# Doodle Your 3D: From *Abstract* Freehand Sketches to *Precise* 3D Shapes

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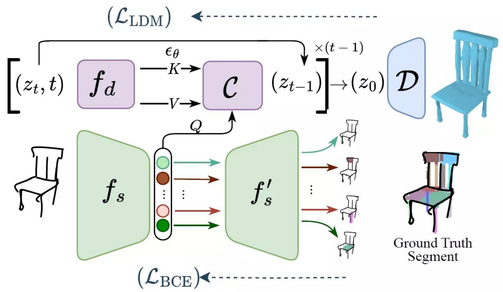
Sketch powered shape generation has inherently been tied to how good you sketch .

**Can you Sketch this good ?**

**Well, you don't need to!**

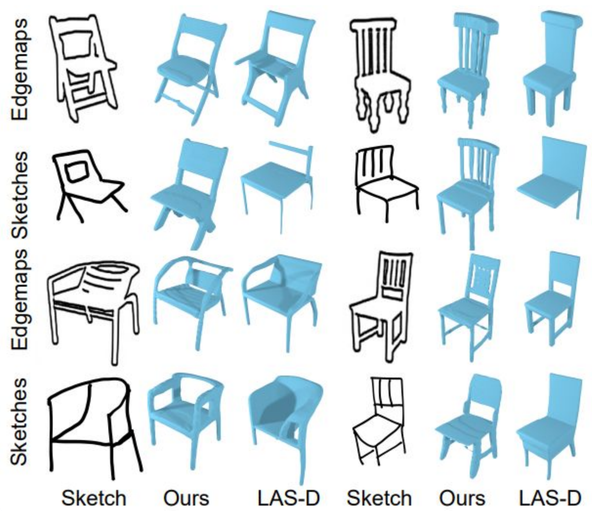
## Idea

- ➔ We use shape priors to help overcome sketch limitations.
- ➔ Our pipeline is easily scalable to different objects, as we do not need human sketches for training.
- ➔ Our goal? **To democratise 3D content creation** !
- ➔ Our model costs less 💰💰 to run and is **3x faster** ⚡!

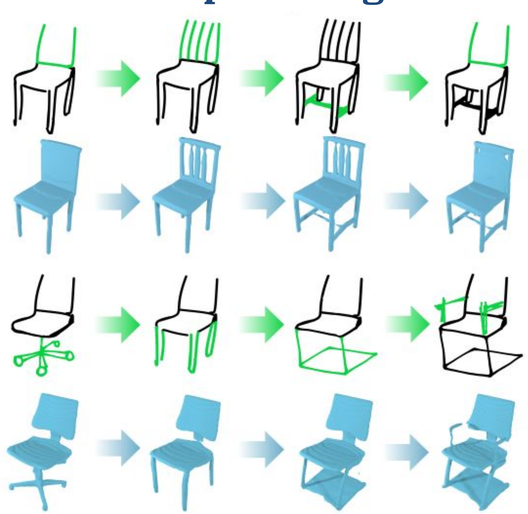



- ★ Latent diffusion to generate shape implicits, driving down compute costs and speeding up inference.
- ★ Fine-grained **correspondence of shape-parts with sketch-regions**, which
  - ○ helps handle abstract sketches, and
  - ○ fix sketching mistakes with edits that translate directly to shape.

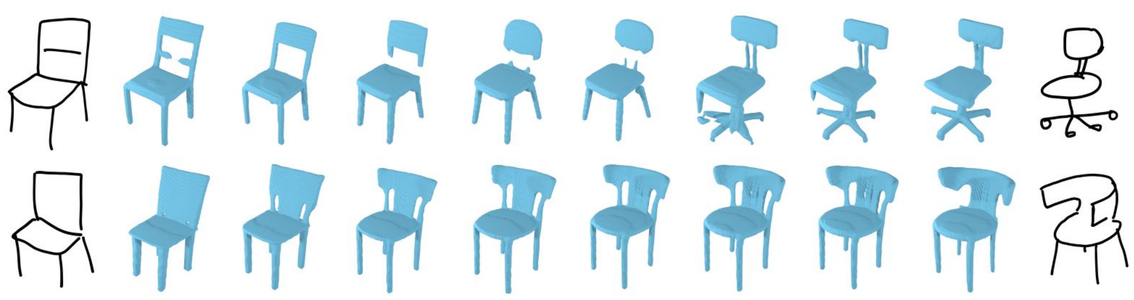
## Shape Generation




## Shape Editing



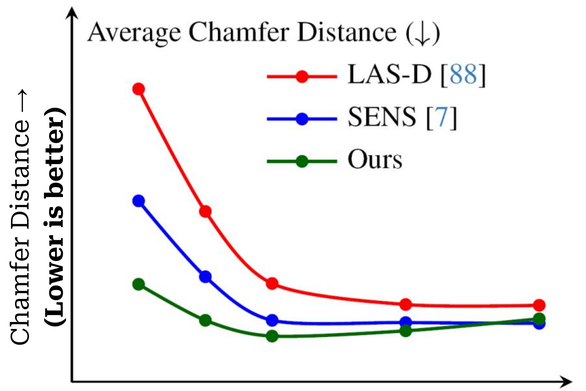
## Shape Interpolation

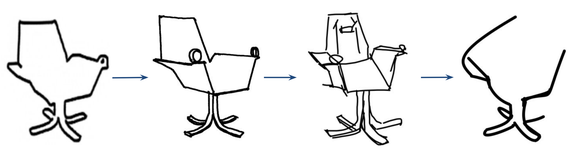


★ **Sketch-special sauce?**

3D segmentation maps are projected to 2D to build sketch-region segmentation maps, which help us build fine-grained sketch-shape correspondence

## Shape Reconstruction



**More qualitative and quantitative comparisons in the paper**

Hmrishav

Doodle-3D