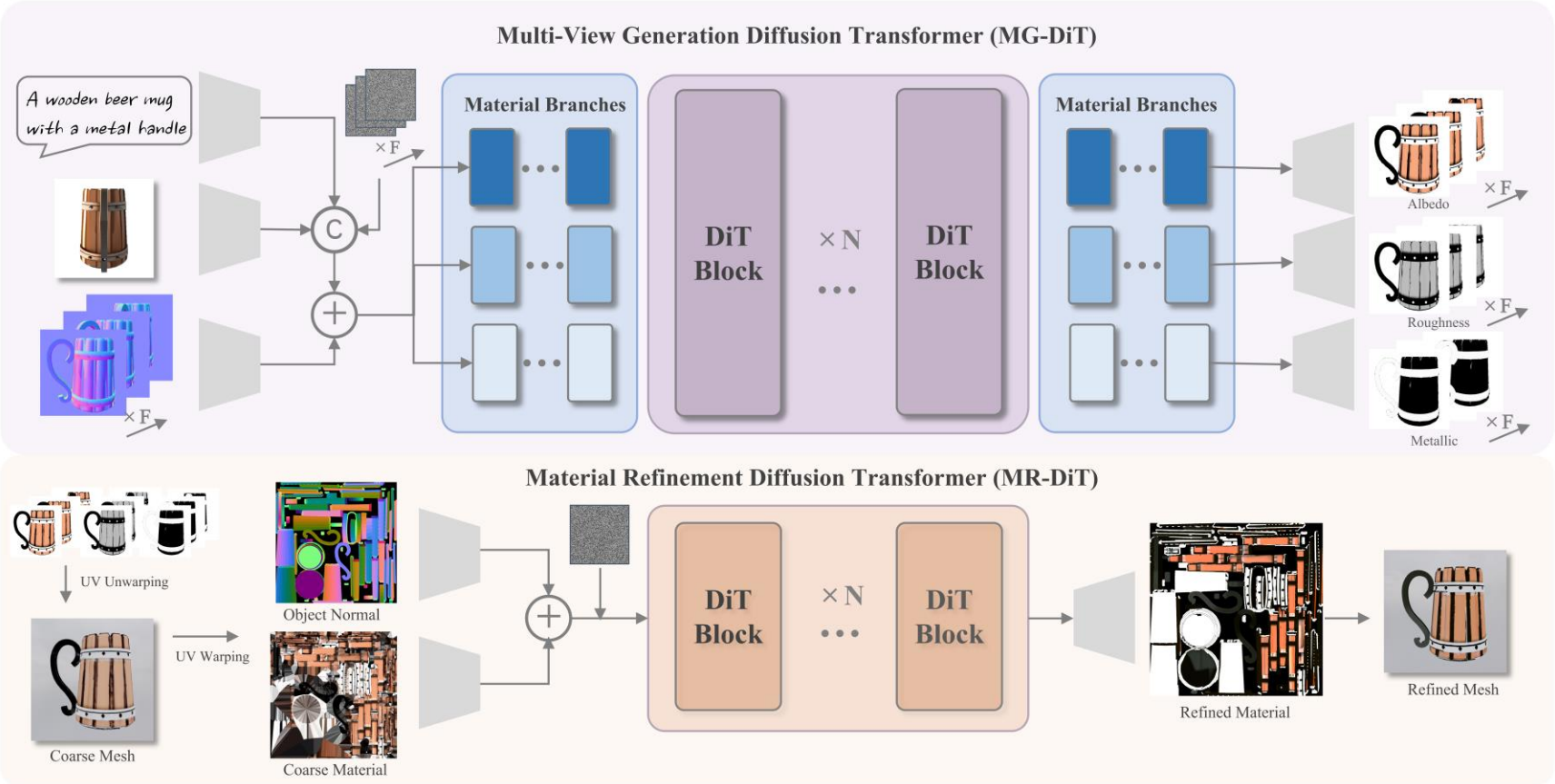
- **Motion & Dynamics**

外观：纹理和材质

- **Appearance and corresponding lighting...**
- MCMat: Multiview-Consistent and Physically Accurate PBR Material Generation.

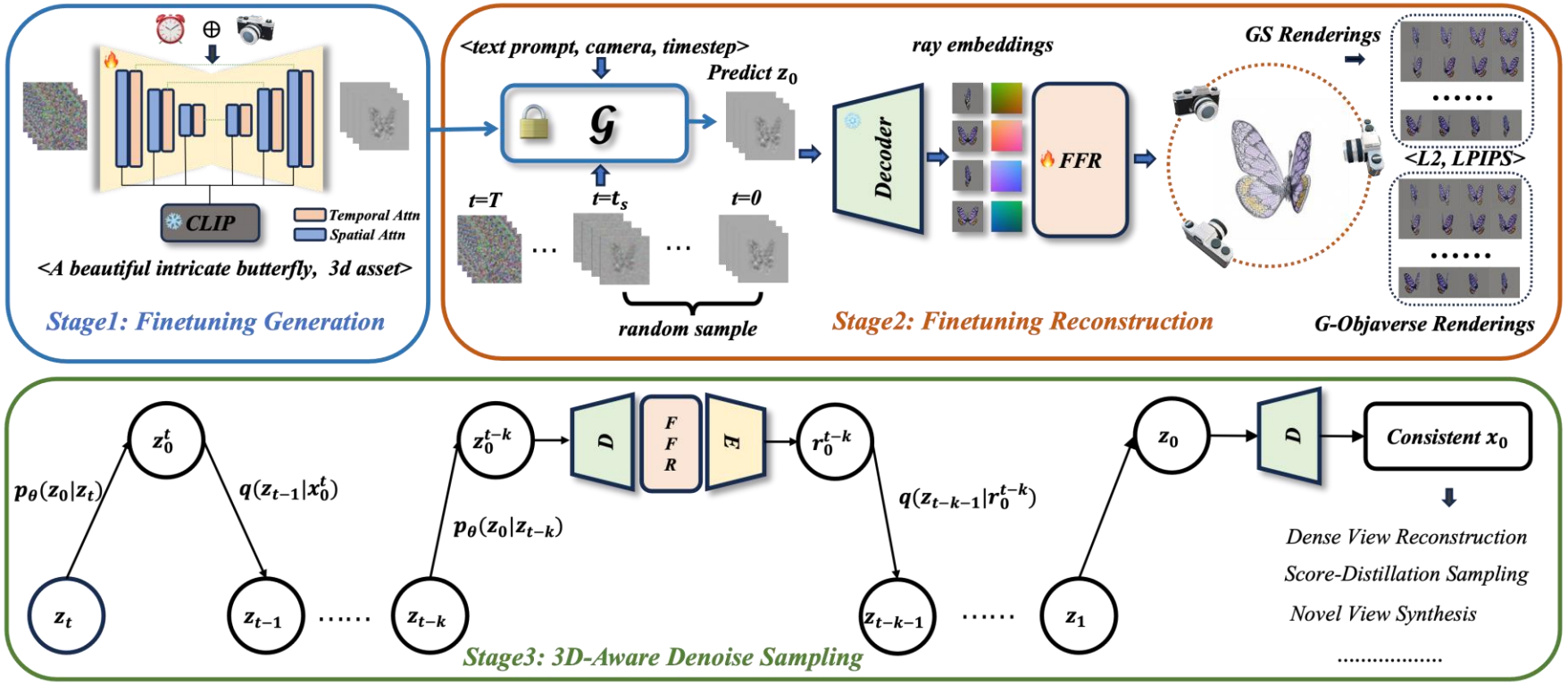


外观：纹理和材质

- **Appearance and corresponding lighting...**
- MCMat: Multiview-Consistent and Physically Accurate PBR Material Generation.

几何：三维形状

- **Directly Generate Dynamic 3D? Static 3D Generation limited to small...**
- VideoMV: Consistent Multi-View Generation Based on Large Video Generative Model.



几何：三维形状

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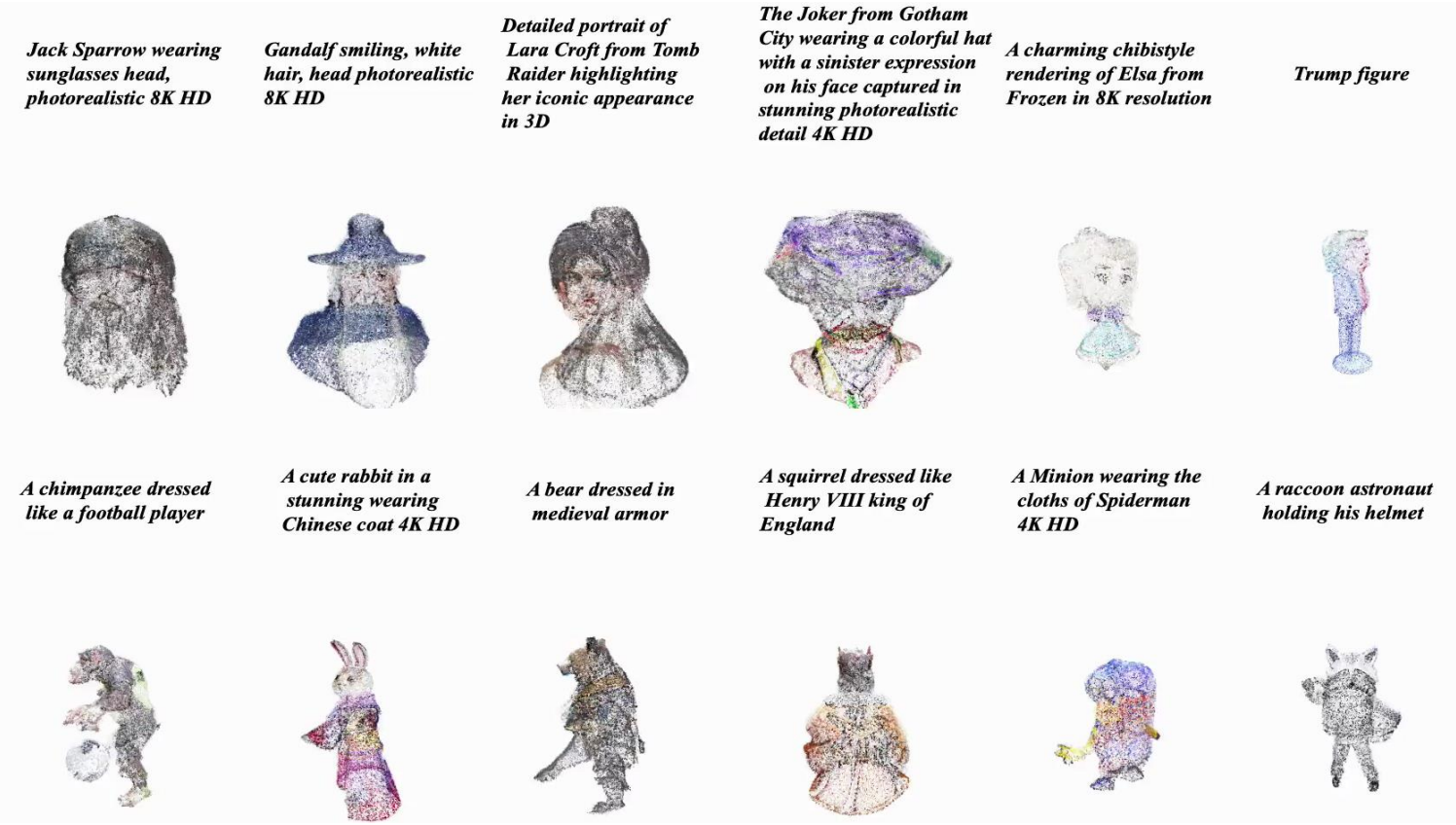
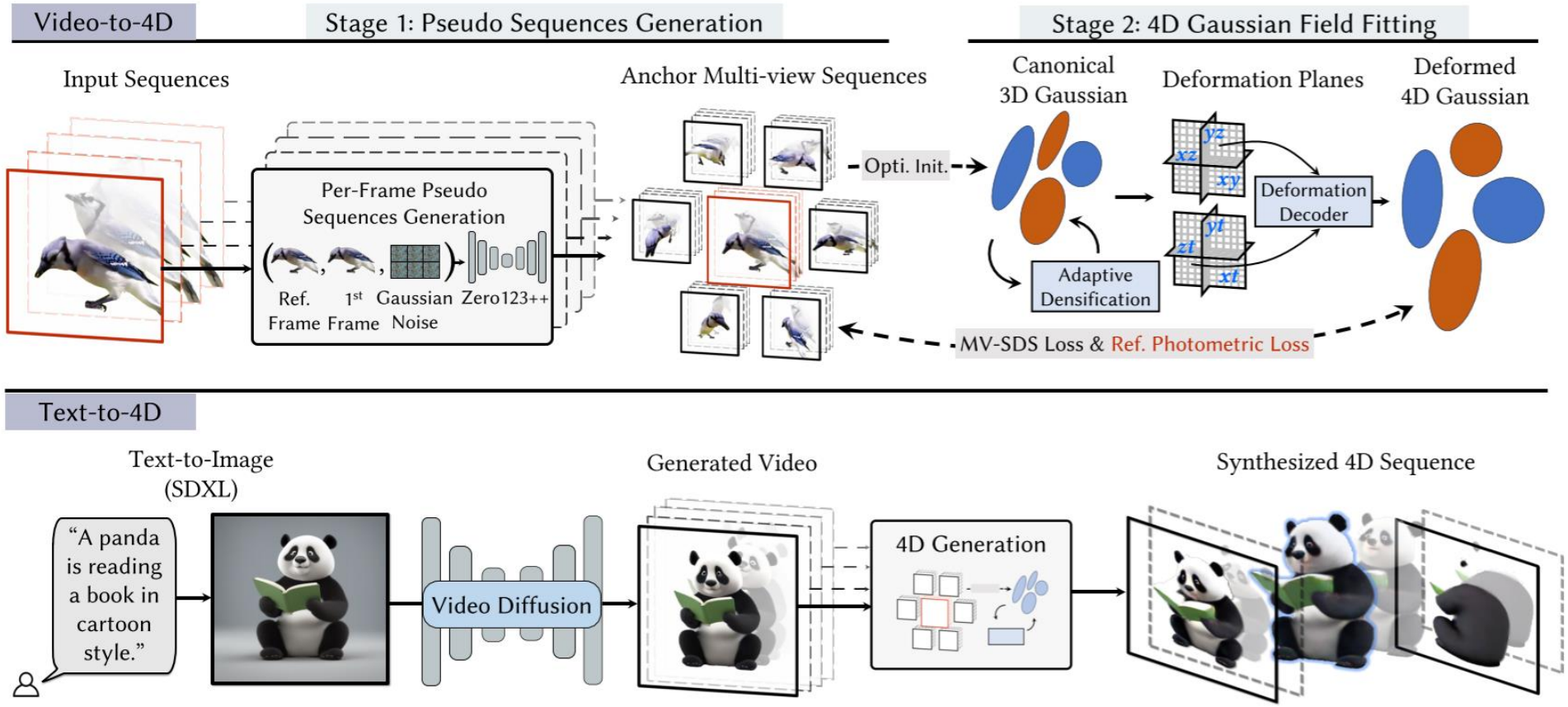


运动和动画

- **Directly Generate Dynamic 3D? Not to mention 4D generation....**
- [ECCV 2024] STAG4D: Spatial-Temporal Anchored Generative 4D Gaussians



运动和动画

- **Directly Generate Dynamic 3D? Not to mention 4D generation....**
- [ECCV 2024] STAG4D: Spatial-Temporal Anchored Generative 4D Gaussians

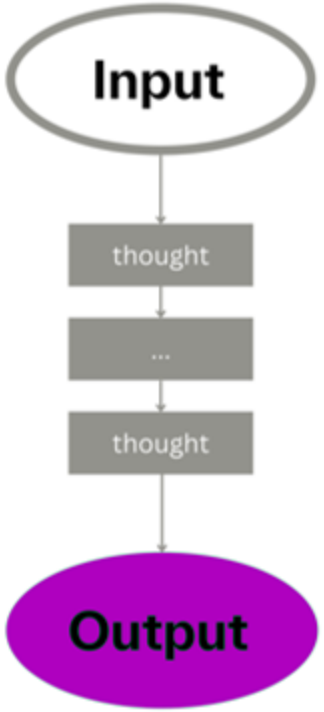
为什么难以建模三维物理世界?

- Reason #1: Latent space not fully semantic.
- Reason #2: Limited conditions; multi-modal information alignment is hard.

- **Appearance**
- **Geometry**
- **Motion & Dynamics**

控制条件多模态融合难

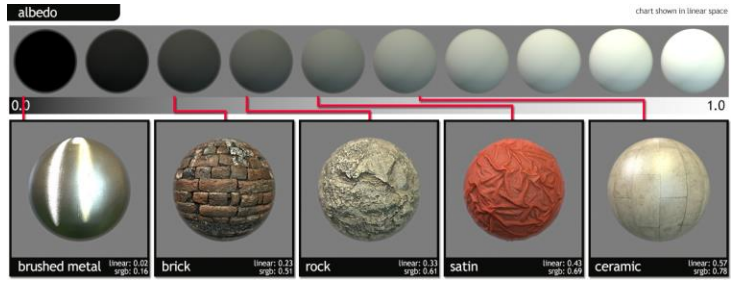
- 更好的3D物理控制条件！ 更好的3D物理条件对齐！



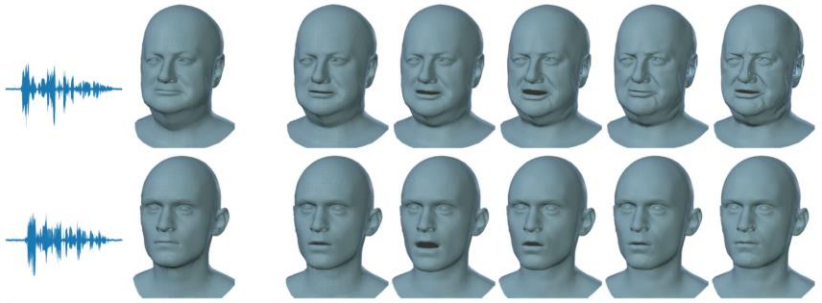
Video CoT

Geometry

Apperance & Lighting

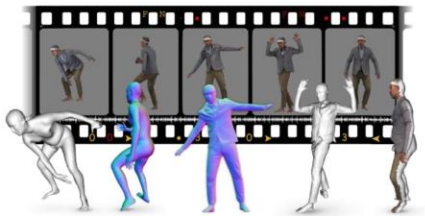


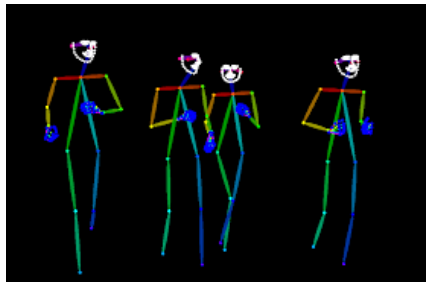
Motion & Animation

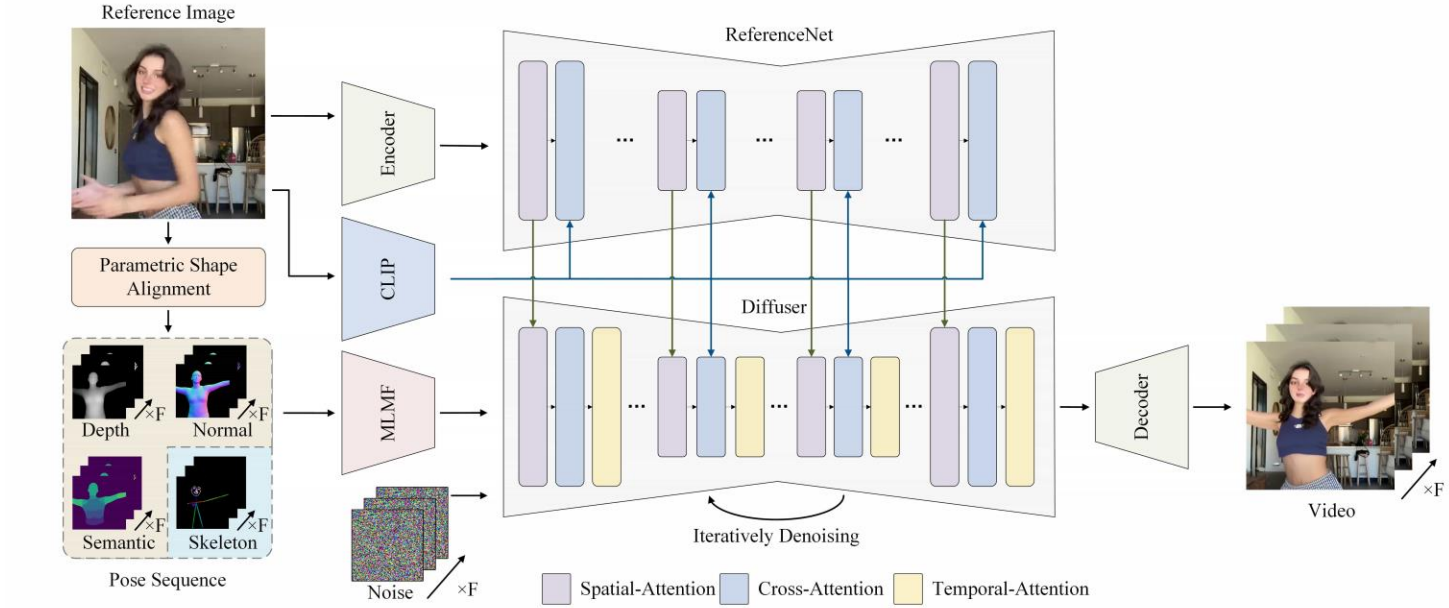


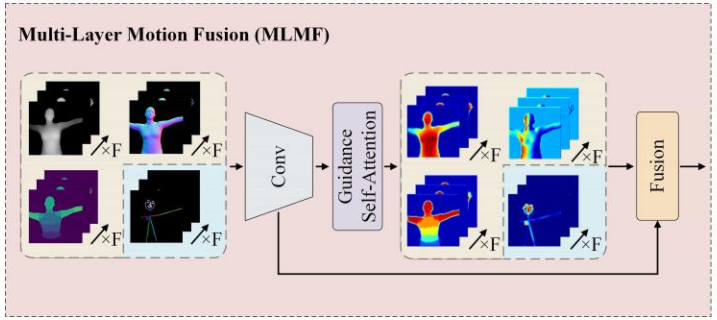
Champ：通过3D参数化控制实现数字人生成

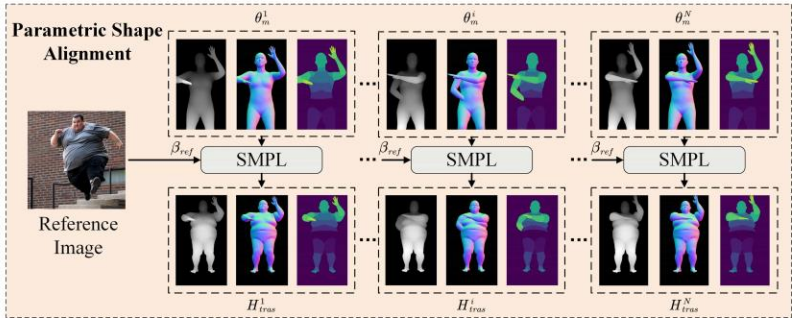
- [ECCV 2024] Champ: Controllable and Consistent Human Image Animation with 3D Parametric Guidance











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Champ: Controllable and Consistent Human Image Animation with 3D Parametric Guidance

fudan-generative-vision.github.io/cha...

video-generation human-animation image-animatioln

Readme
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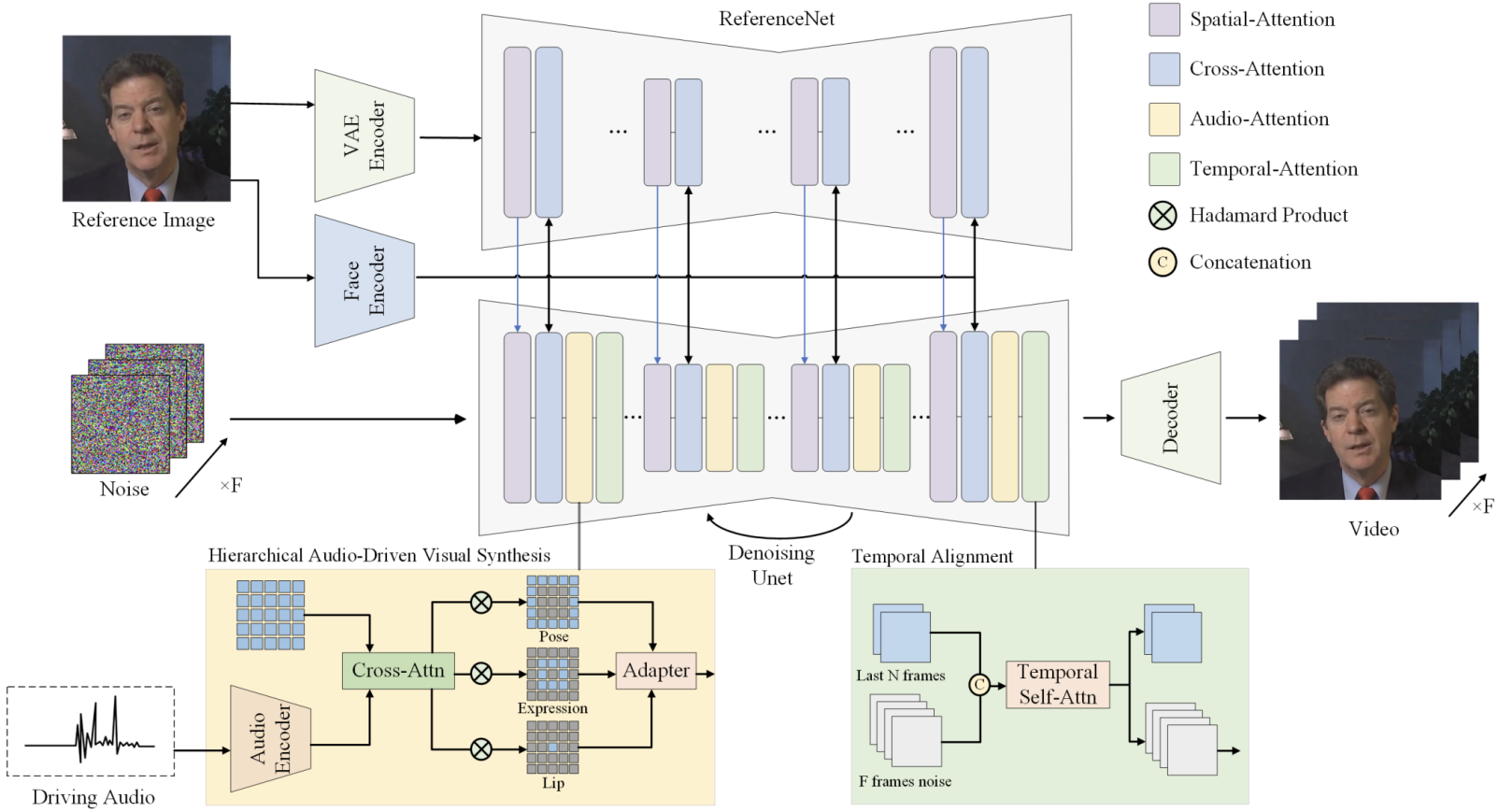
Activity
Custom properties
4.2k stars
216 watching
483 forks

Report repository

Hallo：通过参数化控制实现数字人脸生成

- Hallo: Hierarchical Audio-Driven Visual Synthesis for Portrait Image Animation



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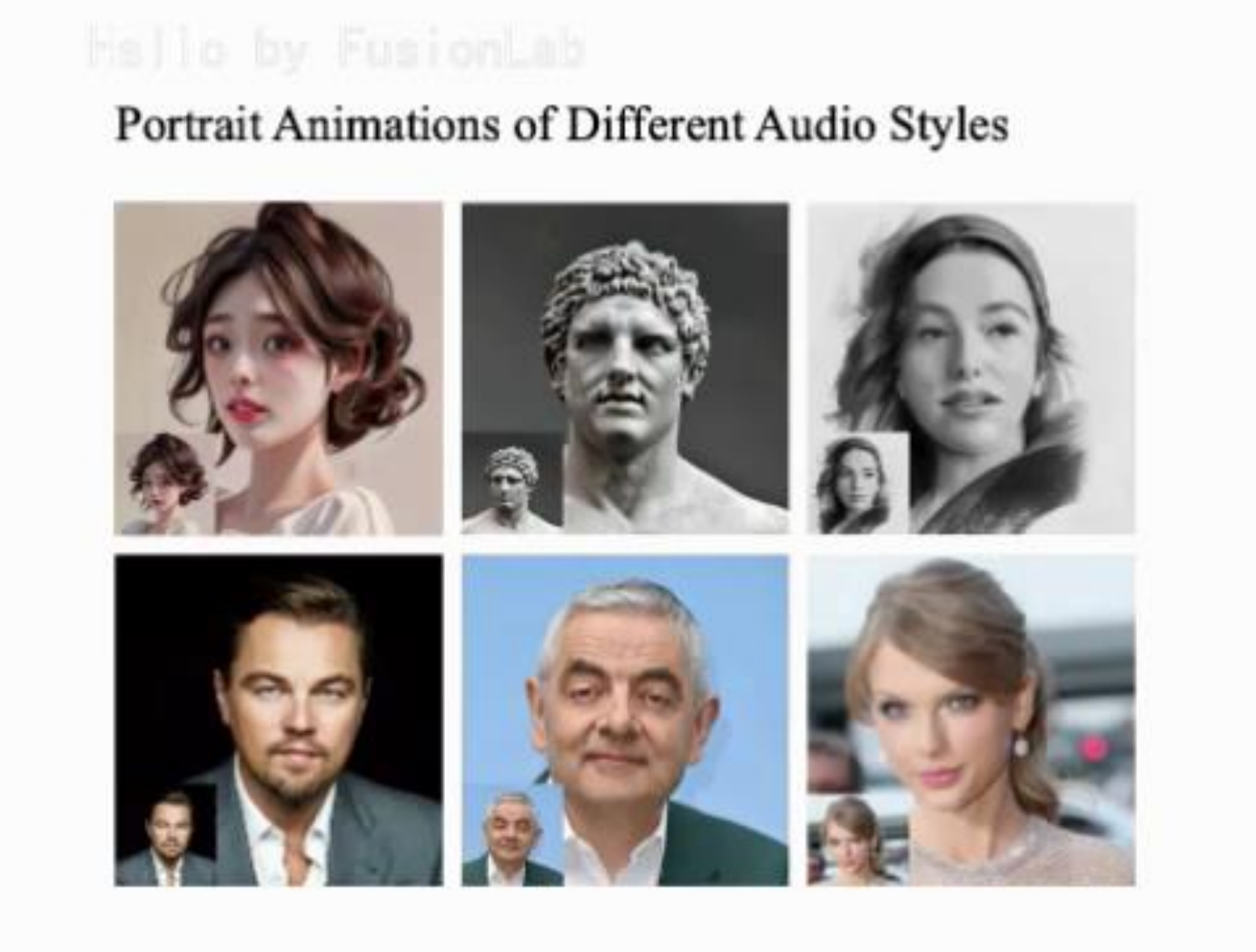

About

Hallo: Hierarchical Audio-Driven Visual Synthesis for Portrait Image Animation

fudan-generative-vision.github.io/hallo/

image-animation face-animation video-animation

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535 watching
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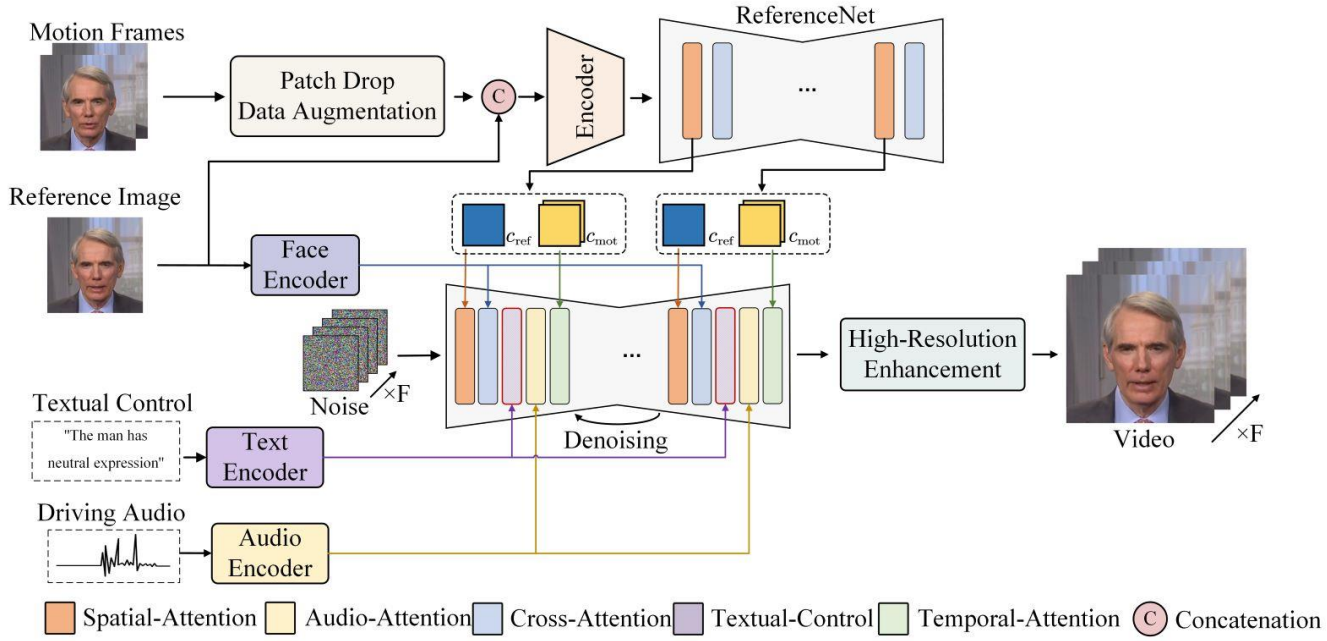
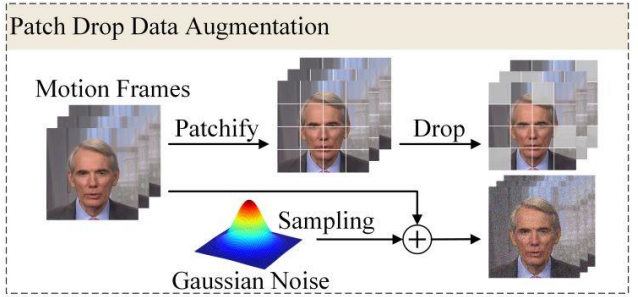
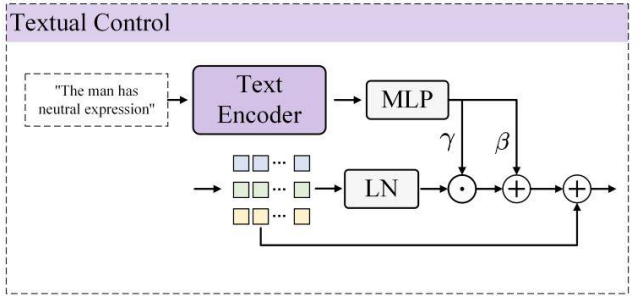
Report repository

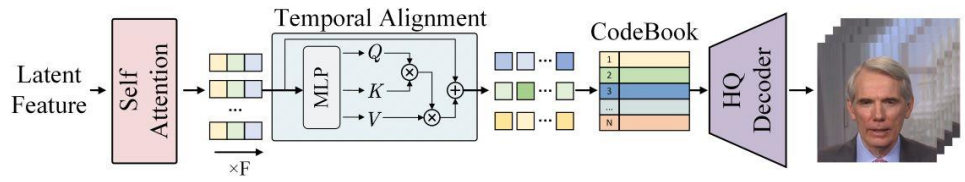
Hallo2：4K+1小时数字人

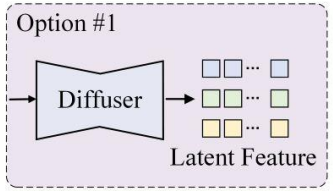
- [ICLR 2025] Hallo2: Long-Duration and High-Resolution Audio-driven Portrait Image Animation

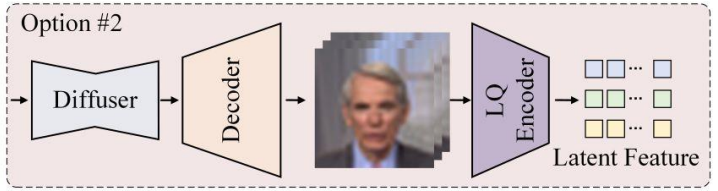












Hallo2：4K+1小时数字人

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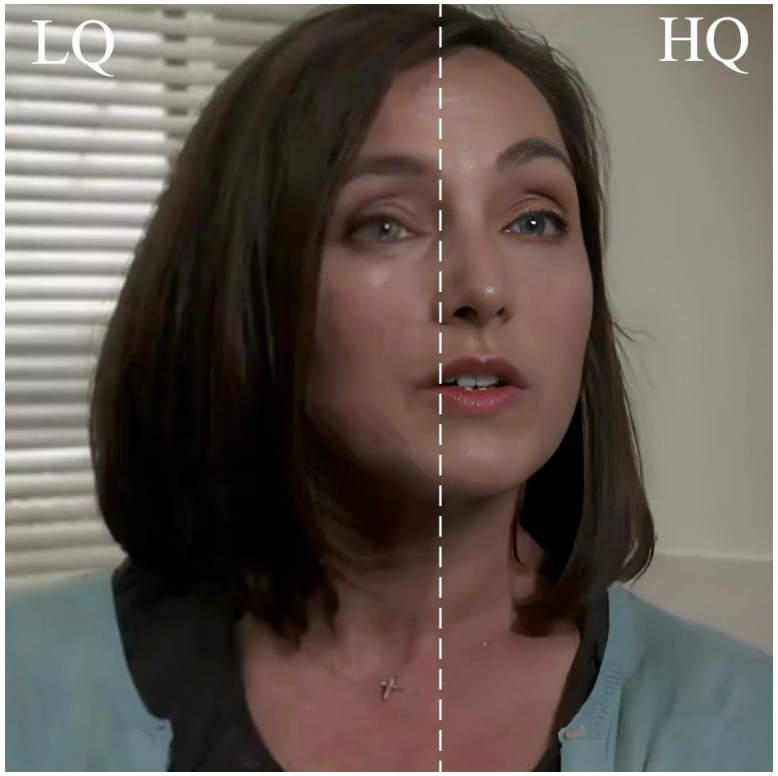
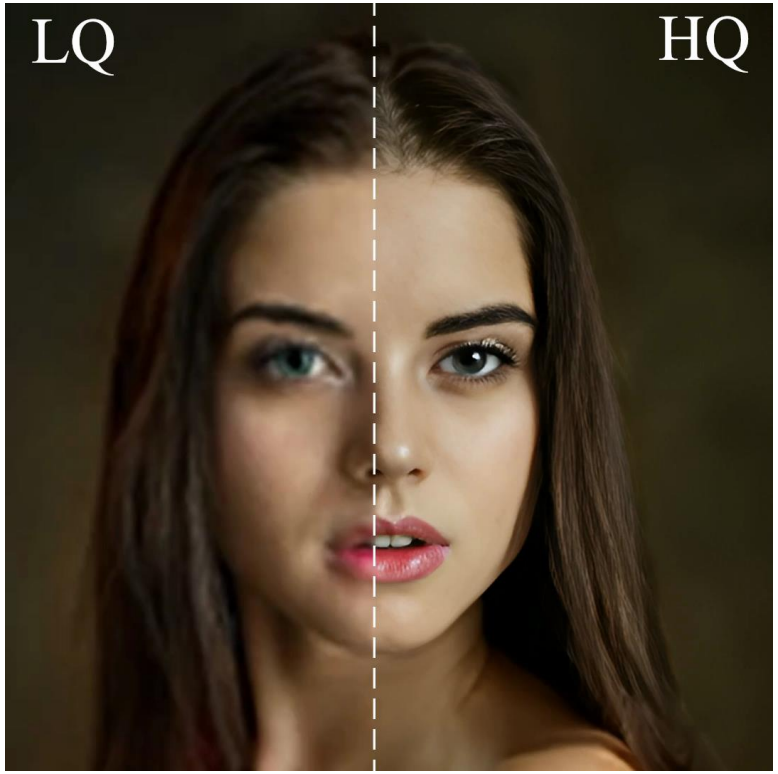
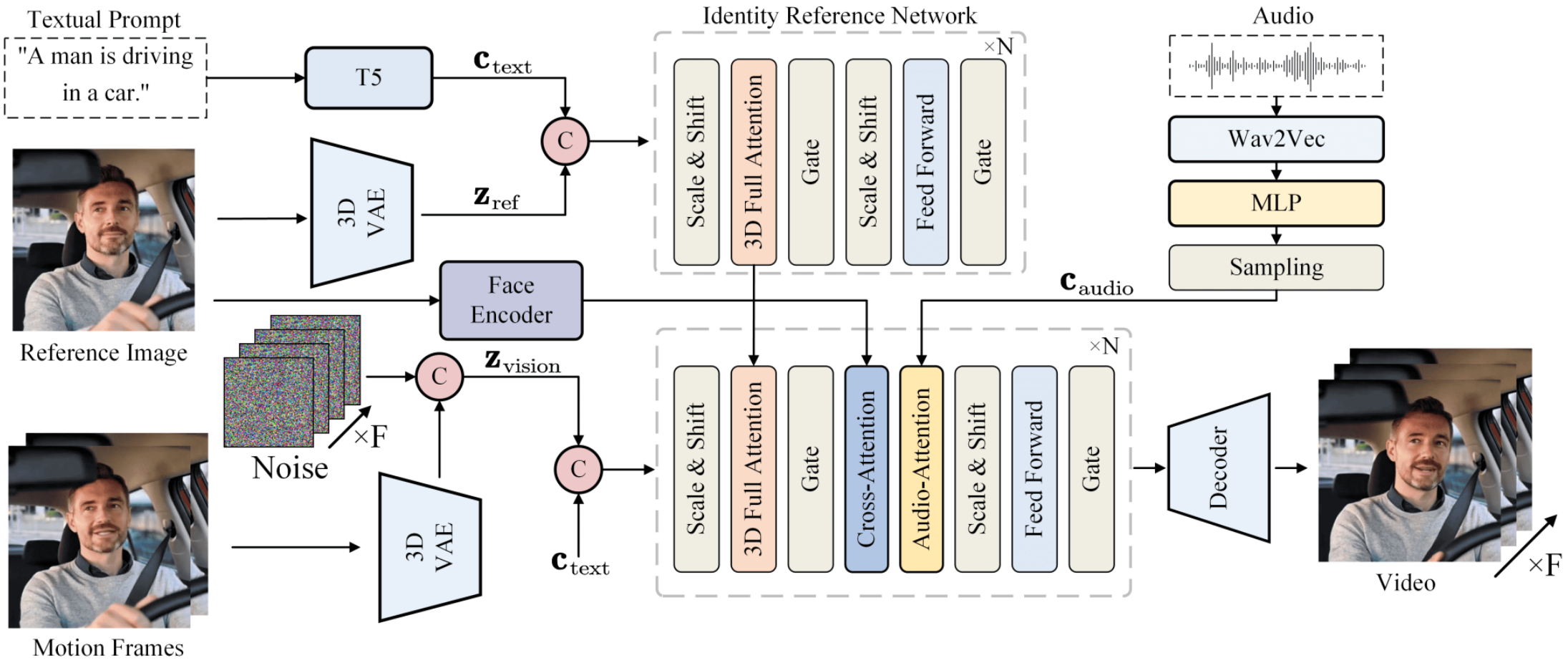




Hallo3：DiT架构+高真实和动态数字人

- [CVPR 2025] Hallo3: Highly Dynamic and Realistic Portrait Image Animation with Vision Diffusion Transformer

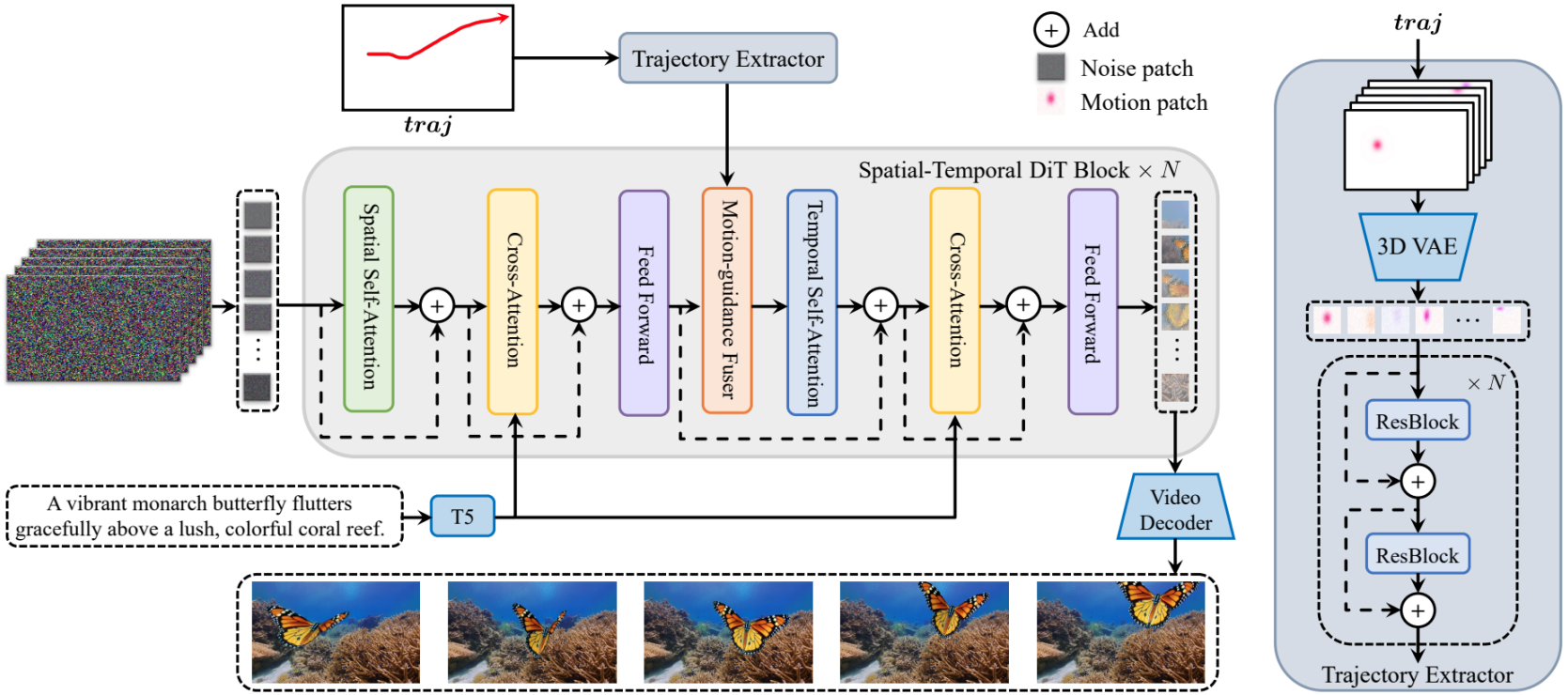


Hallo3：DiT架构+高真实和动态数字人

- [CVPR 2025] Hallo3: Highly Dynamic and Realistic Portrait Image Animation with Vision Diffusion Transformer

通用视频控制：参数化轨迹控制

- [CVPR 2025] Tora: Trajectory-oriented Diffusion Transformer for Video Generation

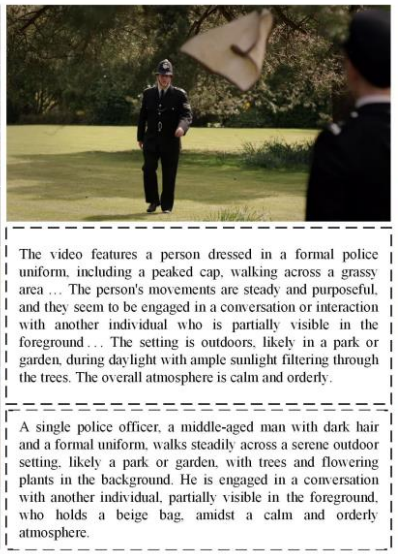


通用视频控制：参数化轨迹控制

- [CVPR 2025] Tora: Trajectory-oriented Diffusion Transformer for Video Generation

数据集: Open Human ViD

- [CVPR 2025] OpenHumanVid: A Large-Scale High-Quality Dataset for Enhancing Human-Centric Video Generation



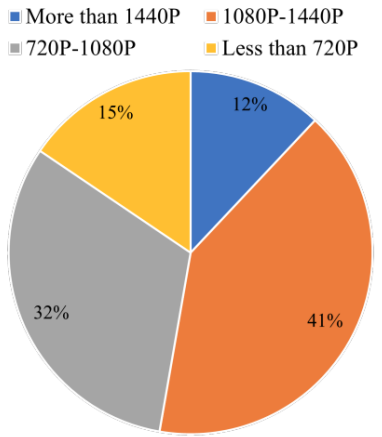
The video features a person dressed in a formal police uniform, including a peaked cap, walking across a grassy area … The person's movements are steady and purposeful, and they seem to be engaged in a conversation or interaction with another individual who is partially visible in the foreground … The setting is outdoors, likely in a park or garden, during daylight with ample sunlight filtering through the trees. The overall atmosphere is calm and orderly.

A single police officer, a middle-aged man with dark hair and a formal uniform, walks steadily across a serene outdoor setting, likely a park or garden, with trees and flowering plants in the background. He is engaged in a conversation with another individual, partially visible in the foreground, who holds a beige bag, amidst a calm and orderly atmosphere.

The video features two individuals in a hist orical setting, likely a period drama. The first person … . The second person, on the right, is a woman with blonde, styled hair, wearing … ,The background is richly decorated, with …

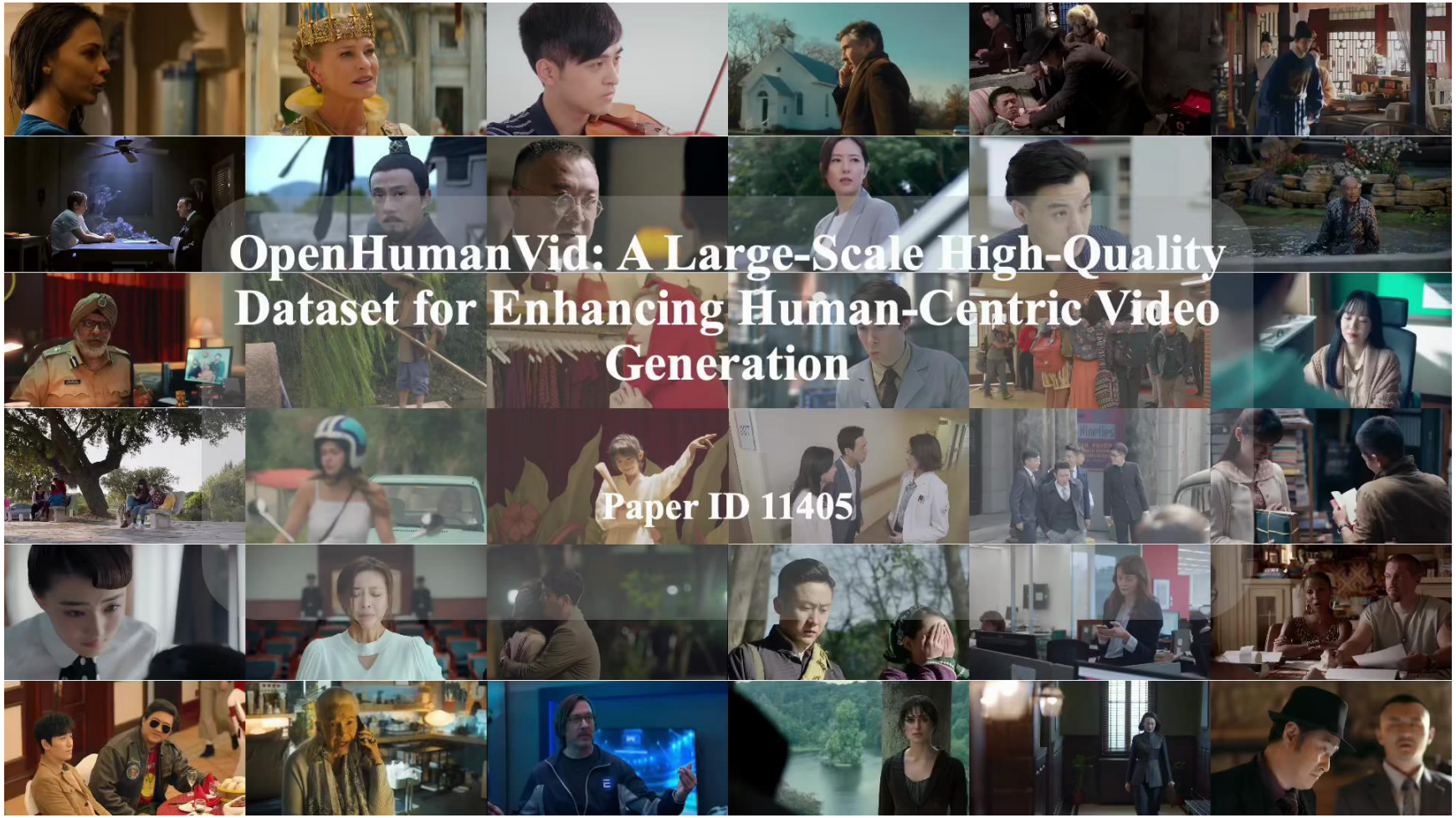
Audio

Dataset name	Year	Domain	# Videos	Total length (hours)	Caption type	Motion type	Resolution
WebVid-10M [2]	2021	Open	10M	52K	Short	Text	360P
Panda-70M [14]	2024	Open	70M	167K	Short	Text	720P
OpenVid-1M [36]	2024	Open	1M	2K	Long	Text	512P
Koala-36M [51]	2024	Open	36M	172K	Long	Text	720P
UCF-101 [46]	2012	Human action	13.3K	26.7	Short	Text	240P
NTU RGB+D [45]	2014	Human action	114K	37	-	3D pose, depth	1080P
MSP-Avatar [43]	2015	Human action	74	3	-	Speech audio, landmark, pose	1080P
ActivityNet [7]	2017	Human action	100K	849	Short	Text	-
TikTok-v4 [11]	2023	Human dance	350	1	-	Skeleton	-
Ours	2024	Human	52.3M	70.6K	Short, long, structured	Text, skeleton pose, speech audio	720P
Ours (filtered)	2024	Human	13.2M	16.7K	Short, long, structured	Text, skeleton pose, speech audio	720P



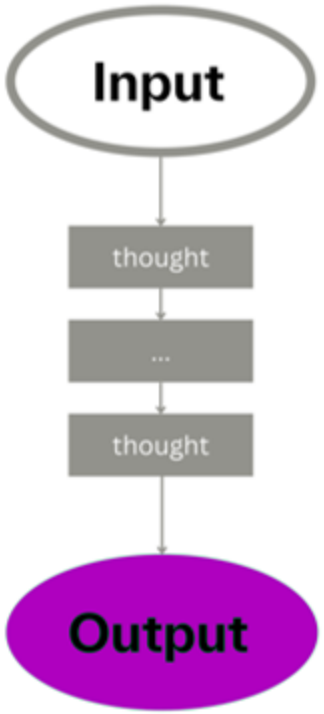
数据集: Open Human ViD

- [CVPR 2025] OpenHumanVid: A Large-Scale High-Quality Dataset for Enhancing Human-Centric Video Generation



未来工作:

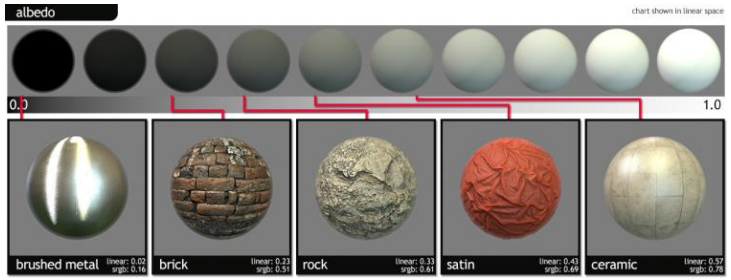
- 更多的3D物理控制条件！ 更好的3D物理条件对齐！



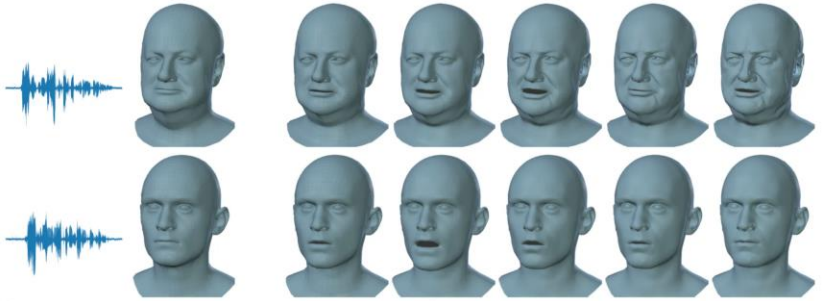
Video CoT

Geometry

Apperance & Lighting



Motion & Animation



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