

# 我在VAST做三维内容生成研究的七个体会

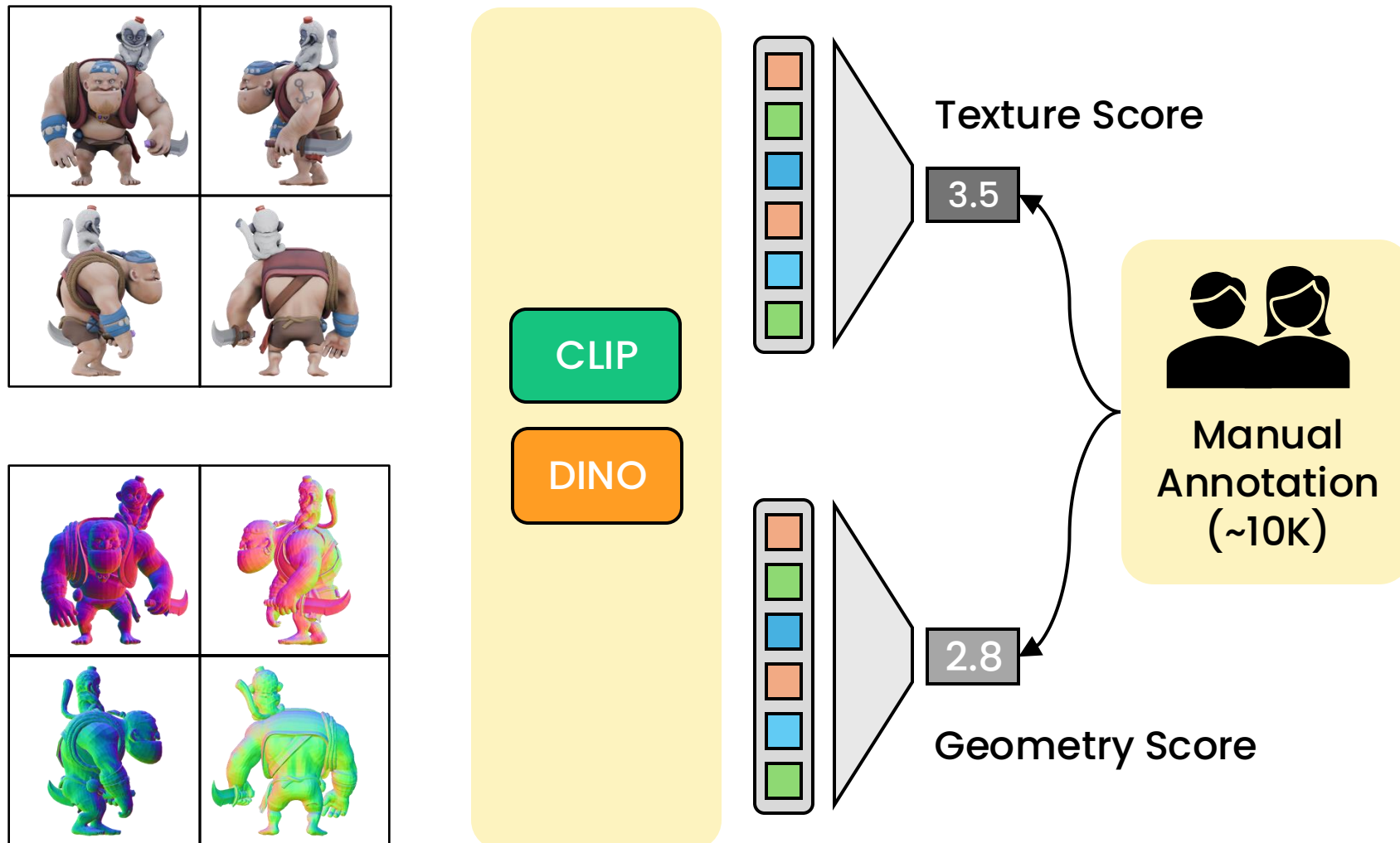
## 7 Takeaways from 3D Generation Research at VAST

郭元晨

China 3DV 2025

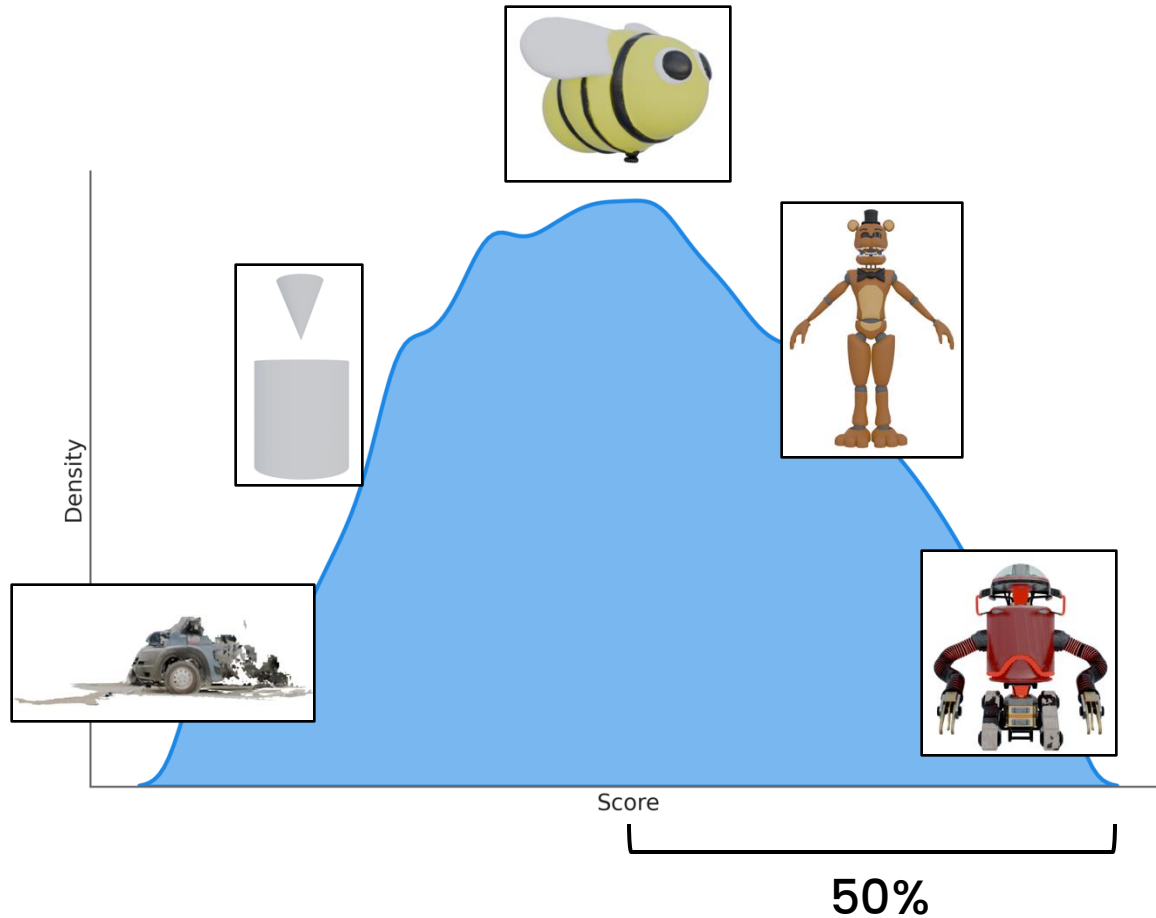
**模型未动，数据先行**  
**3D Data is The Moat**

# Data Scoring

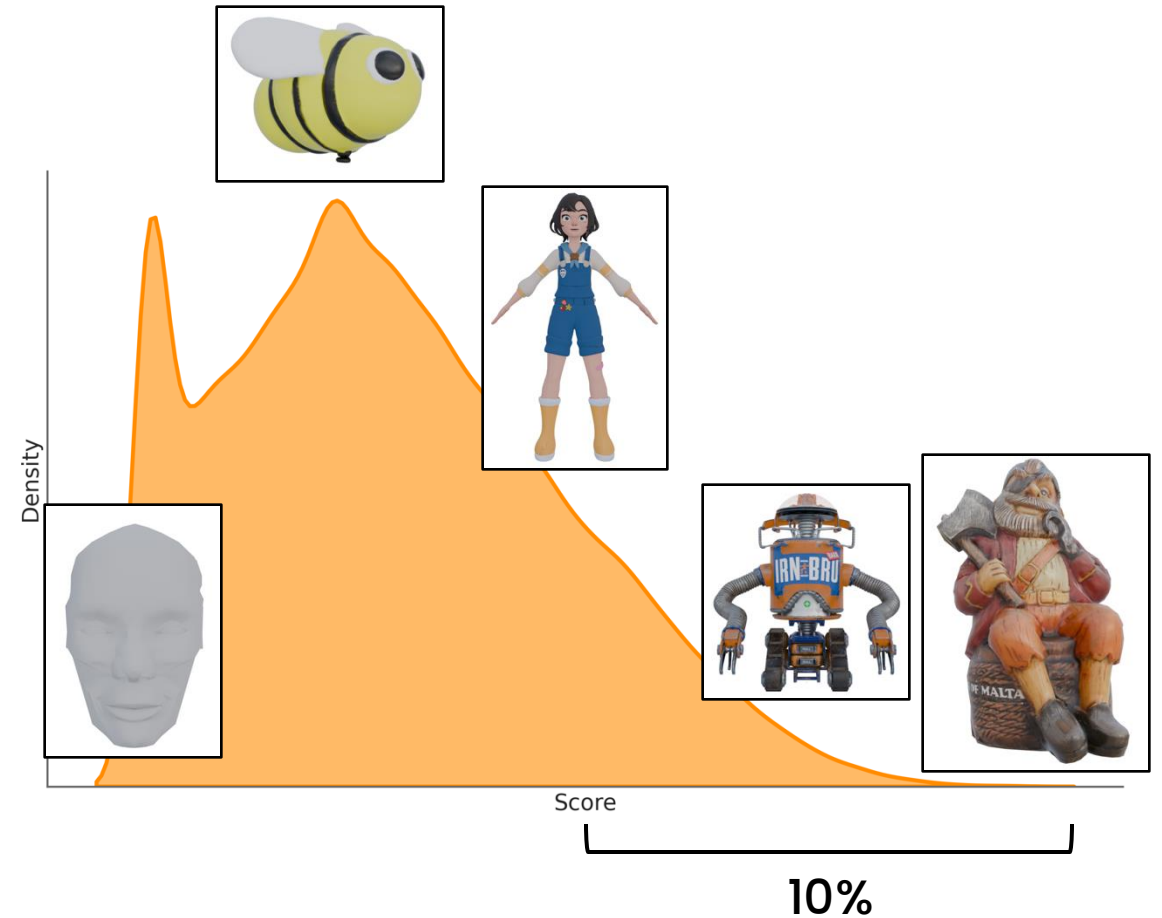


# Quality Score Distribution on Objaverse Dataset

## Geometry Quality



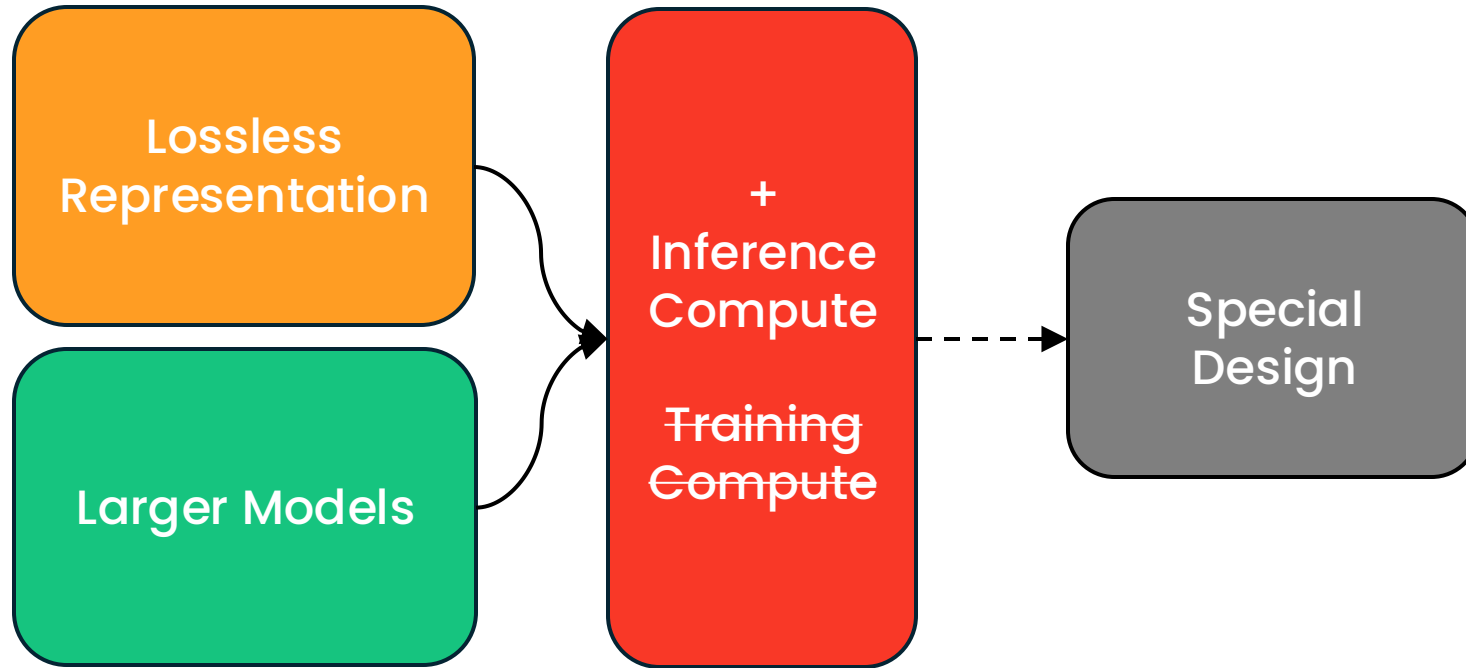
## Texture Quality



提升算力，偷懒但有效

**Dare to Scale Up**

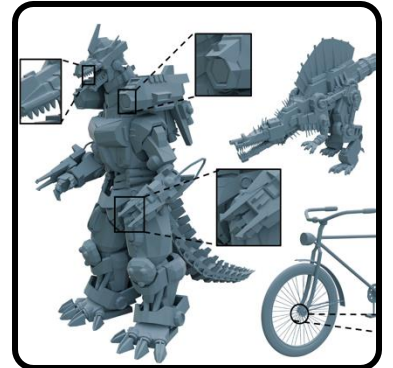
# What are we scaling?



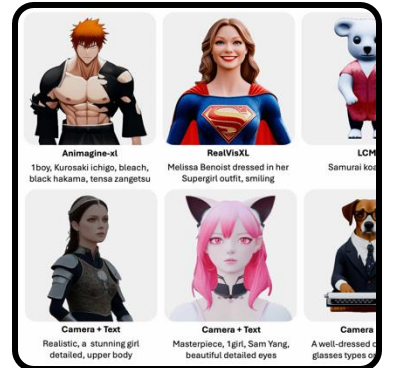
TripoSG



TripoSF



MV-Adapter



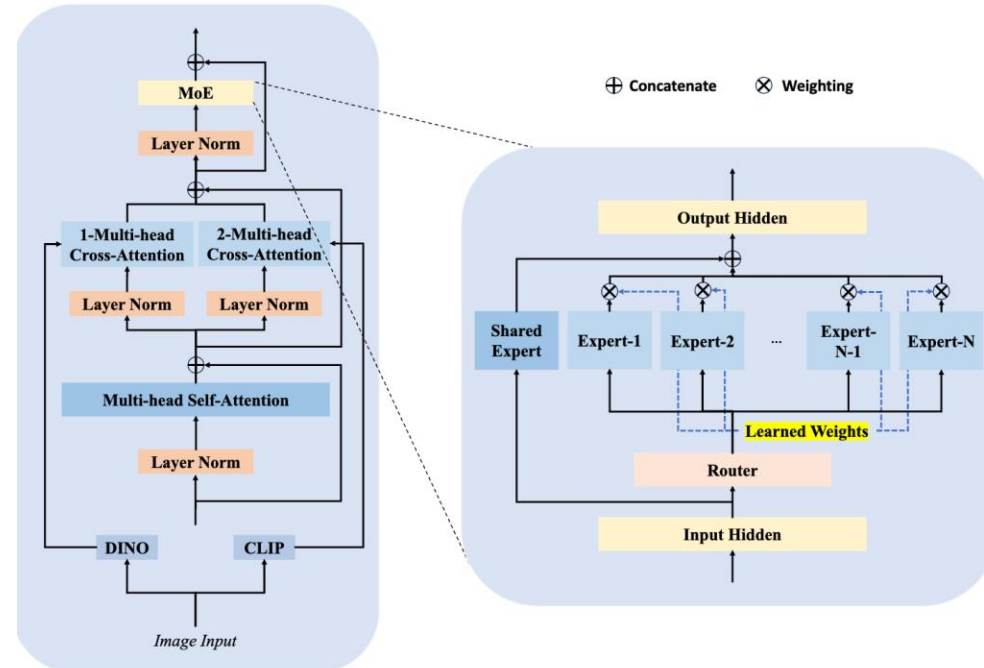
# Our Scaling Practices: TripoSG



TripoSG is an image-conditioned 3D shape diffusion model based on 3DShape2VecSet.

We scale: VAE input point number, VecSet token number, network capacity

Design: use more advanced architecture



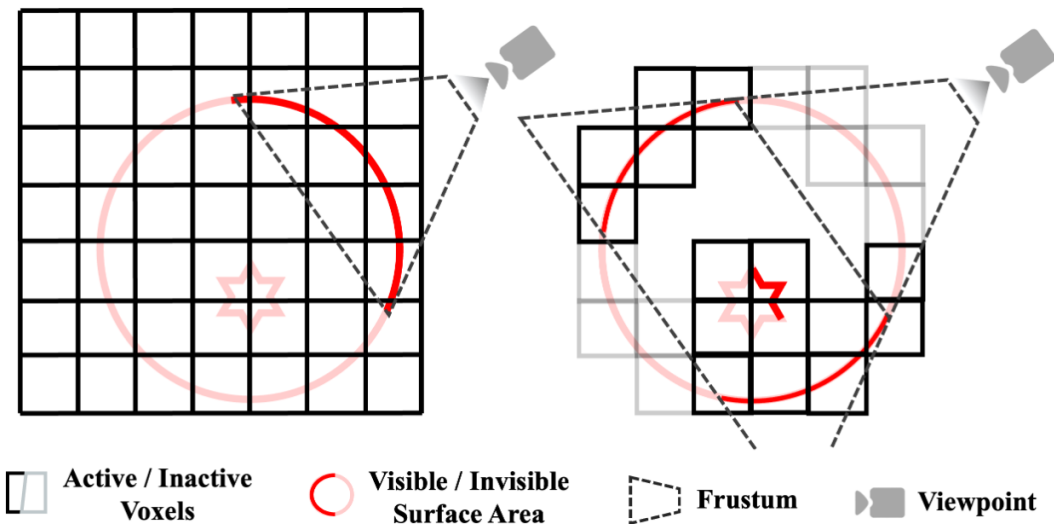
# Our Scaling Practices: TripoSF



TripoSF is a sparse-structured shape representation that reconstructs meshes at  $1024^3$ .

We scale: isosurface resolution

Design: frustum-aware sectional voxel training

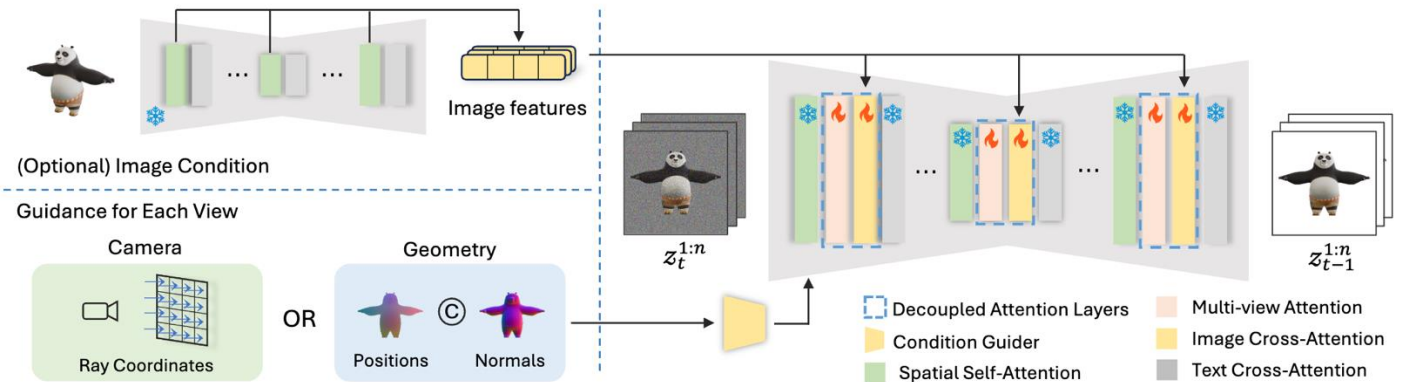


# Our Scaling Practices: MV-Adapter



We scale: image resolution; base network capacity

Design: non-invasive adapters



MV-Adapter is a high-resolution multi-view generation model based on SDXL.

基座模型乐趣多

**Versatile Models Win**

# TripoSG Derivatives

组合物体生成 MIDI



单物体拆件生成 HoloPart

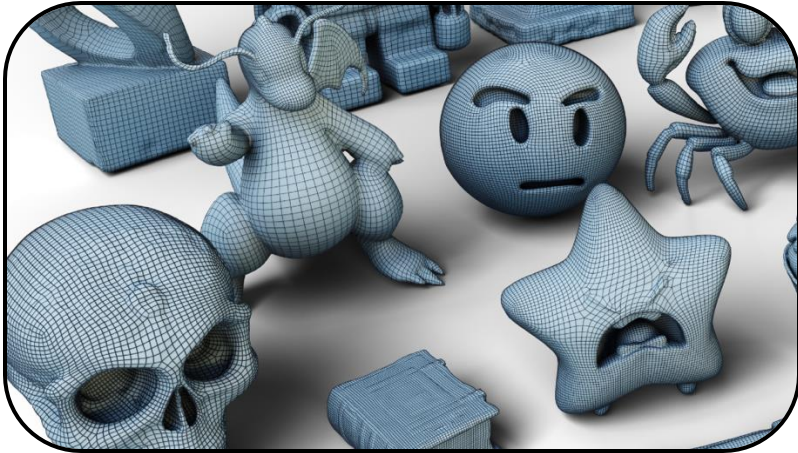


**原生三维数据还有更多可能**

**You Haven't Seen All of Native 3D Yet**

# Potential in Different Perspectives

布线 NeuFrameQ



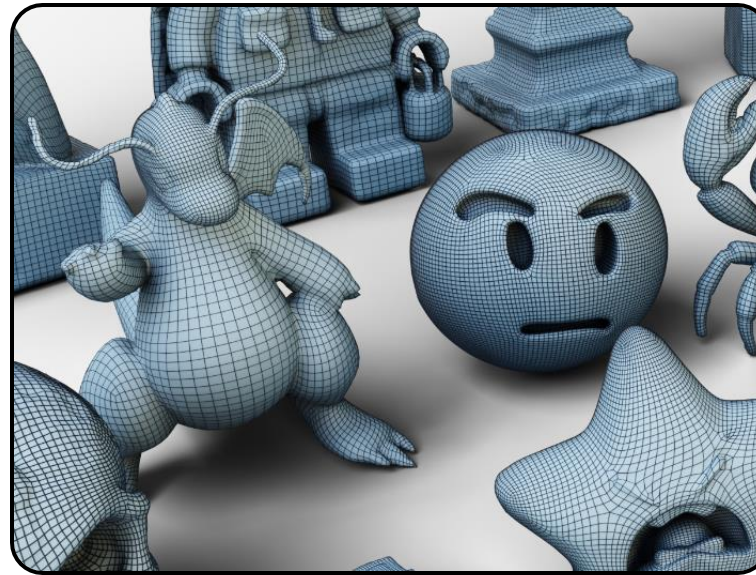
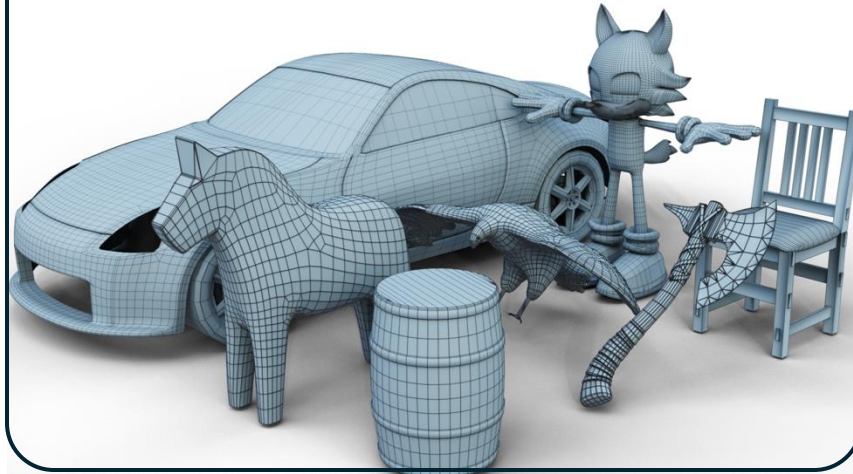
骨骼绑定 UniRig



纹理 TEXGen

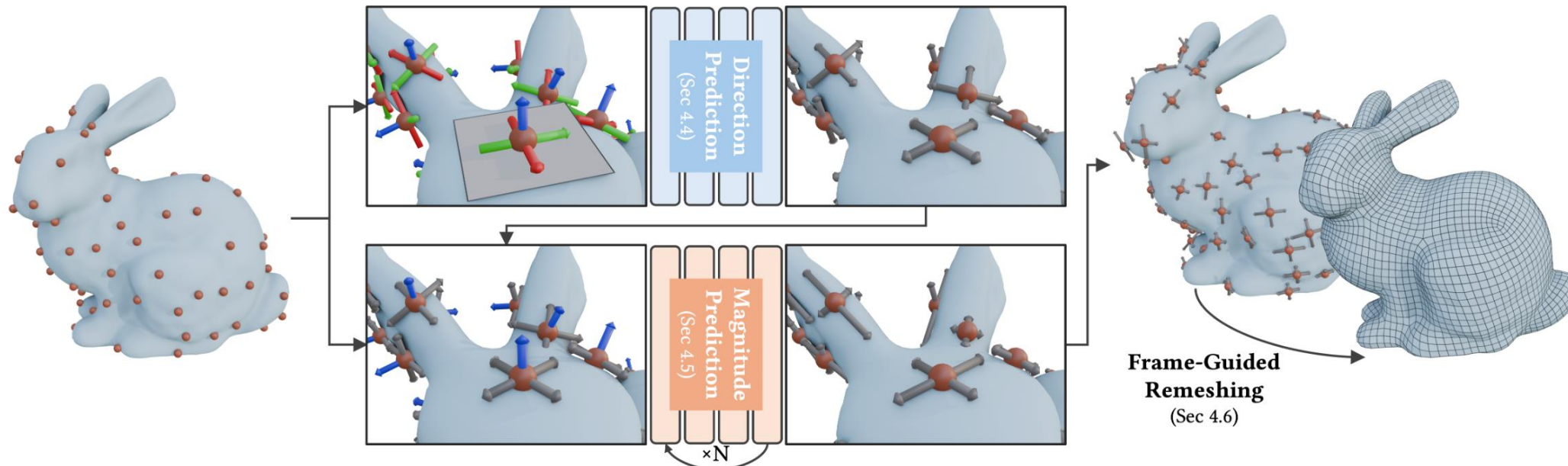


## Quad Mesh Dataset



# NeuFrameQ Quad Remeshing

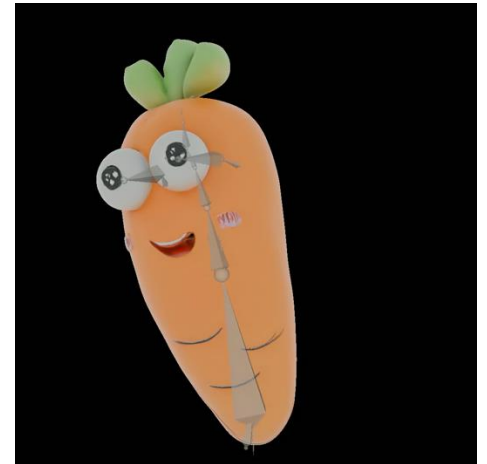
## Frame Field Modeling: Direction Prediction + Magnitude Diffusion



# Rig-XL Dataset



# UniRig Rigging & Skinning



Uni

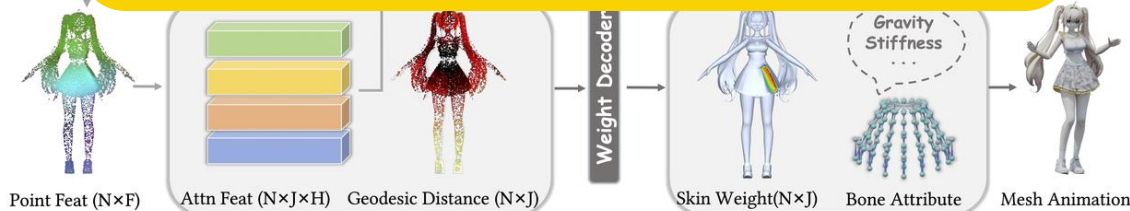
(a)

(b)

Input

ed Tree

Point-wis



Point Feat ( $N \times F$ )

Attn Feat ( $N \times J \times H$ )

Geodesic Distance ( $N \times J$ )

Weight Decoder

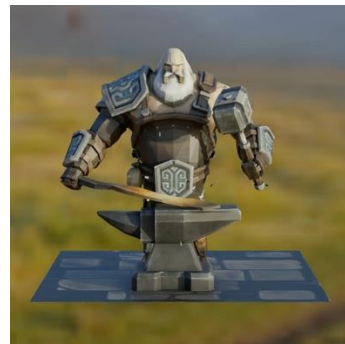
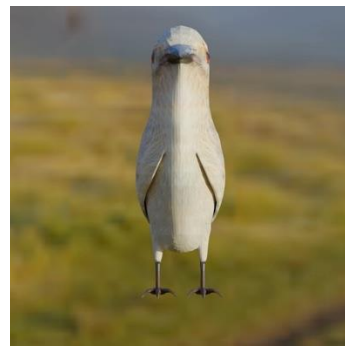
Skin Weight ( $N \times J$ )

Bone Attribute

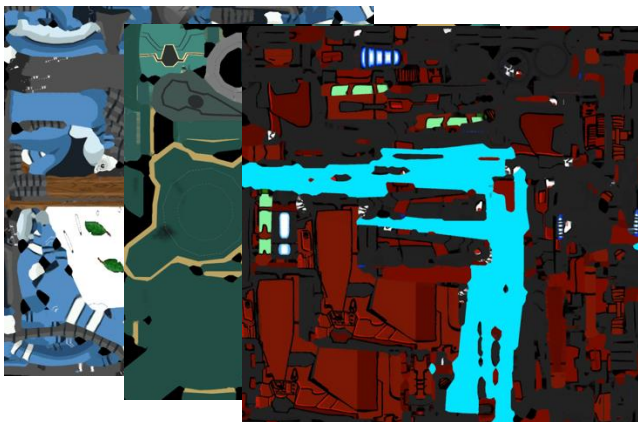
Mesh Animation

# TEXGen Texturing

SIGGRAPH Asia 2024  
Best Paper Honorable Mention

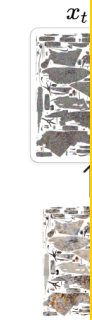


## UV Dataset



## Native Design for UV-Space Modeling

(a) Overview



(b) Structure



$J_{in}$

$J_{in}$

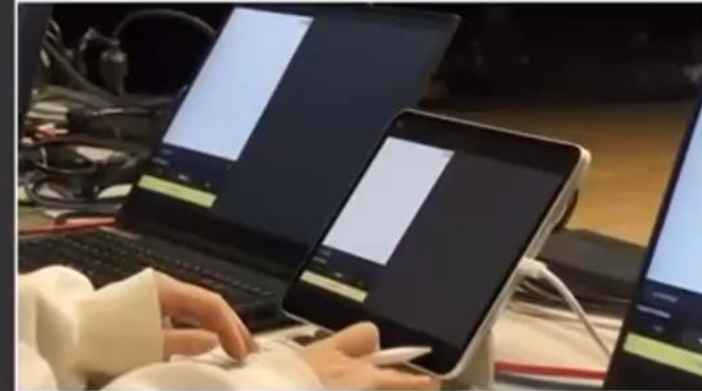
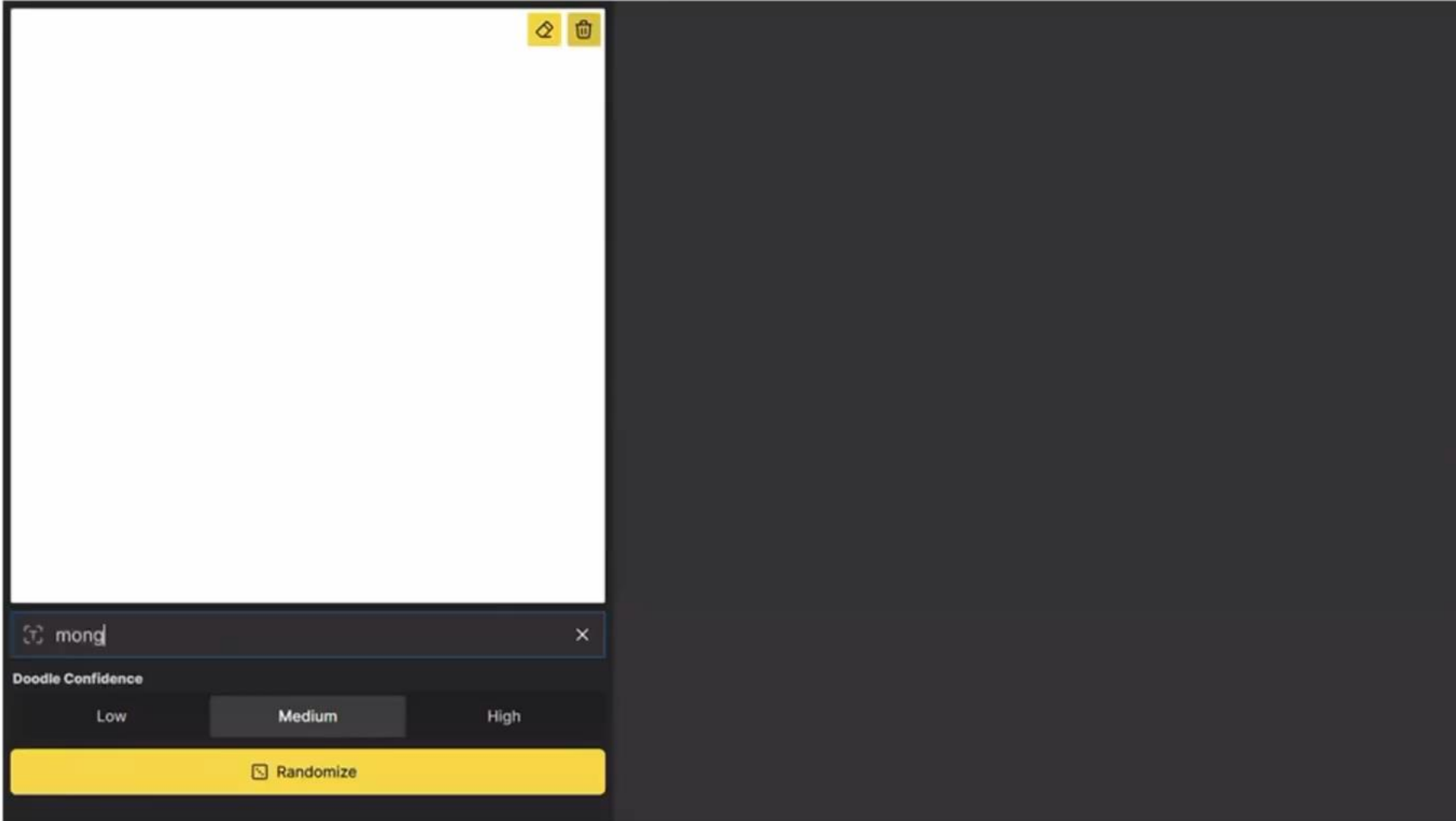
$J_{in}$

shift  
le

on  
dding

**三维生成需要创造力**  
**Embrace Creativity**

# TripoDoodle: Interactive Sketch Modeling



VAST

# VAST AI

## 2025开源月

MAR.  
APR.

3D版DeepSeek打响开源月！  
刷新3D开闭源模型SOTA，  
中国团队强势引领全球技术进展。

	日	一	二	三	四	五	六
MAR	9	10	11	12	13 <sup>开</sup>	14	15
	初十	十一	十二	十三	十四	十五	十六
MAR	23	24	25	26	27	28 <sup>开</sup>	29
	廿四	廿五	廿六	廿七	廿八	廿九	三月
APR	6	7	8	9	10	11 <sup>开</sup>	12
	初九	初十	十一	十二	十三	十四	十五
APR	13	14	15	16	17	18 <sup>开</sup>	19
	十六	十七	十八	十九	二十	廿一	廿二

开源时间 3.13 3.28 4.11 4.18

- 第一周：（前沿突破）MIDI、MV-Adapter 单张图像端到端生成三维组合场景
- 第二周：（高光组合）TripoSG、TripoSF 最火开源模型TripoSR强势升级
- 第三周：（专业能力）三维部件补全模型、通用三维模型绑定生成模型
- 第四周：（创新探索）三维几何精细化模型、交互式草图生三维模型

## 开放共享，驱动创新 Sharing Drives Innovation

TripoSG



TripoSF



NEW

UniRig



NEW

HoloPart



# 7 Takeaways

**3D Data is The Moat**

**Dare to Scale Up**

**Versatile Models Win**

**You Haven't Seen All of Native 3D Yet**

**Embrace Creativity**

**Sharing Drives Innovation**

模型未动，数据先行

提升算力，偷懒但有效

基座模型乐趣多

原生三维数据还有更多可能

三维生成需要创造力

开放共享，驱动创新

# 7 Takeaways

**3D Data is The Moat**

**Dare to Scale Up**

**Versatile Models Win**

**You Haven't Seen All of Native 3D Yet**

**Embrace Creativity**

**Sharing Drives Innovation**

模型未动，数据先行

提升算力，偷懒但有效

基座模型乐趣多

原生三维数据还有更多可能

三维生成需要创造力

开放共享，驱动创新

**3DV YES**

# VAST



探索三维生成的无限可能