



SIMON FRASER
UNIVERSITY



Adobe

GenVDM: Generating Vector Displacement Maps From a Single Image

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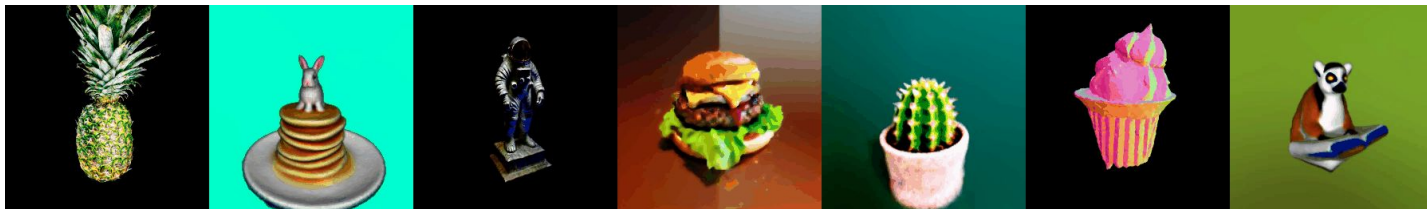
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Zhiqin Chen³

¹The University of Texas at Austin

²Simon Fraser University

³Adobe Research



ProlificDreamer

DreamFusion

Magic3D

SJC

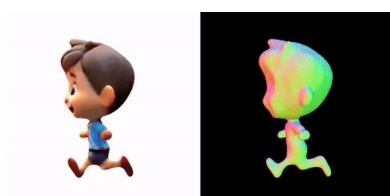
LatentNeRF

Fantasia3D

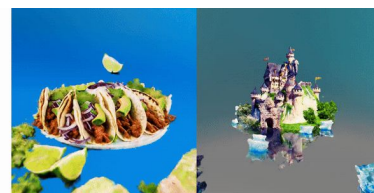
TextMesh



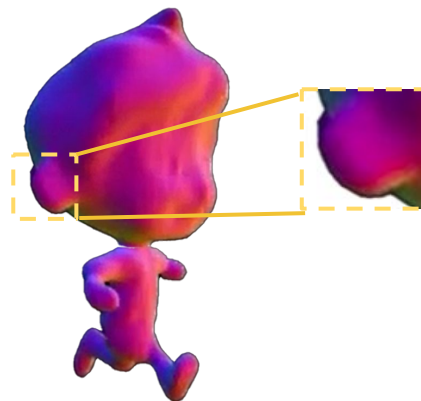
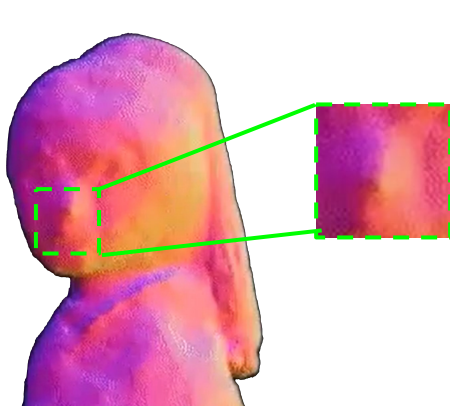
Zero-1-to-3

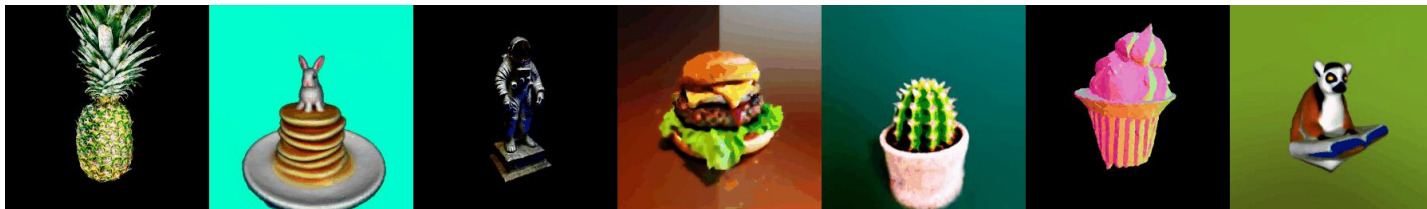


Magic123



HiFA





ProlificDreamer

DreamFusion

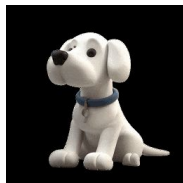
Magic3D

SJC

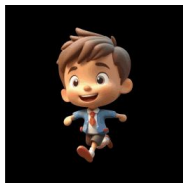
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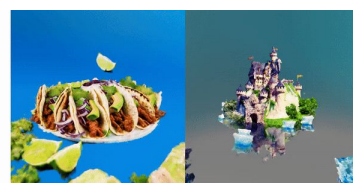
TextMesh



Zero-1-to-3



Magic123

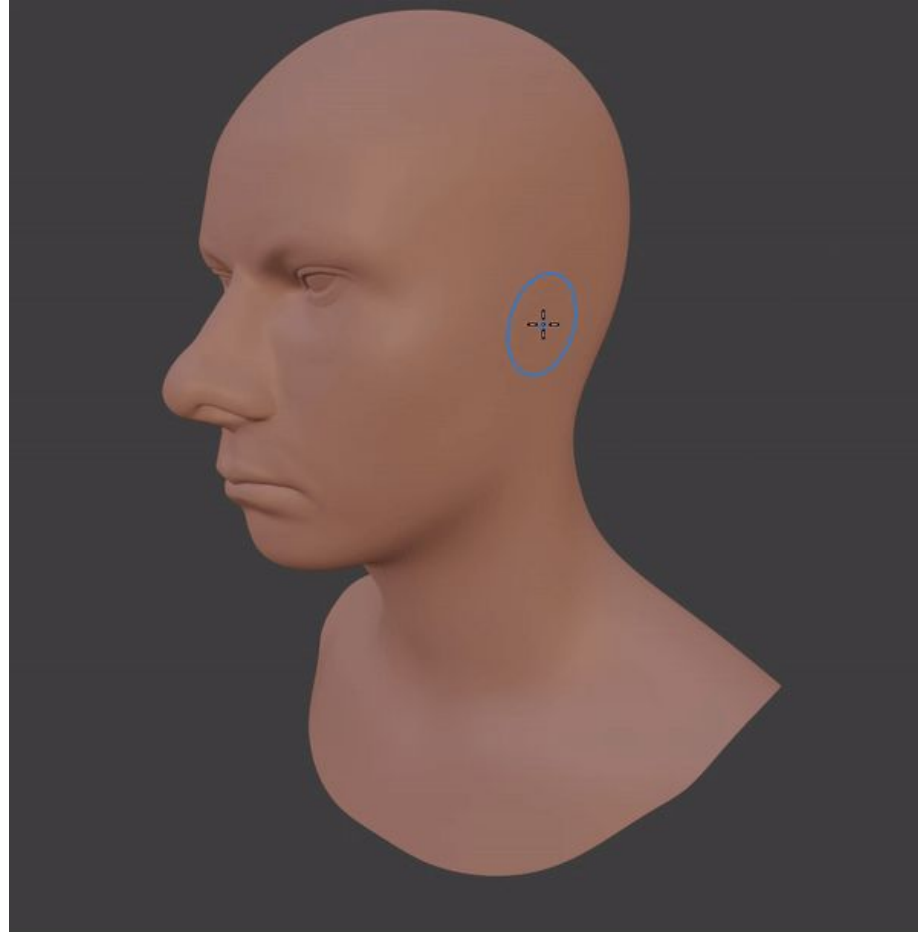


HiFA



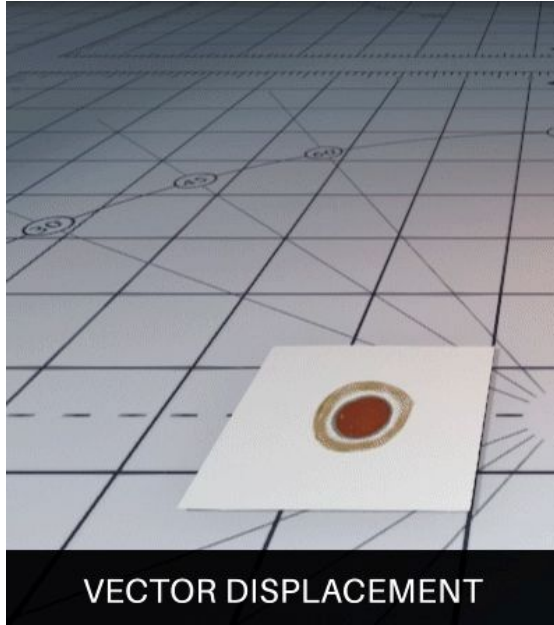
3D Generative Model





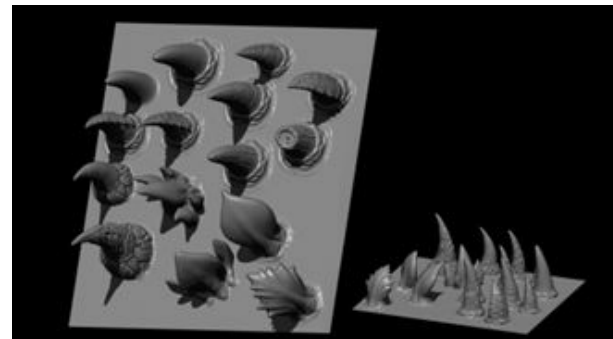
What is a vector displacement map?

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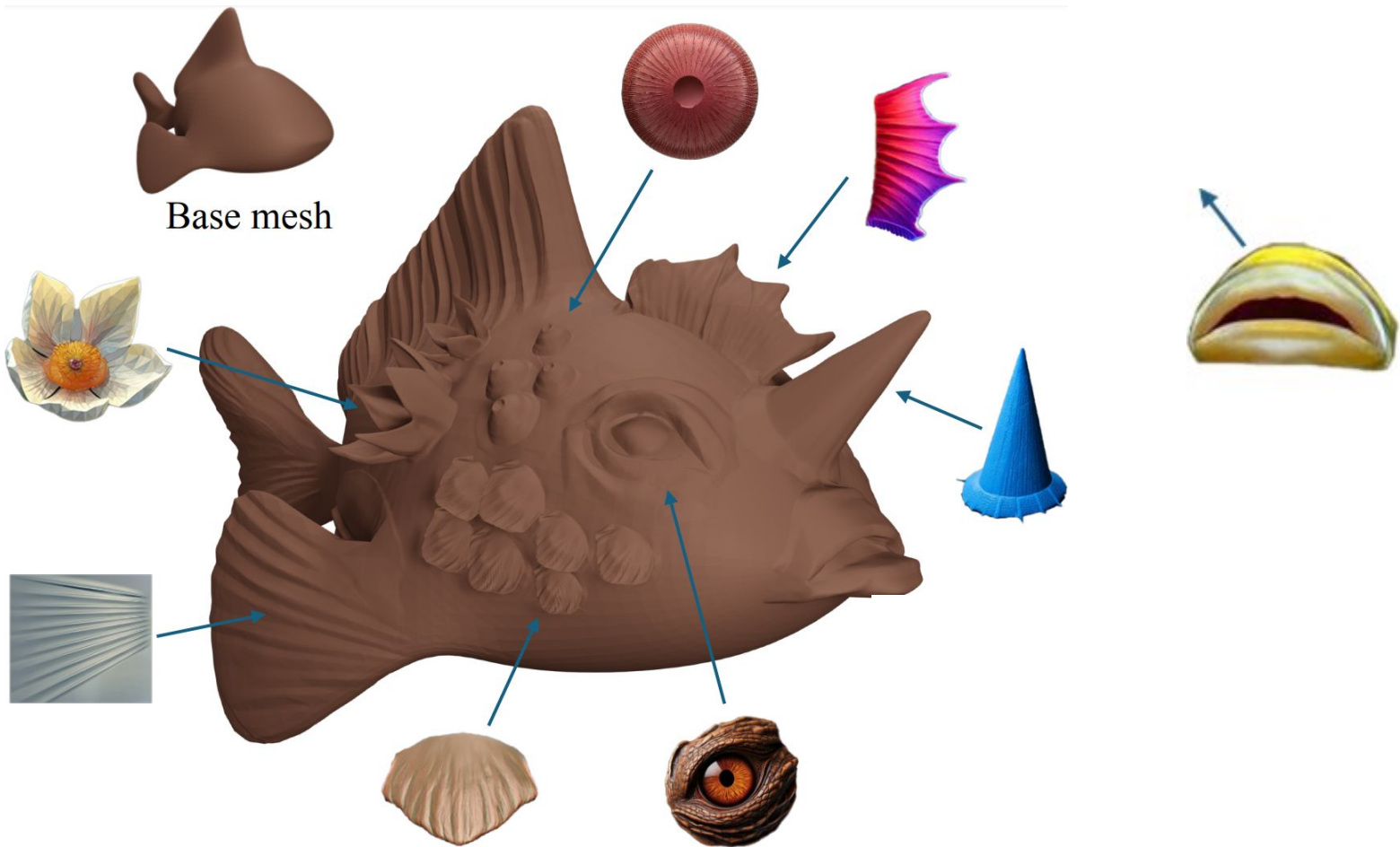


What is a vector displacement map?

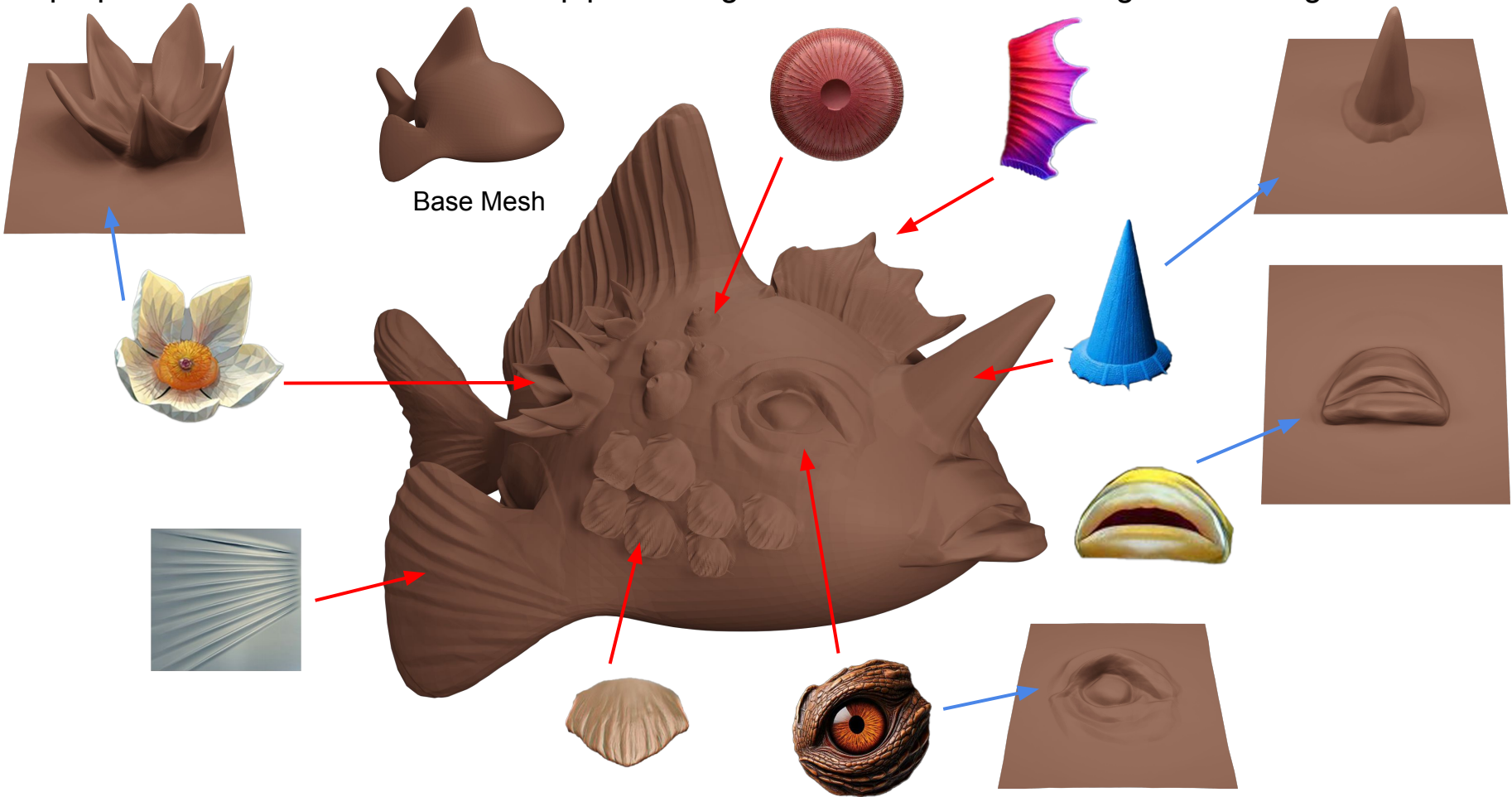
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Can we generate VDMs from single image ?

We propose Gen VDM: the first neural pipeline to generate a VDM from a single RGB image



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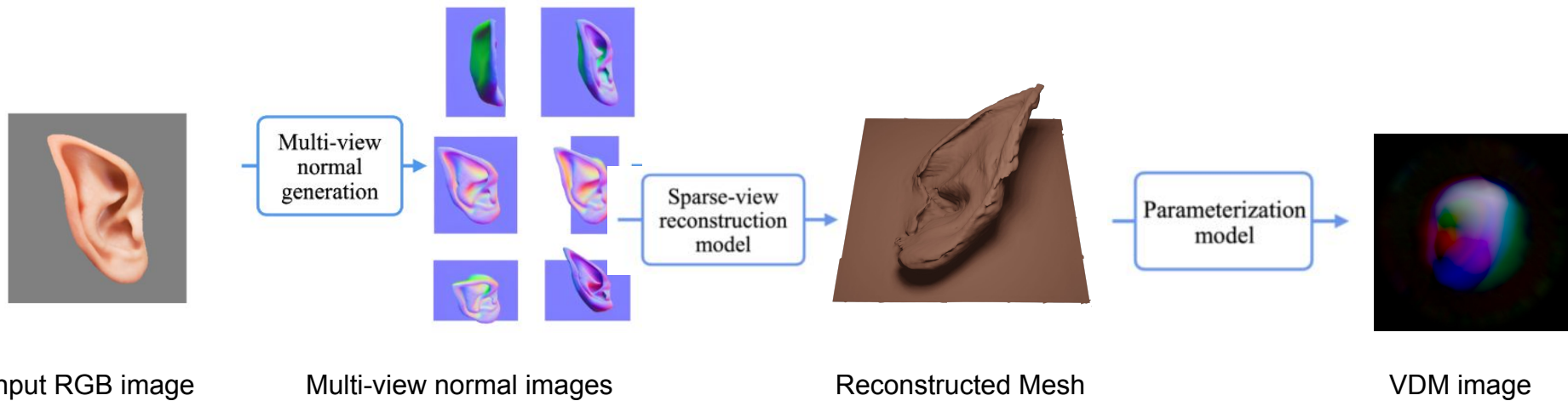


Reserved this slide for Video on applying VDM to make
teaser

Two Main Challenge

- Existing generative models does not generate shapes with a parametric 2D domain to be naturally combined with base mesh.

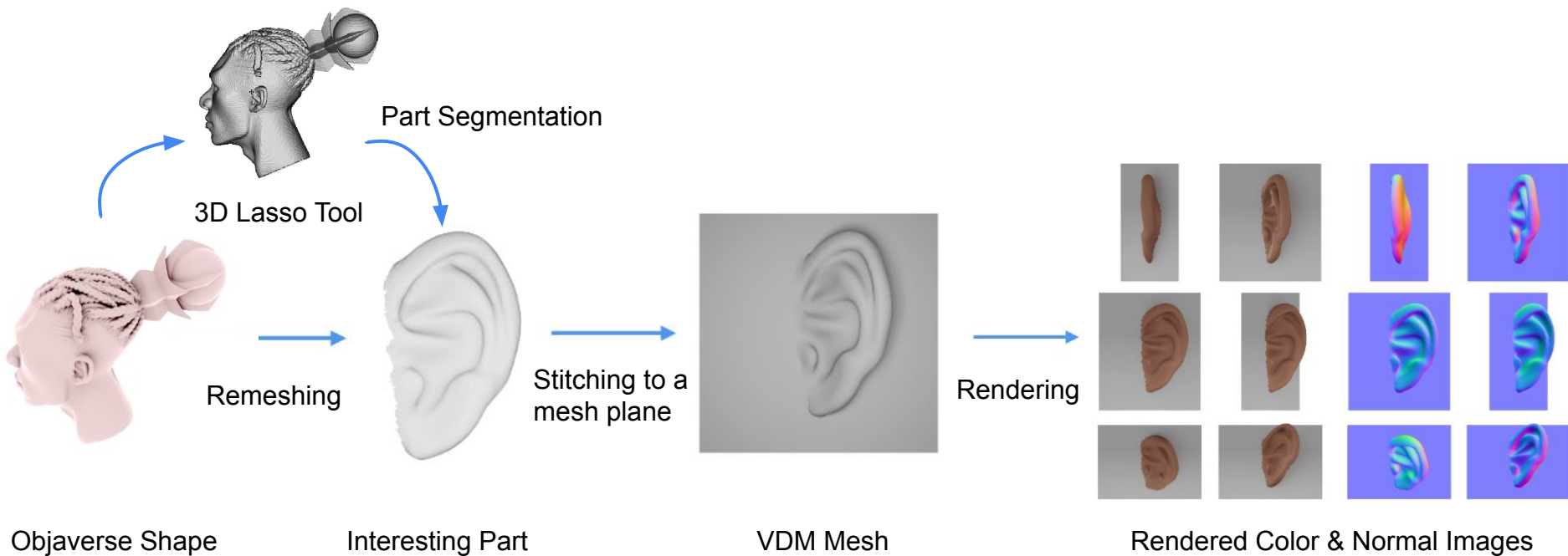
Image-to-VDM pipeline



Two Main Challenge

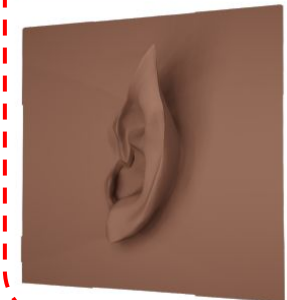
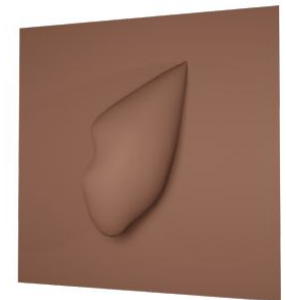
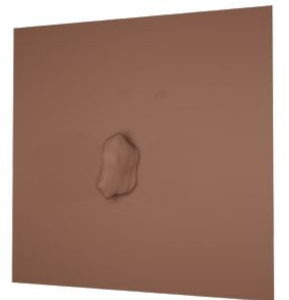
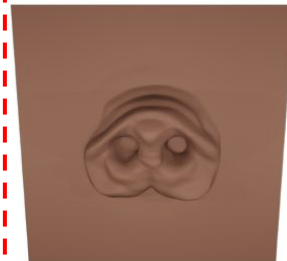
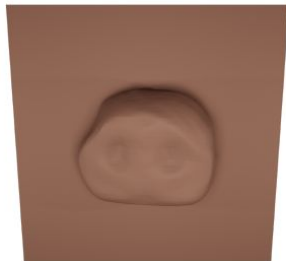
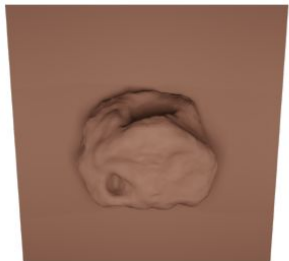
- Existing generative models does not generate shapes with a parametric 2D domain to be naturally combined with base mesh.
- Absence of VDM training data.

Data Preparation



We create a dataset of 1200 examples!

Result



Input Images

Magic123

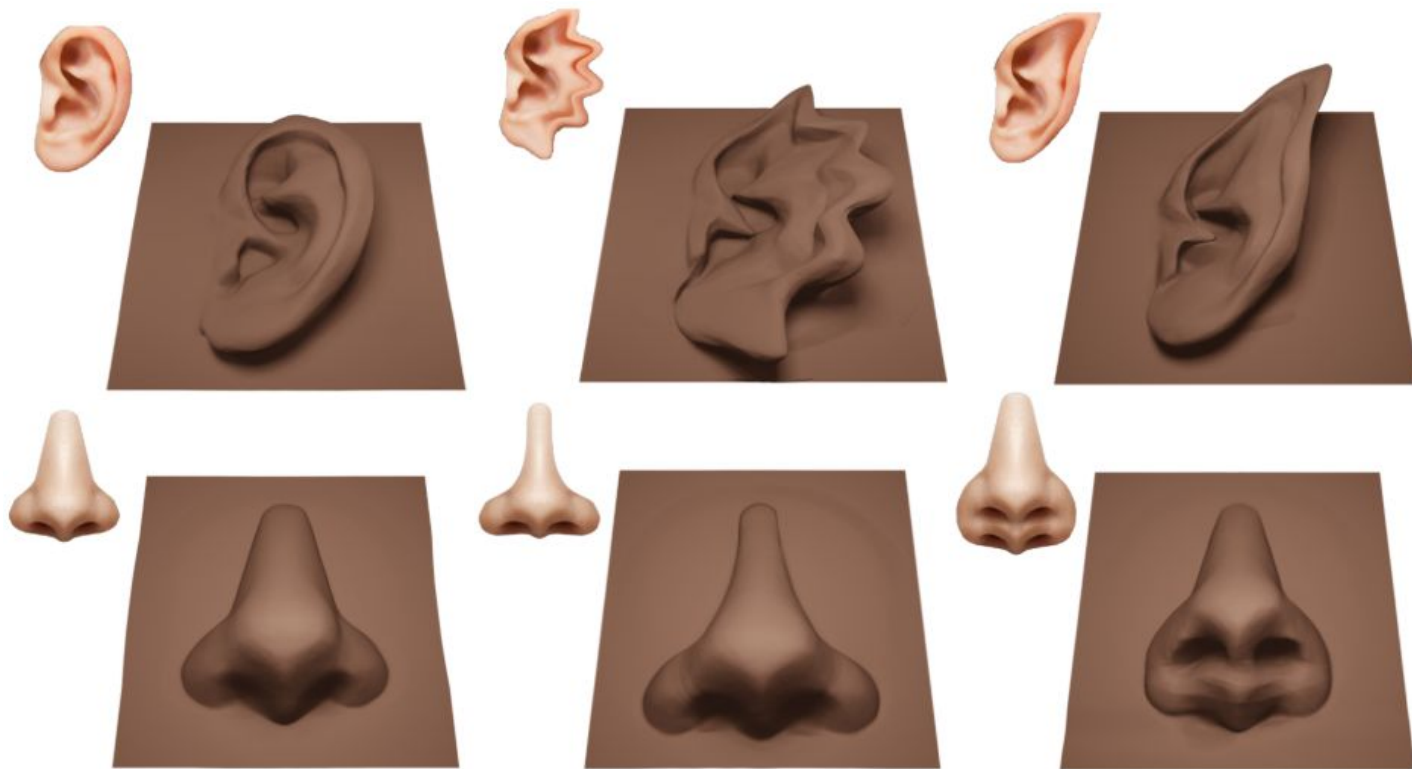
LRM

Wonder3D

Scalar DM

Ours

Application



Original

Edition 1

Edition 2

Thank you for watching!