

Tabby

Explorable Design for 3D Printing Textures

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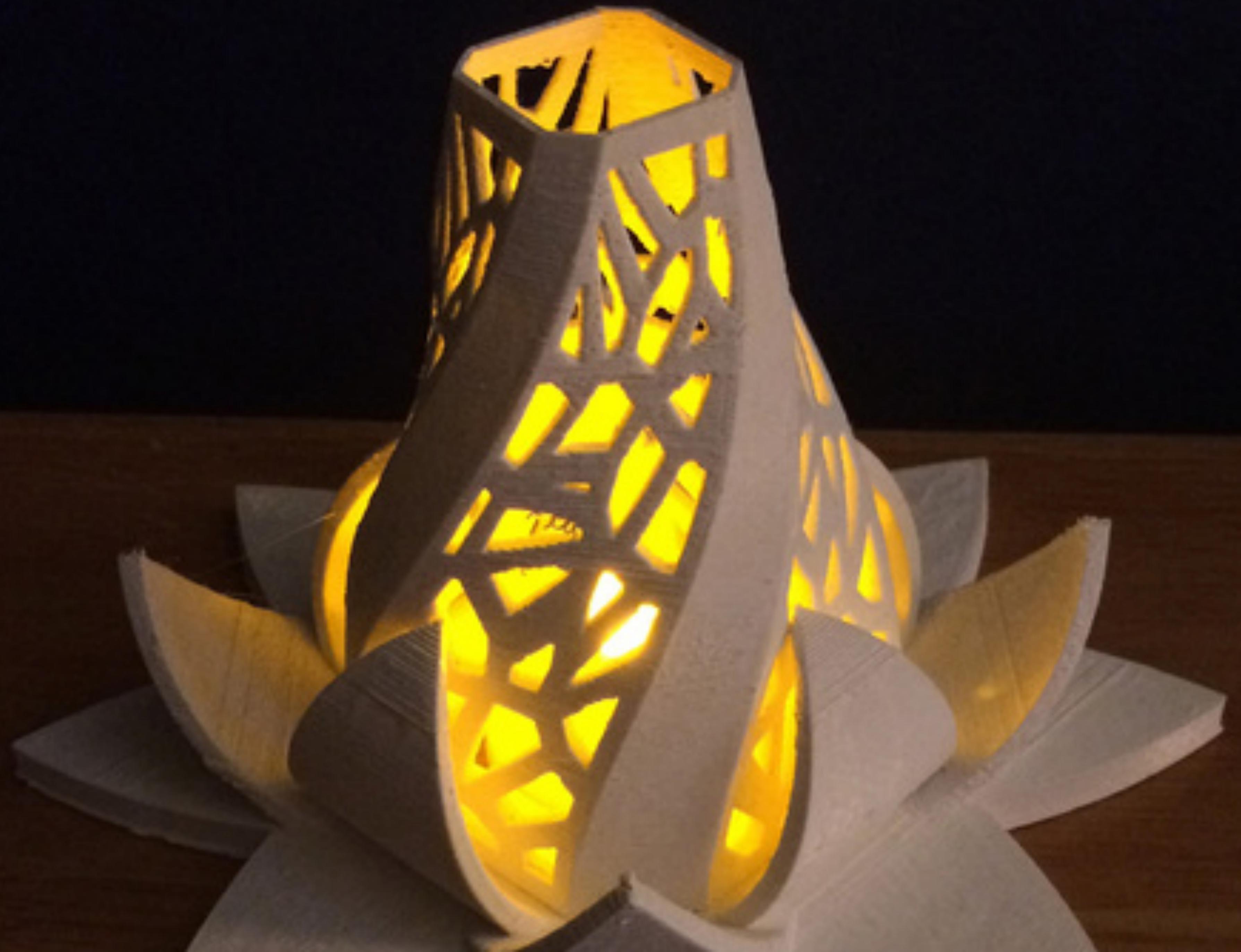
Koji Yatani (The University of Tokyo)

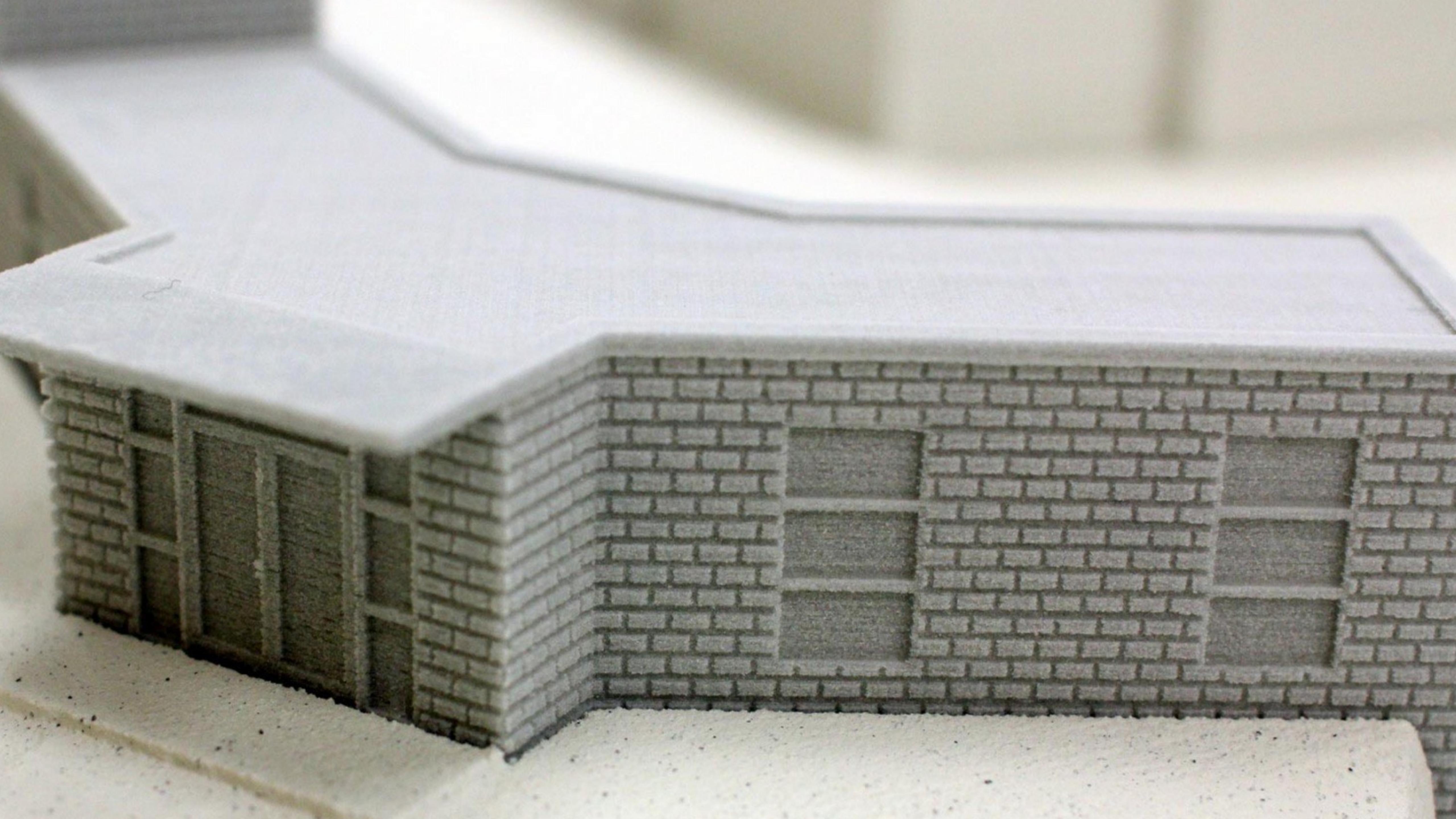
Mark D. Gross (University of Colorado Boulder)

Tom Yeh (University of Colorado Boulder)





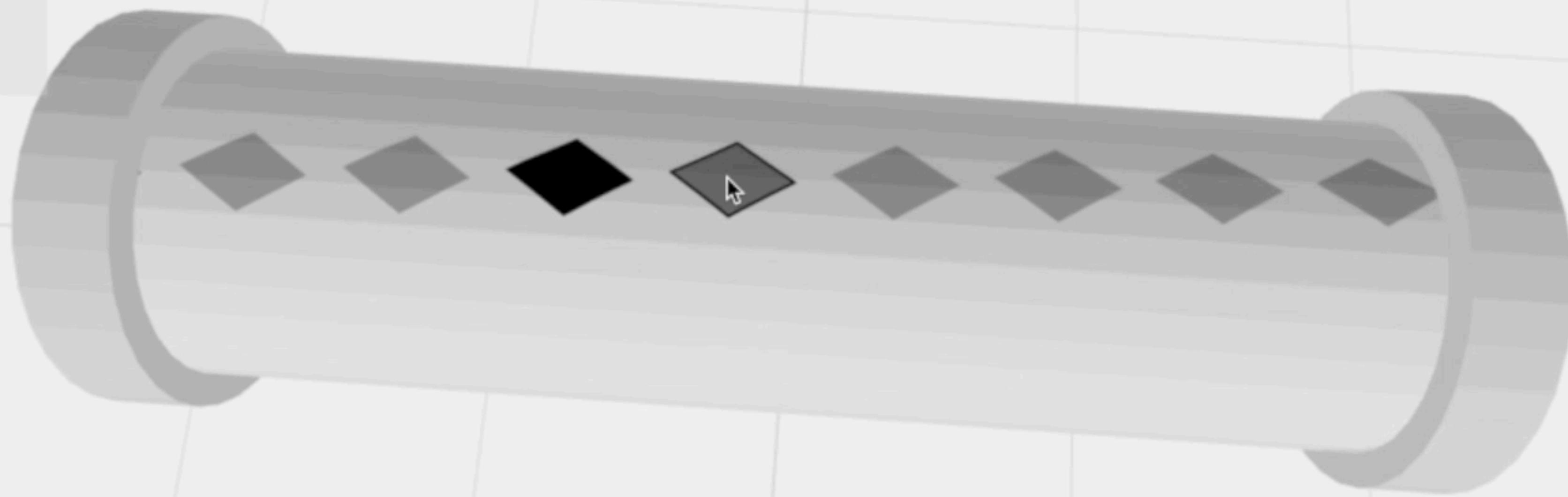


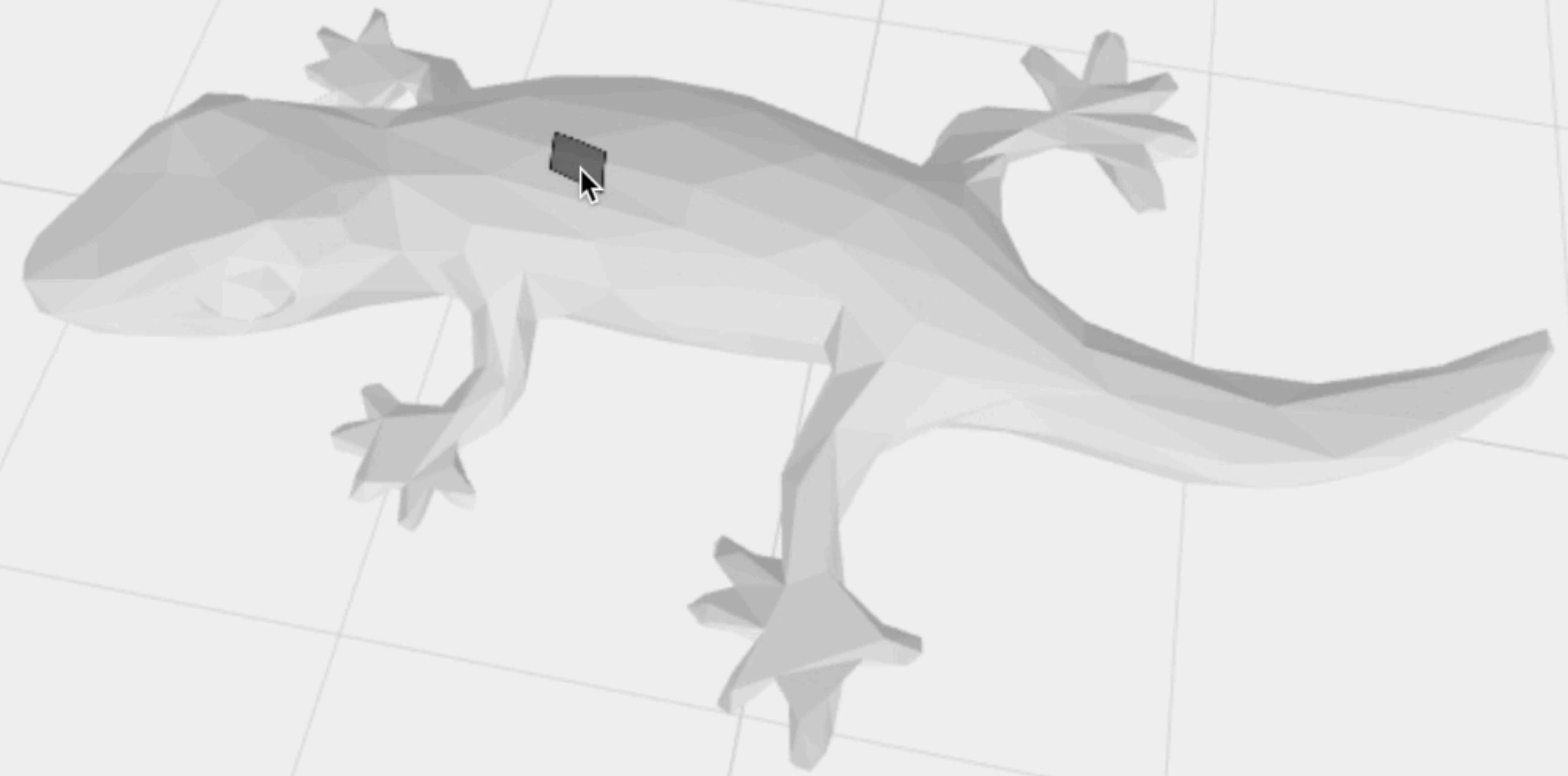




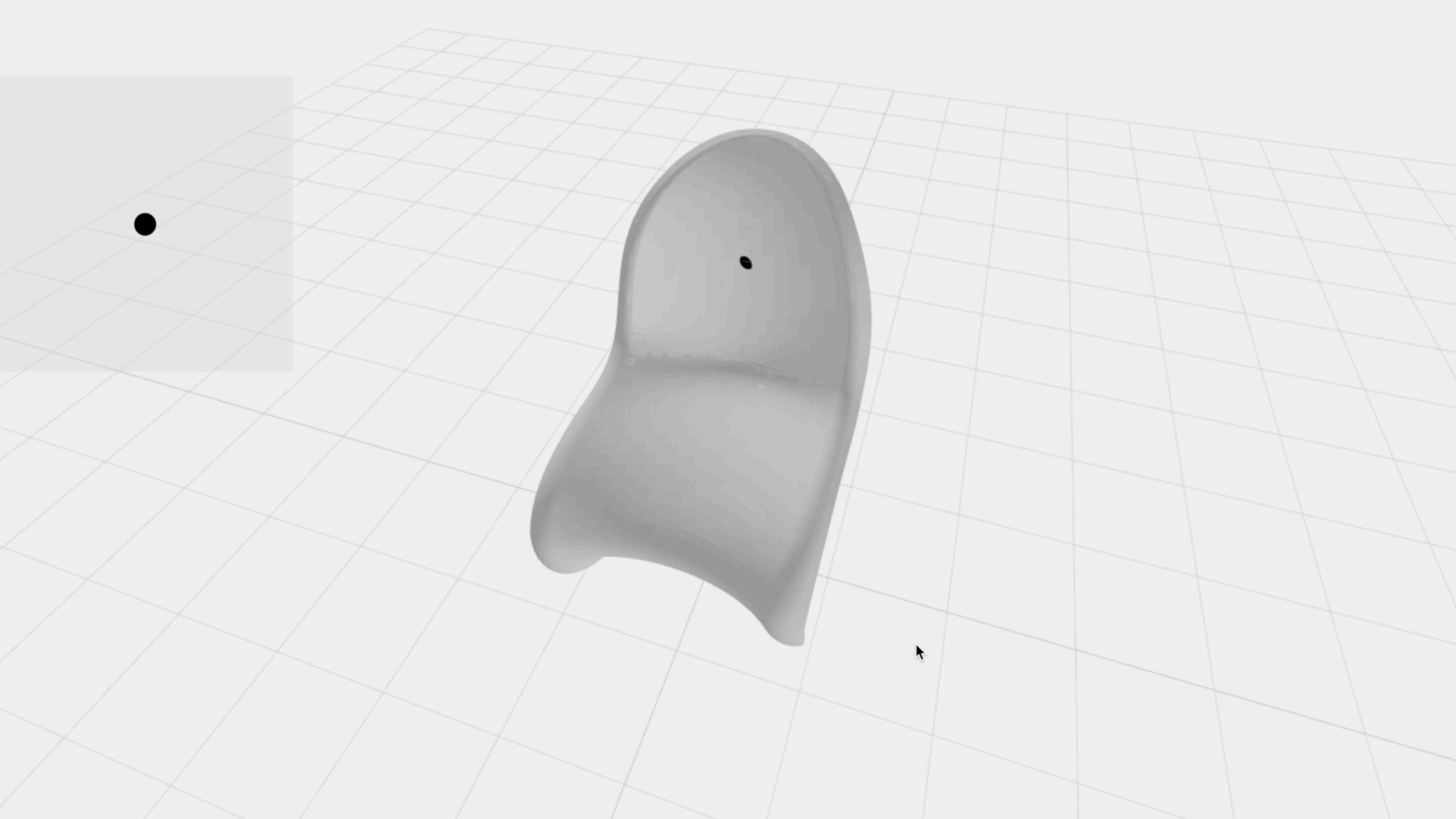


**However,
texture pattern creation
is difficult**

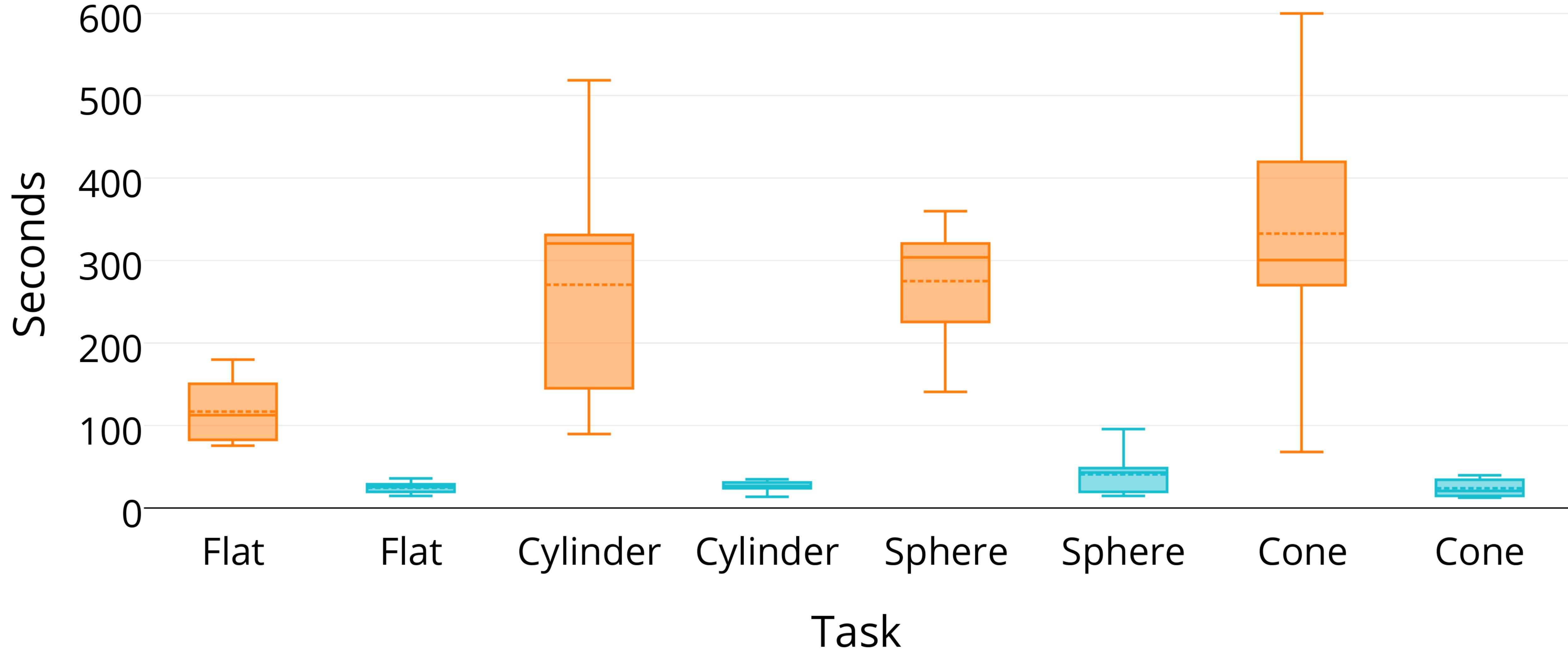








Texture Creation Task



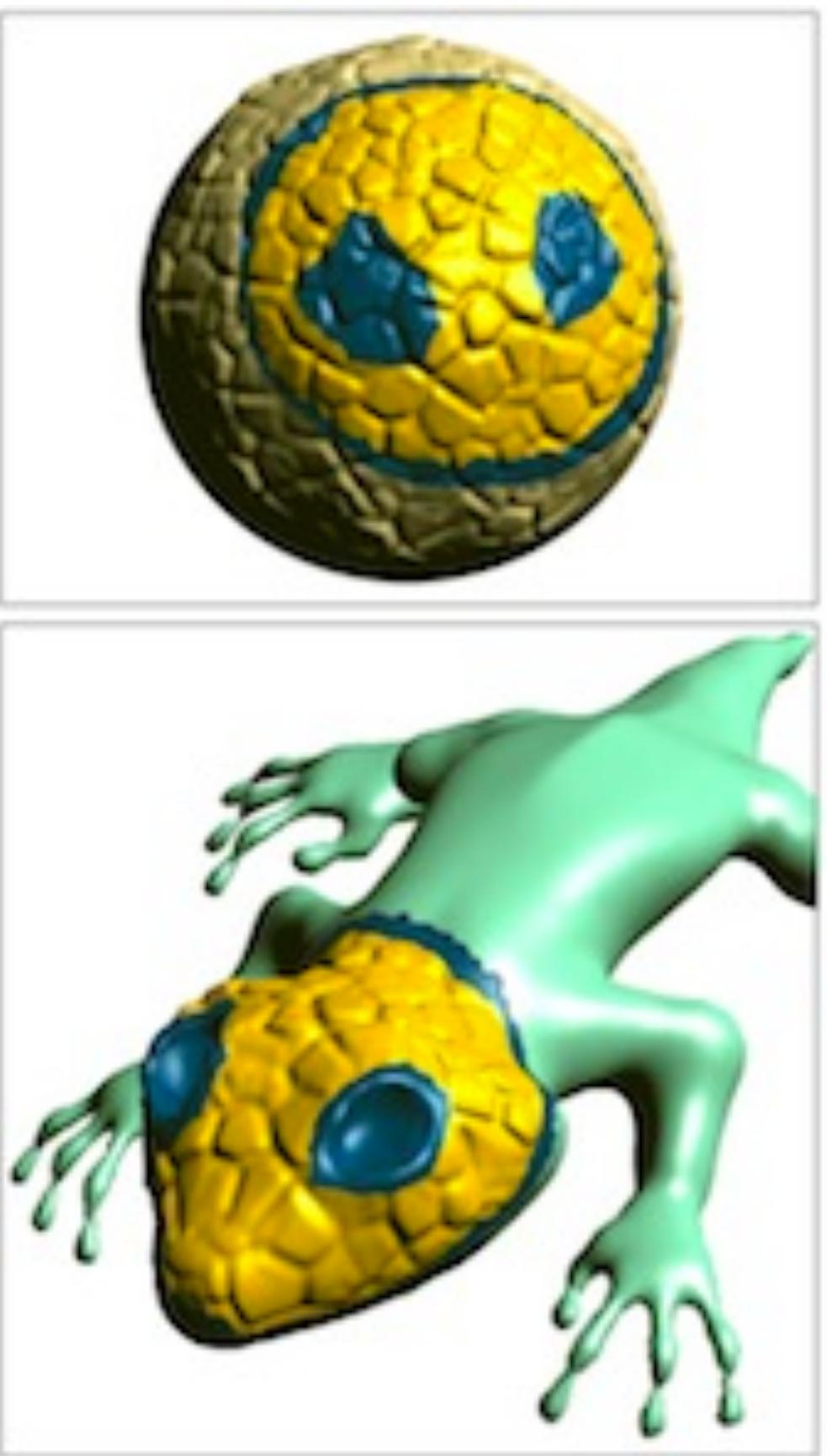
1. Summary

2. Related Work

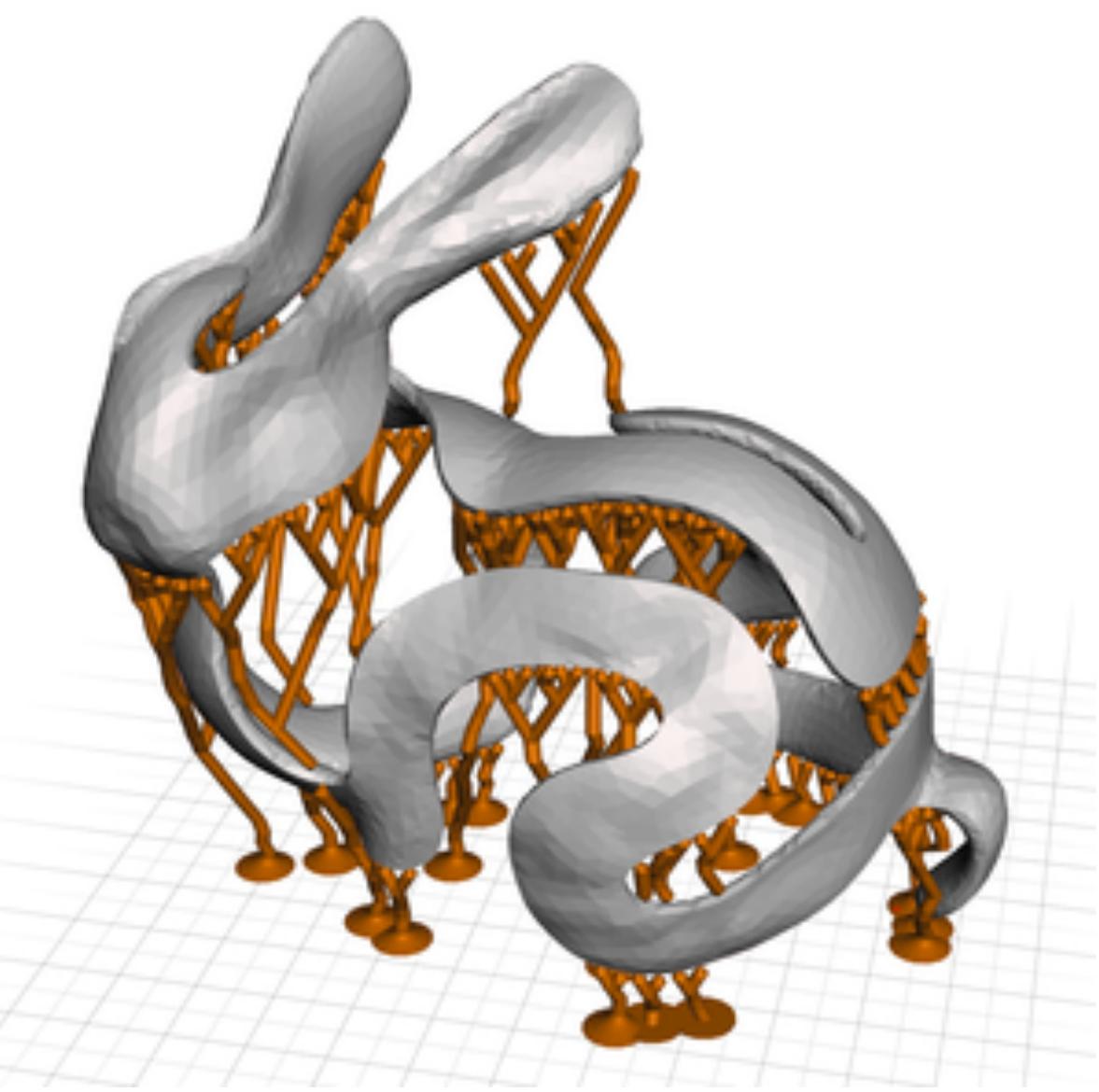
3. Design Goals

4. System and Implementation

5. Conclusion



GeoBrush



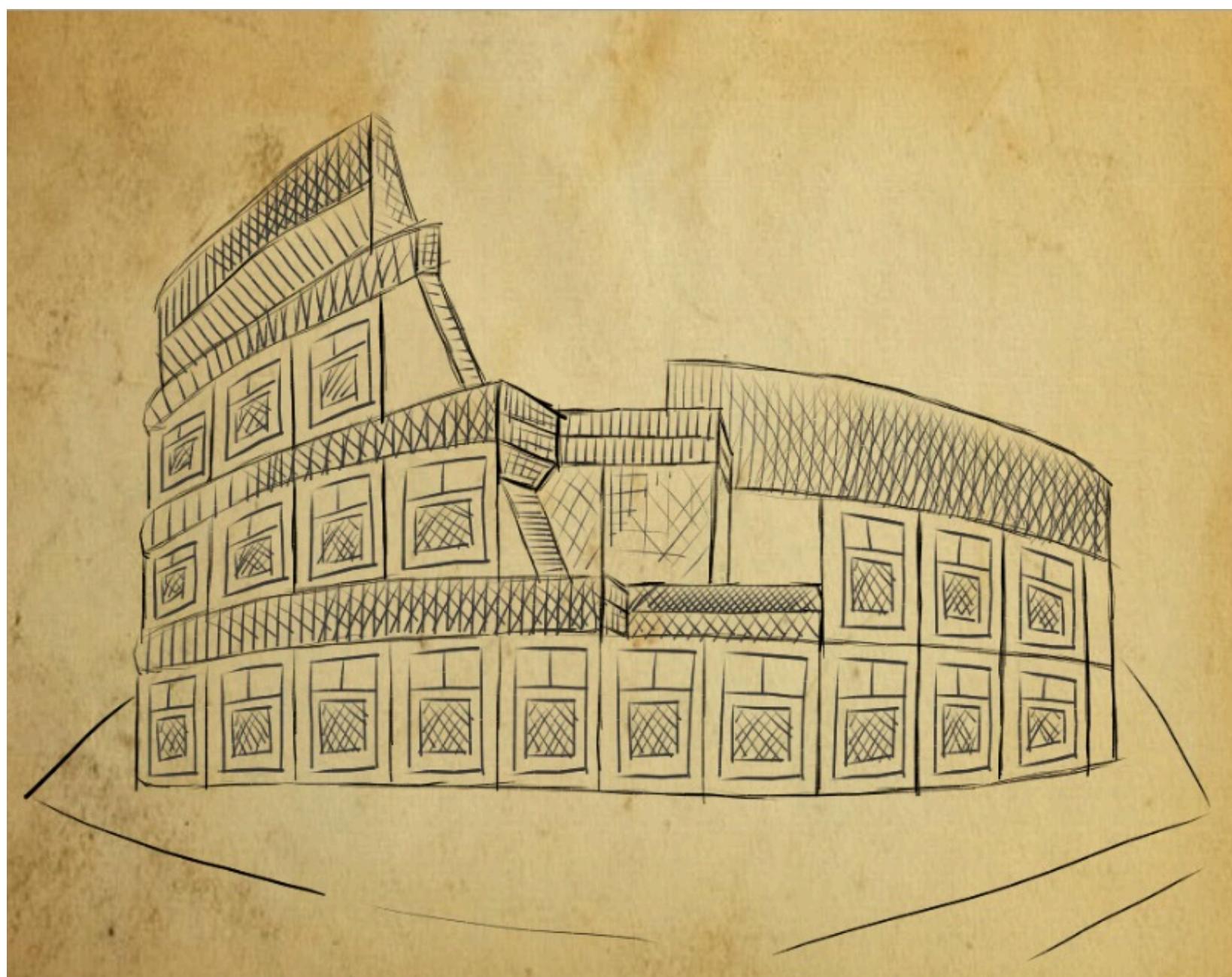
MeshMixer



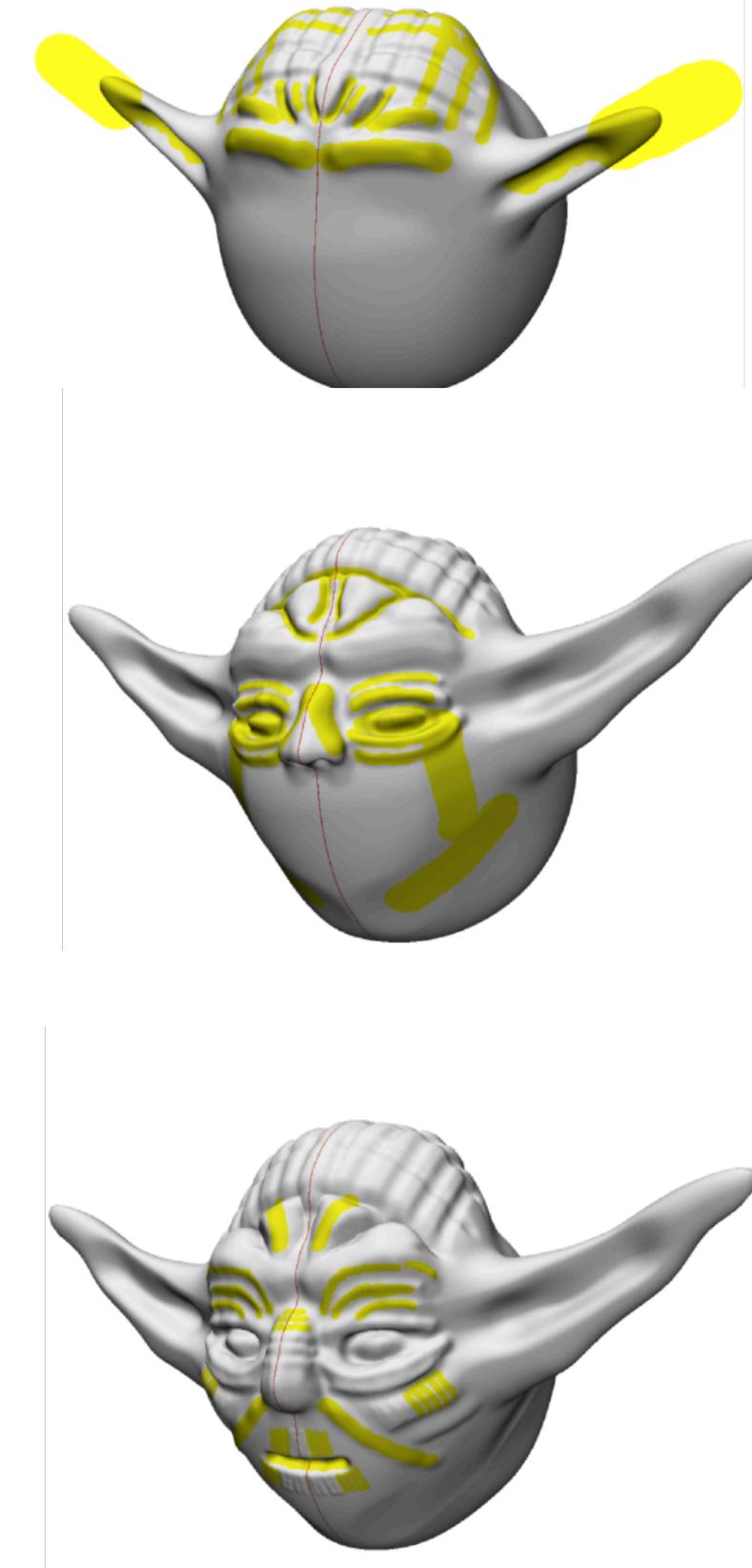
By-example
synthesis



Vignette



Auto-complete
painting



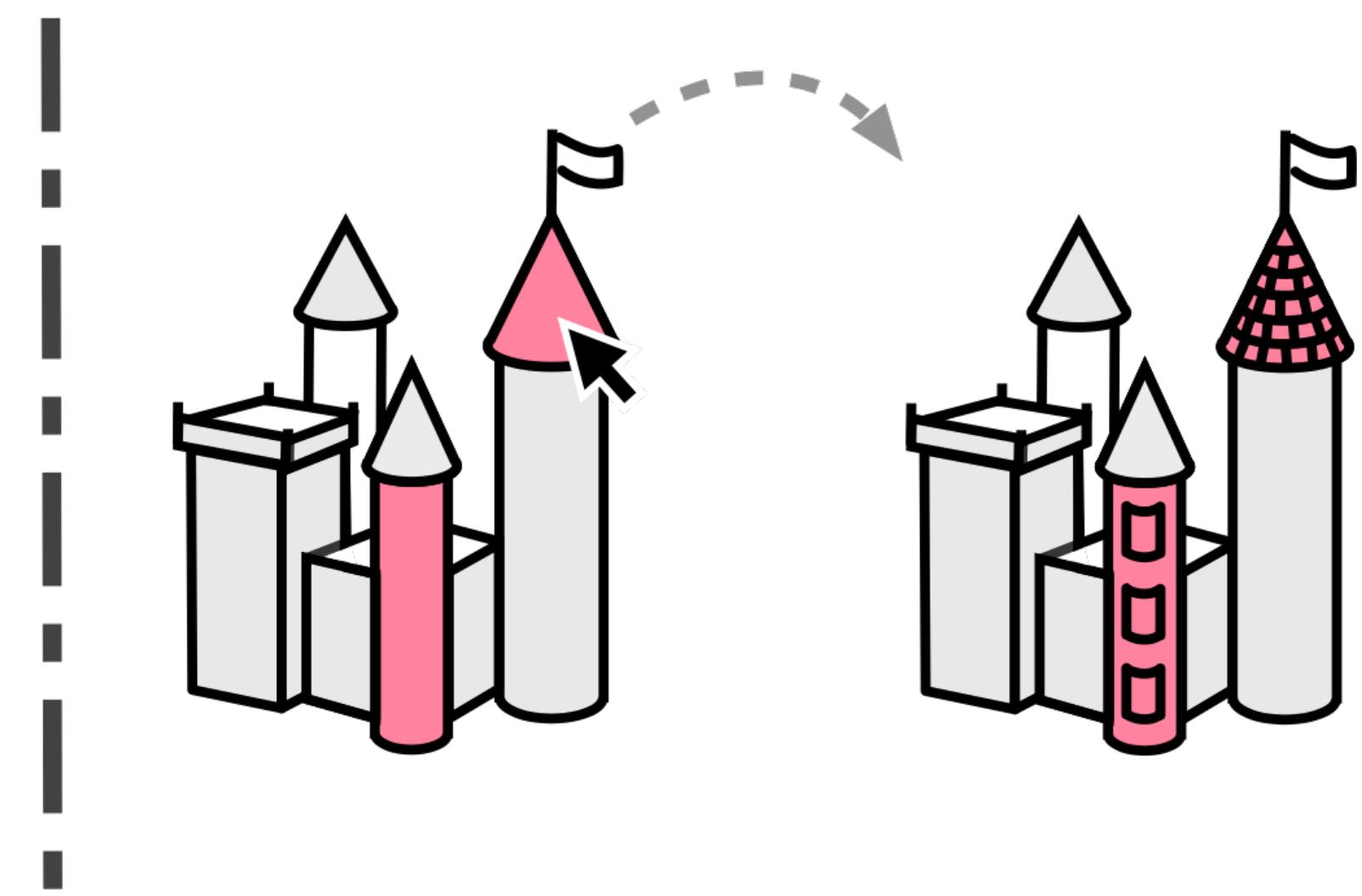
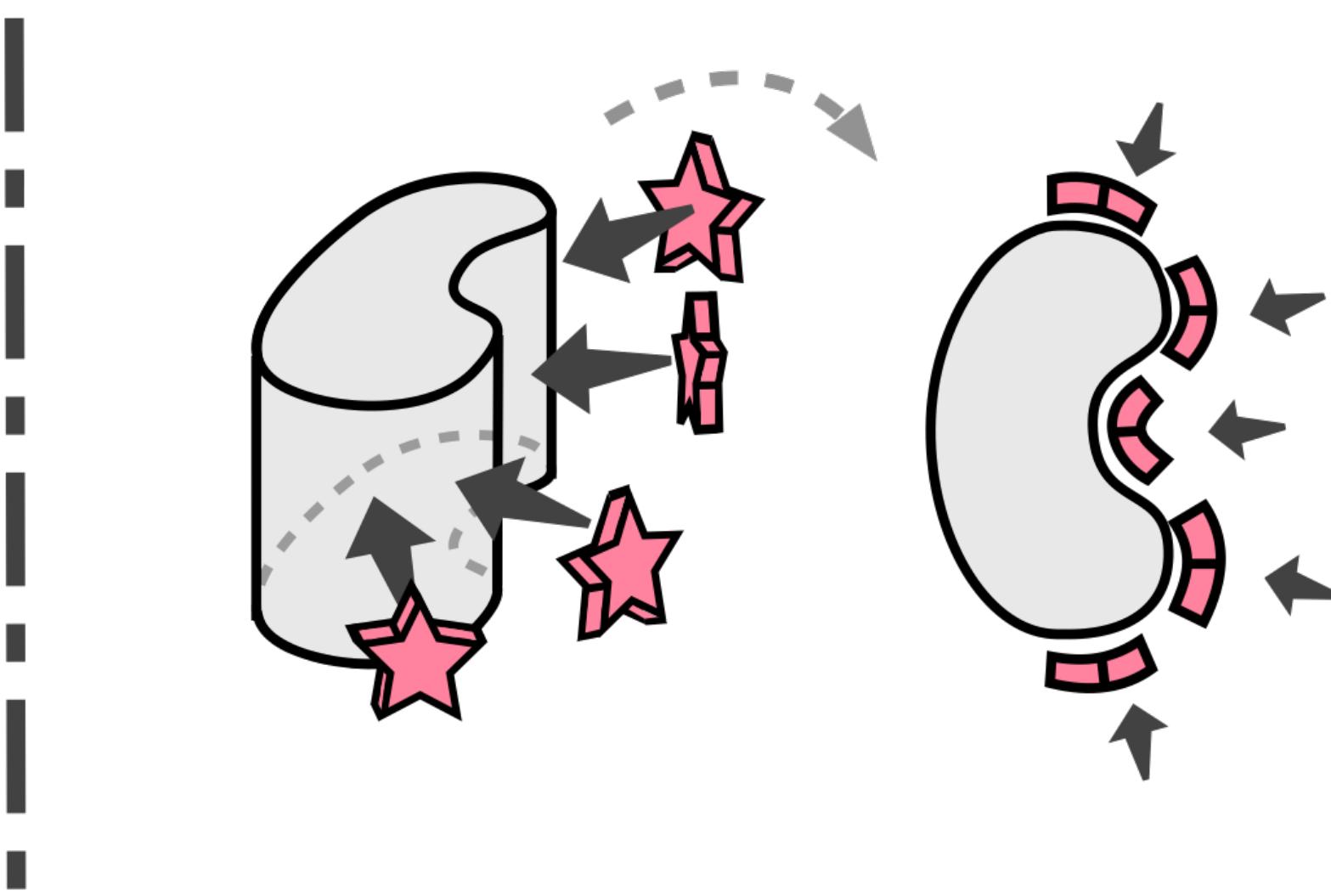
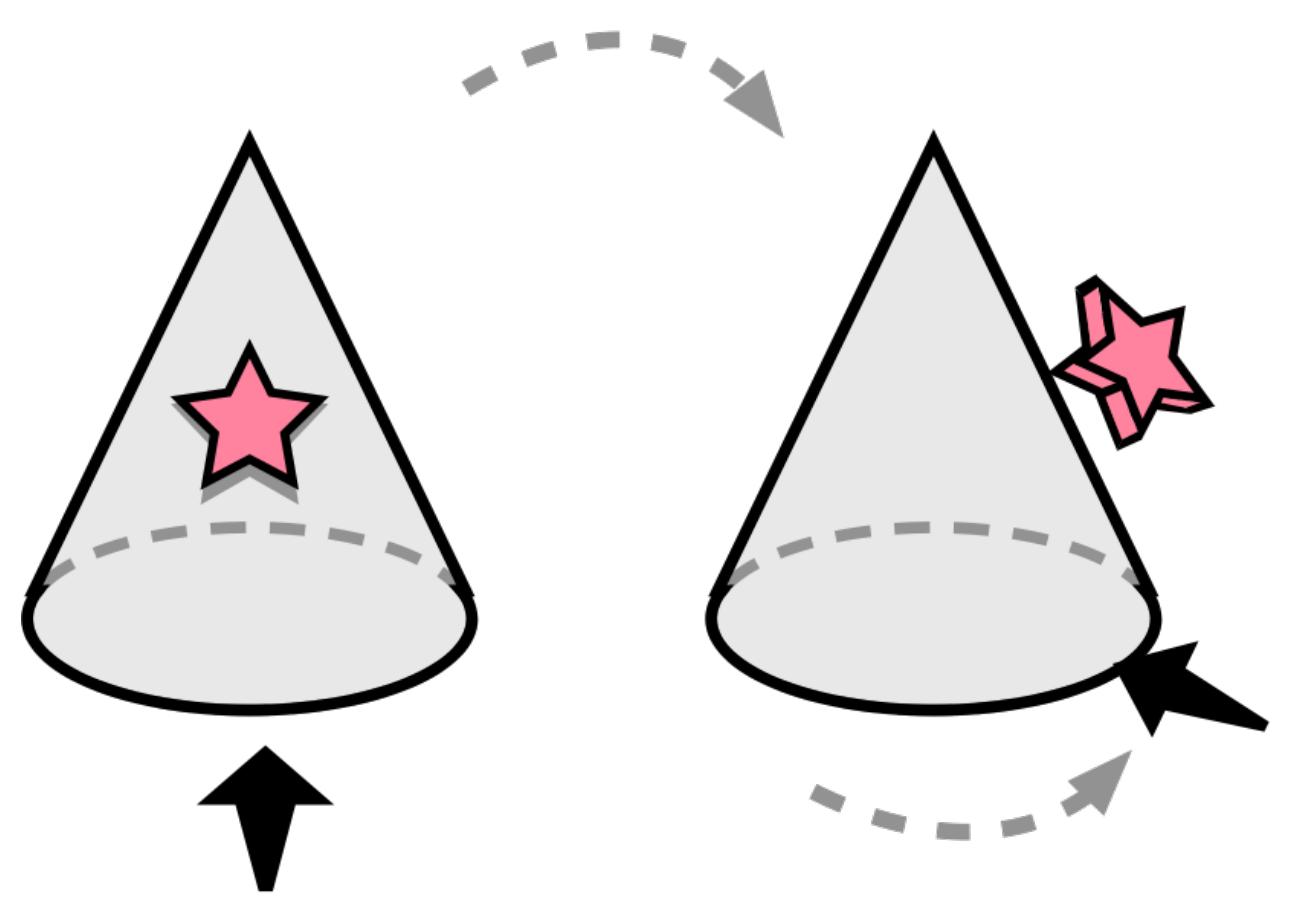
Auto-complete
3D sculpting

3. Design Goals

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User-Centered Design Approach

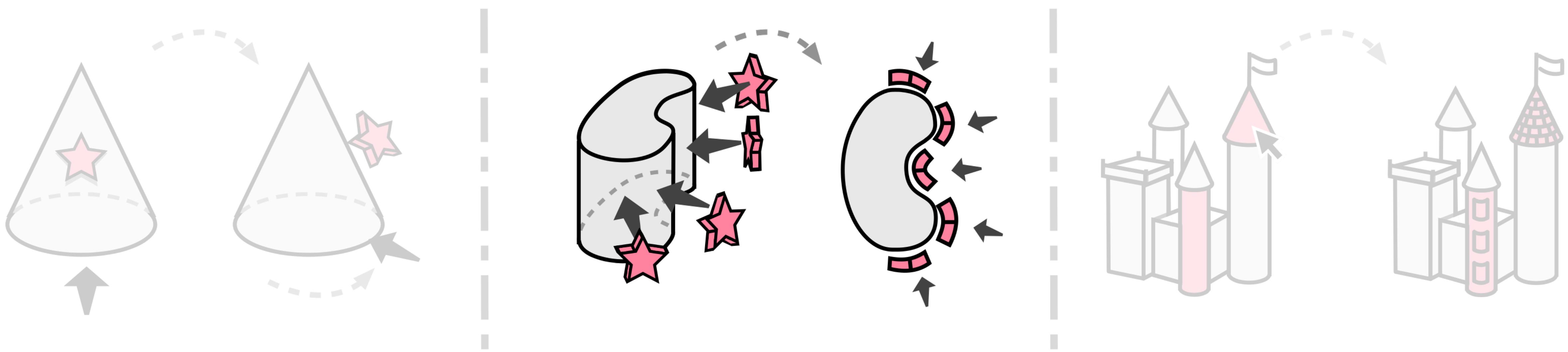
1. 3D Printing Workshop with 25 novice users
2. Observation with 3 professional CAD users



1. Exploiting 2D Operations



2. Liberating from Repetitive Operations



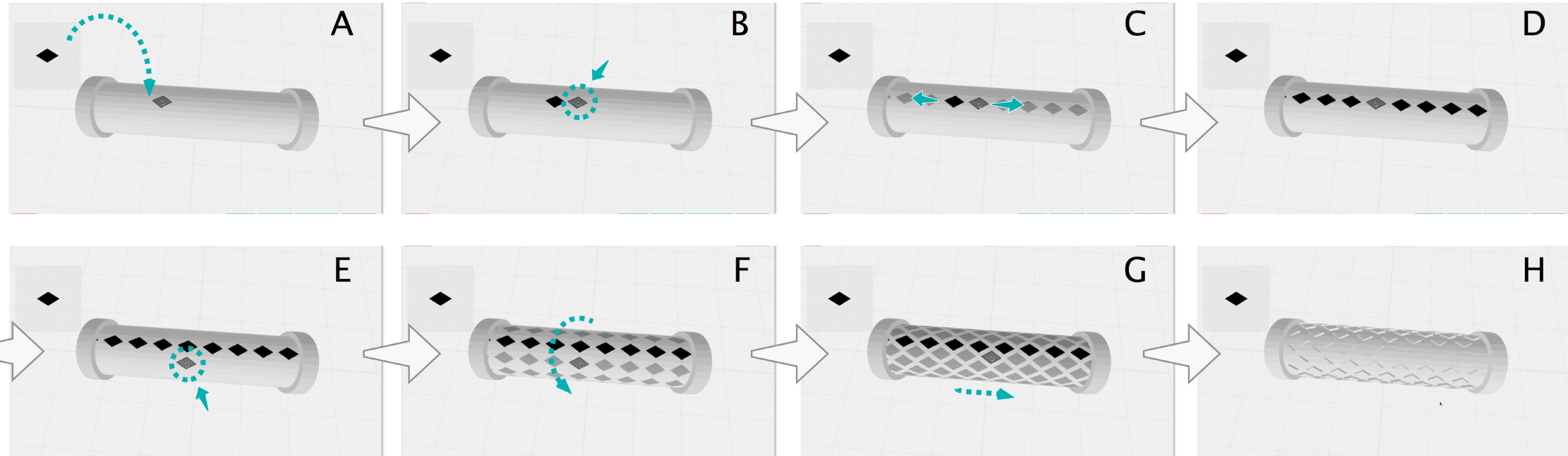
3. Allowing Intuitive Exploration

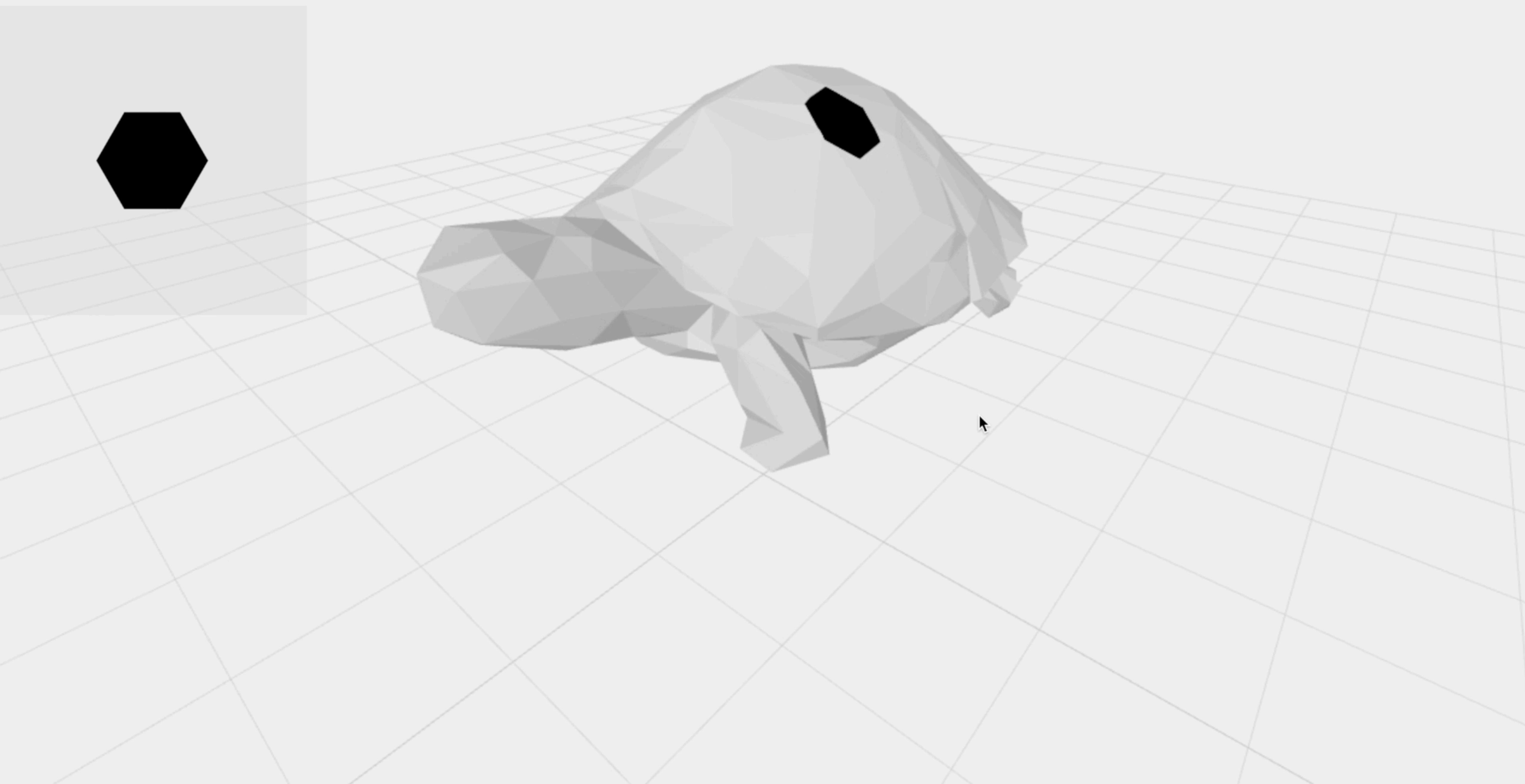


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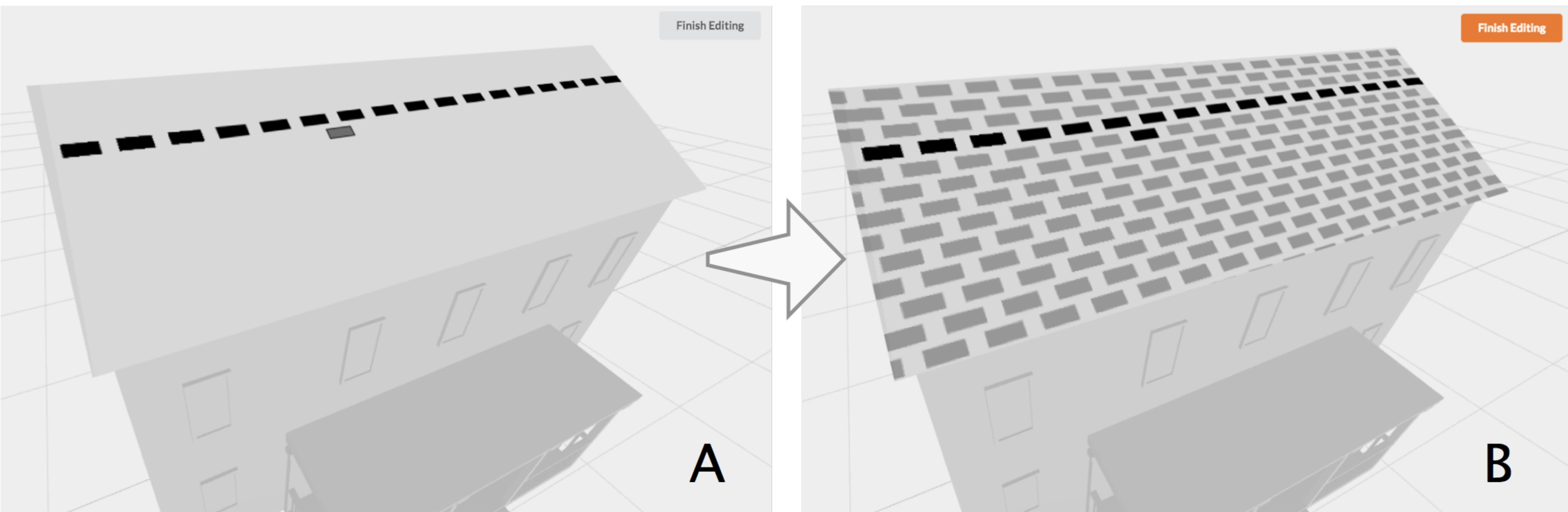


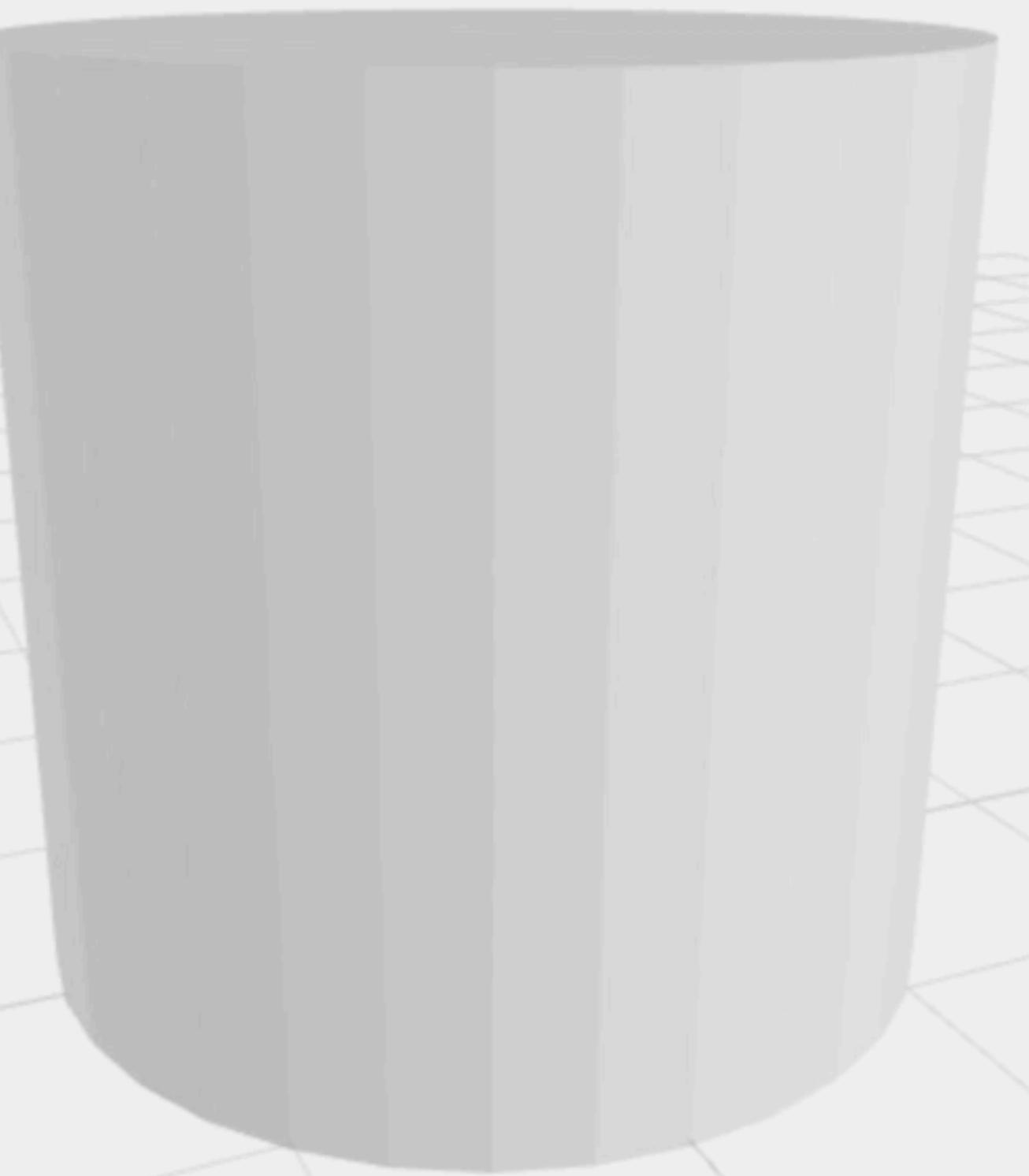
1. Pattern Auto-Completion
2. Semantic Region Selection
3. Texture Mesh Generation

1. Pattern Auto-Completion

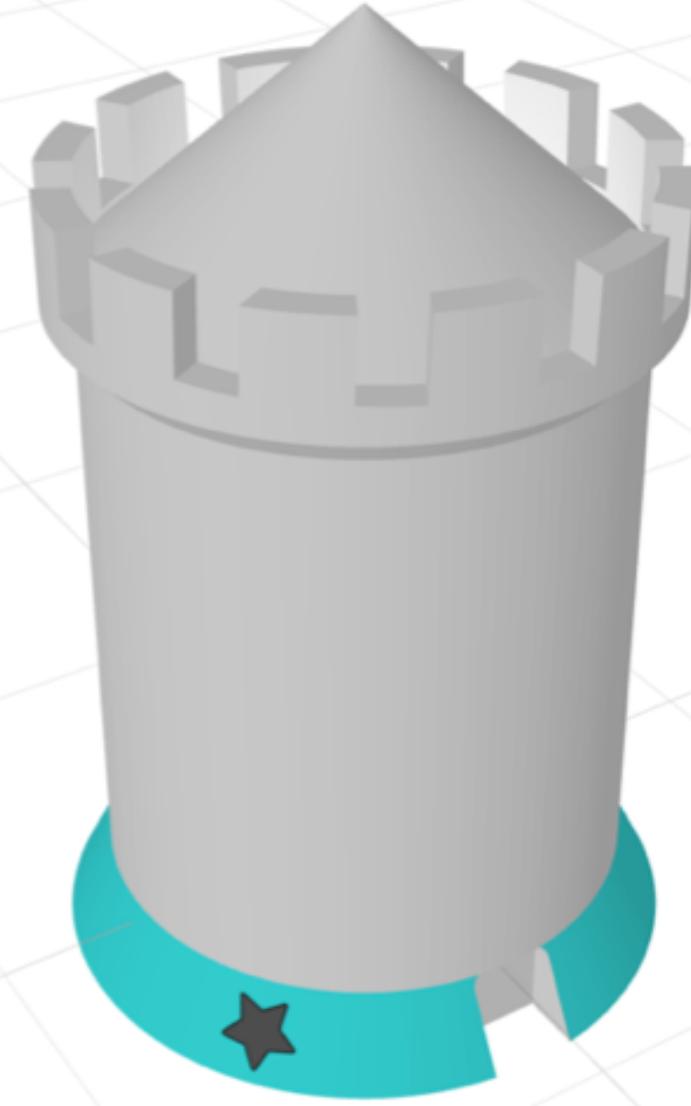
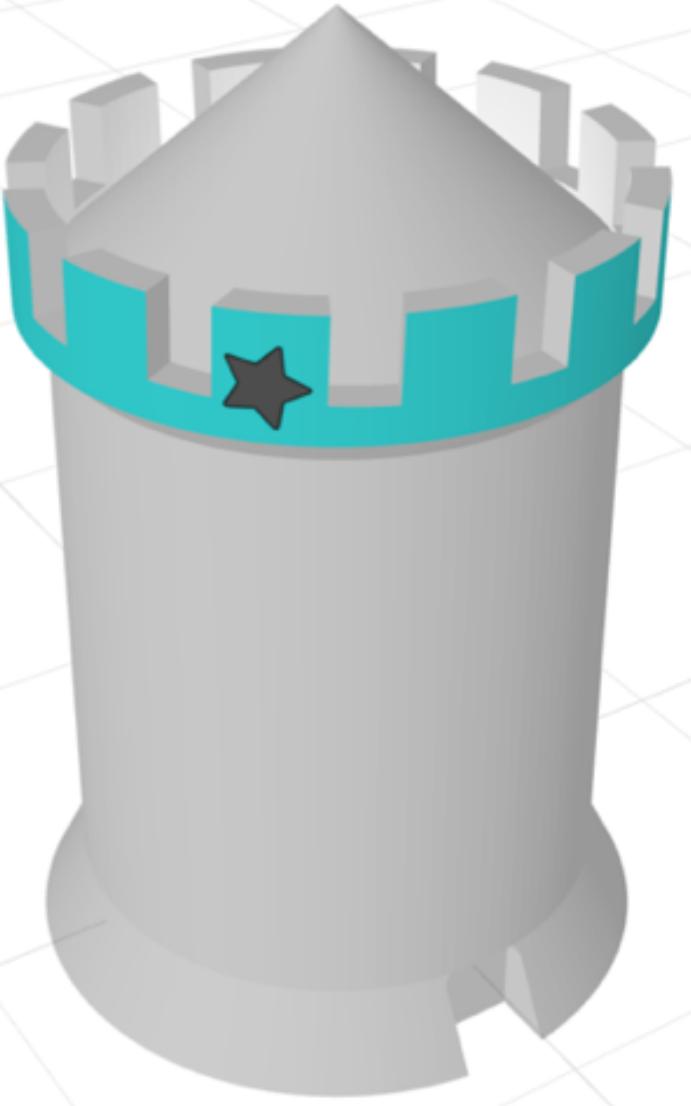
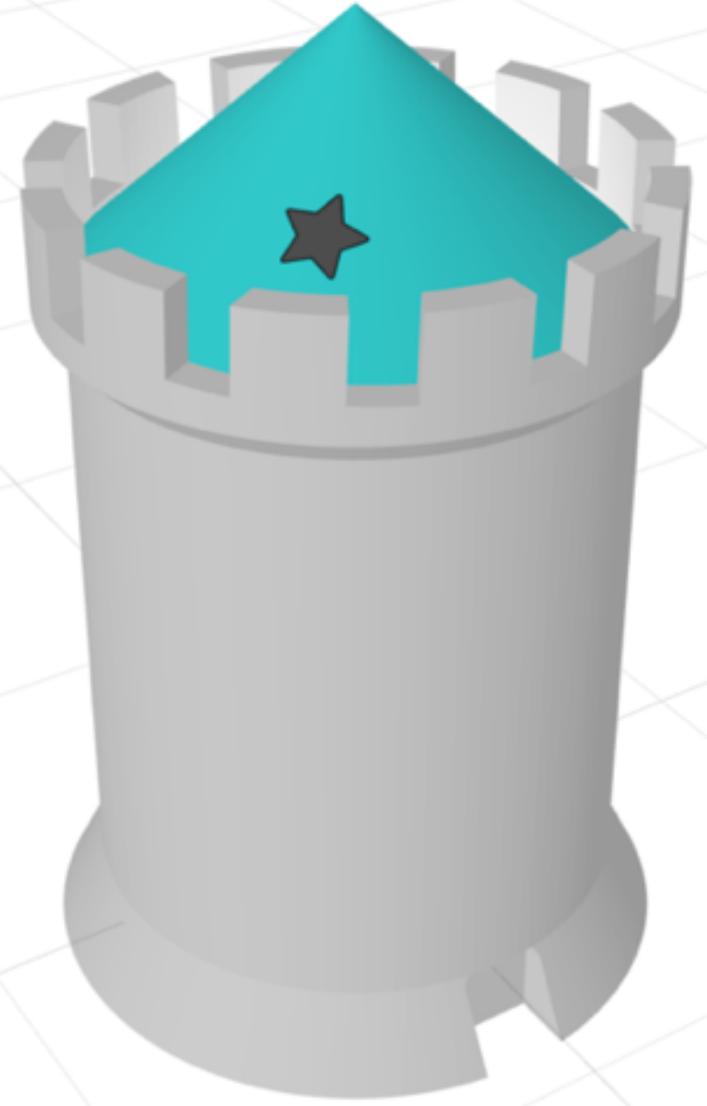
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1. Pattern Auto-Completion
- 2. Semantic Region Selection**
3. Texture Mesh Generation

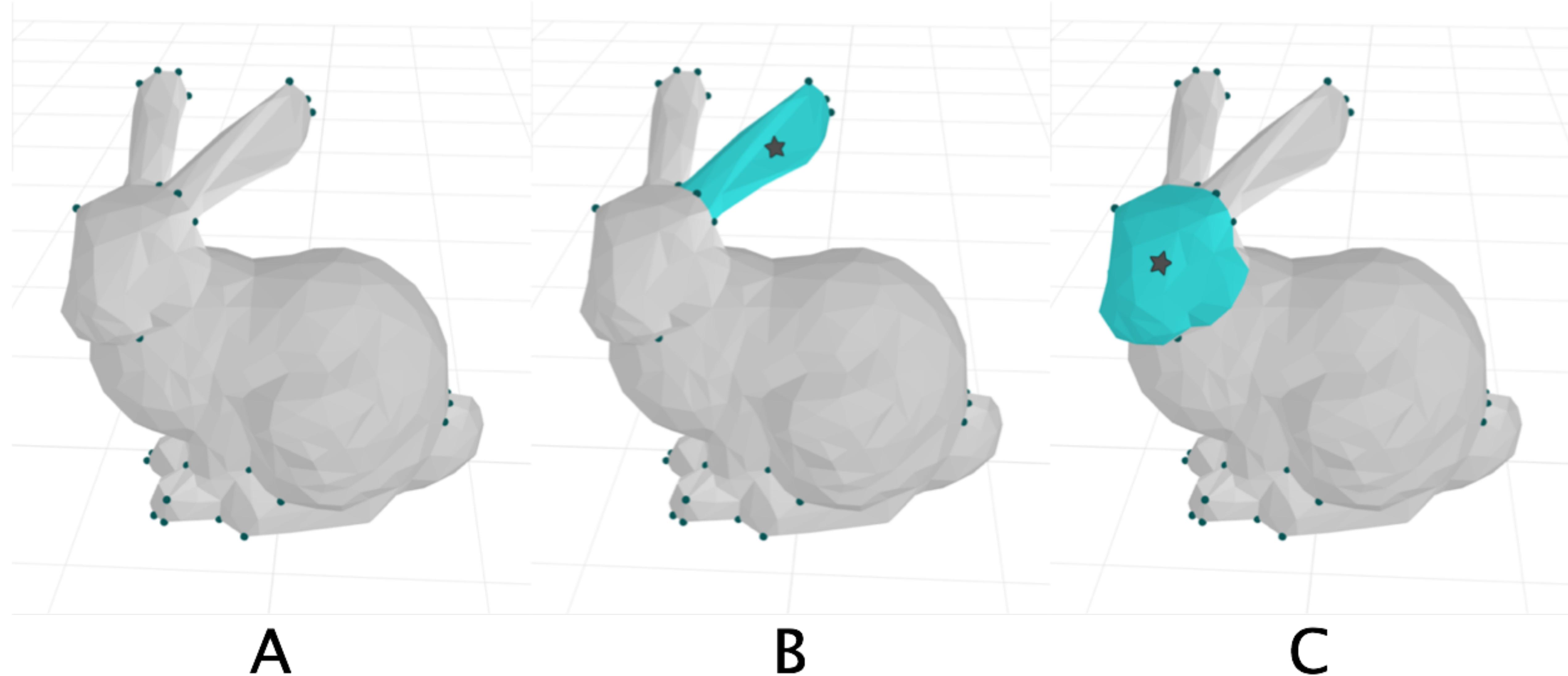


A

B

C

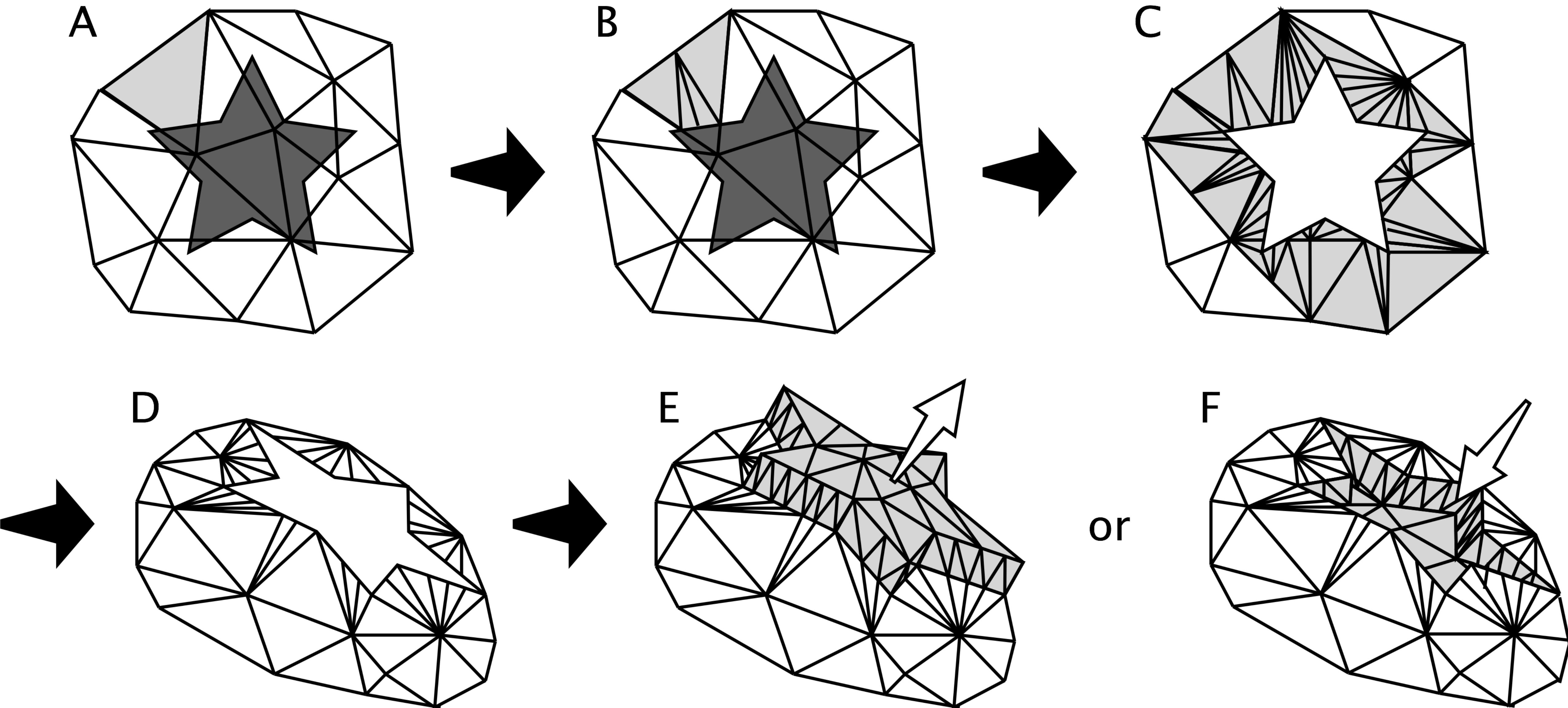
D

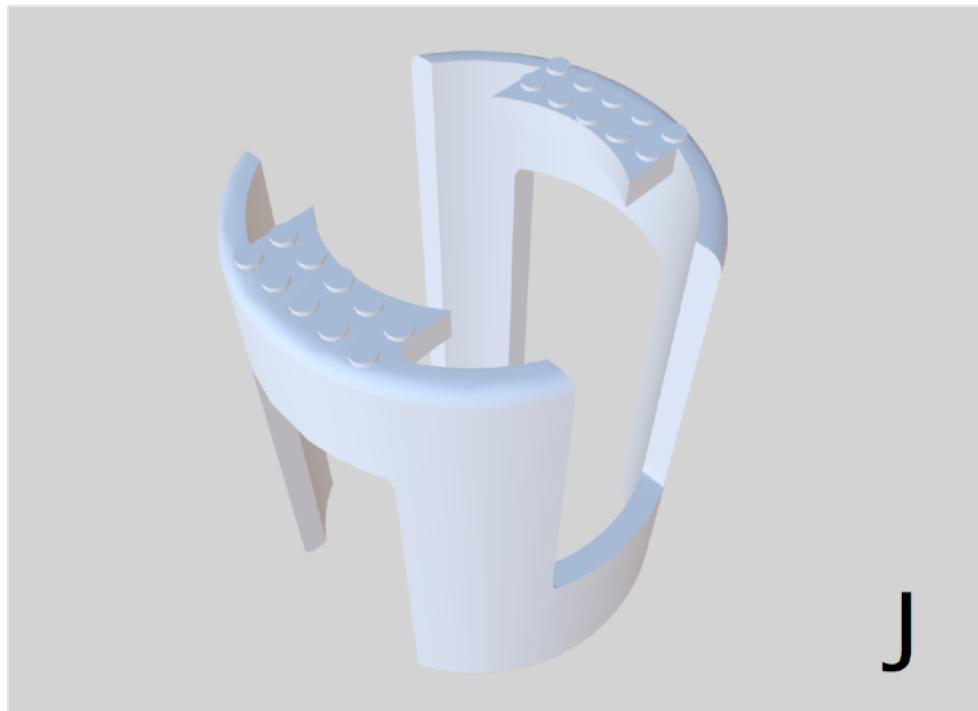
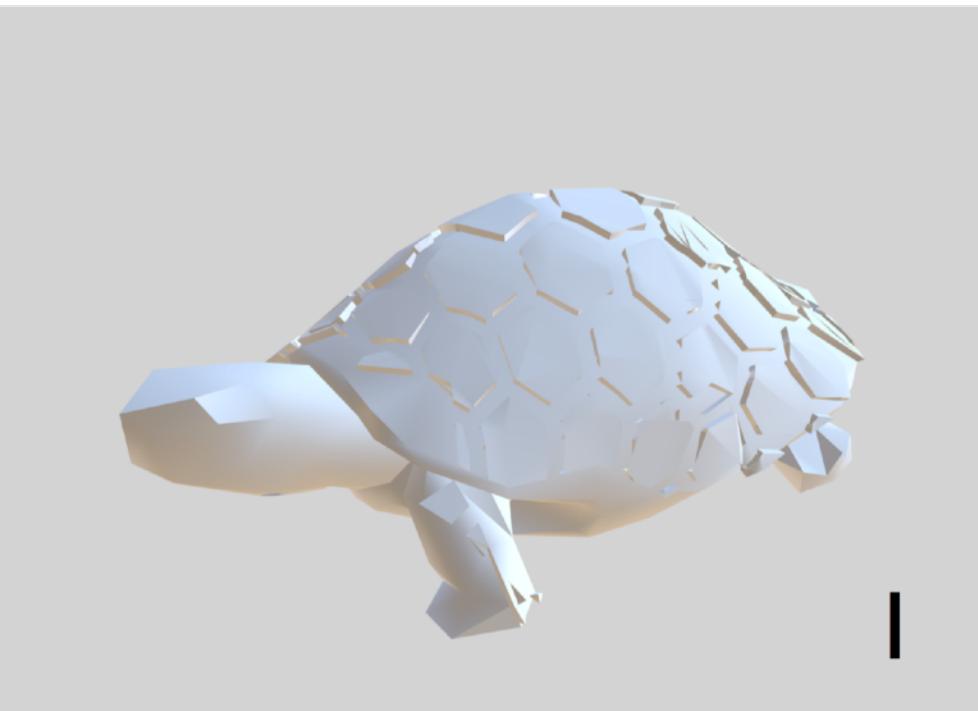
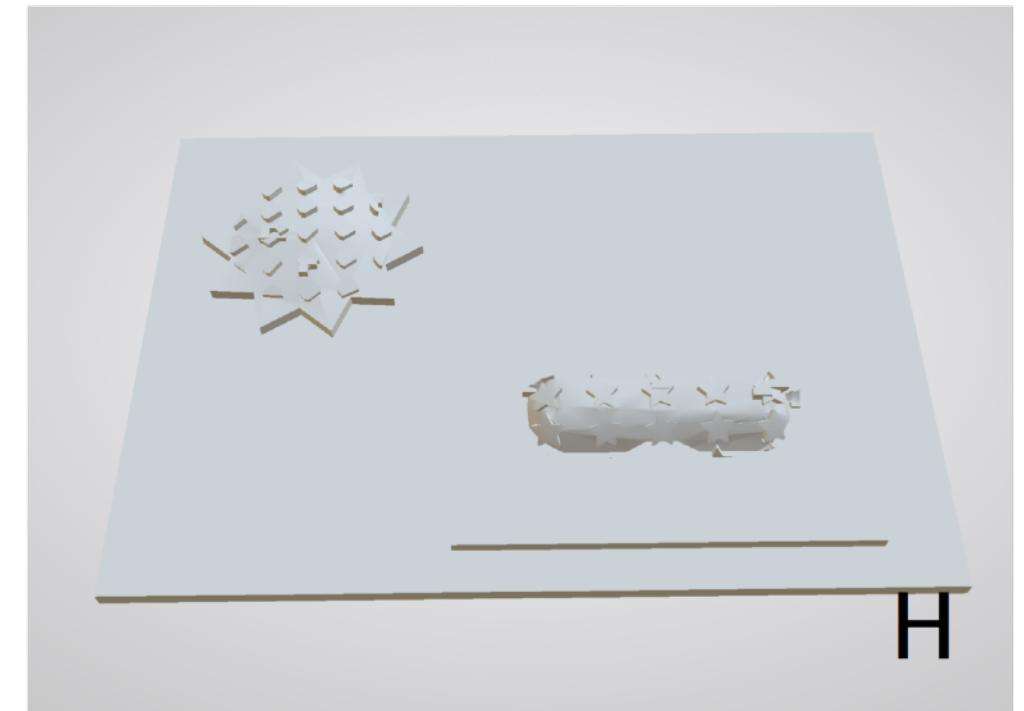
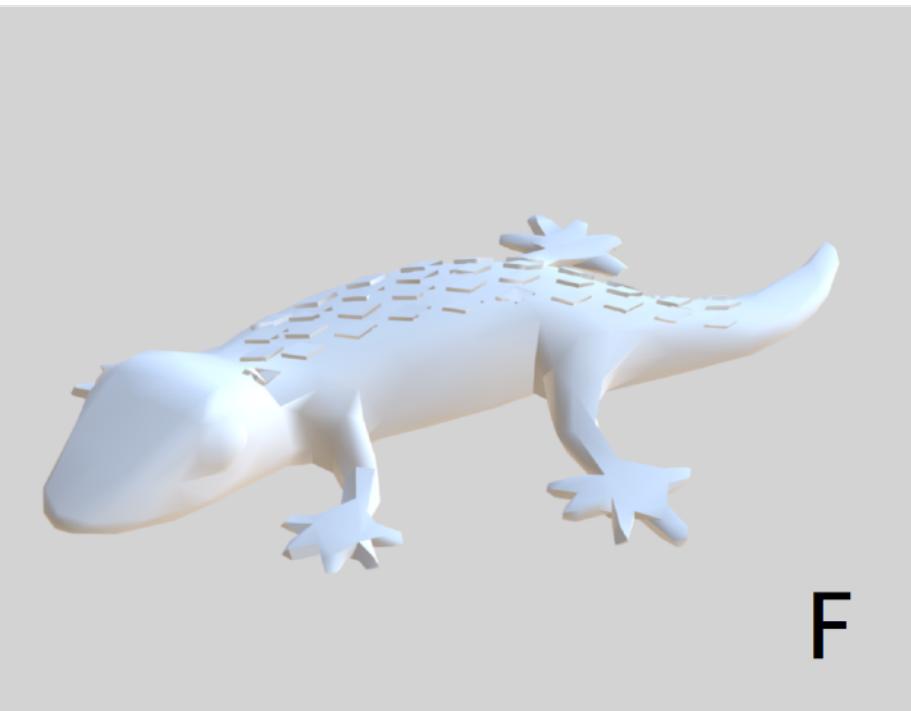
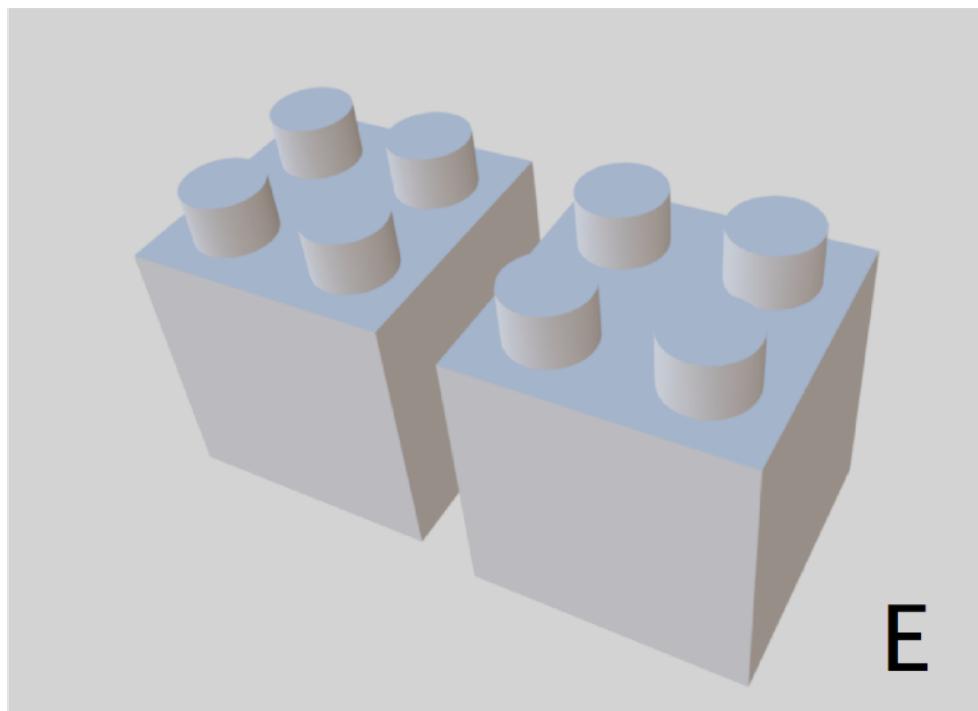
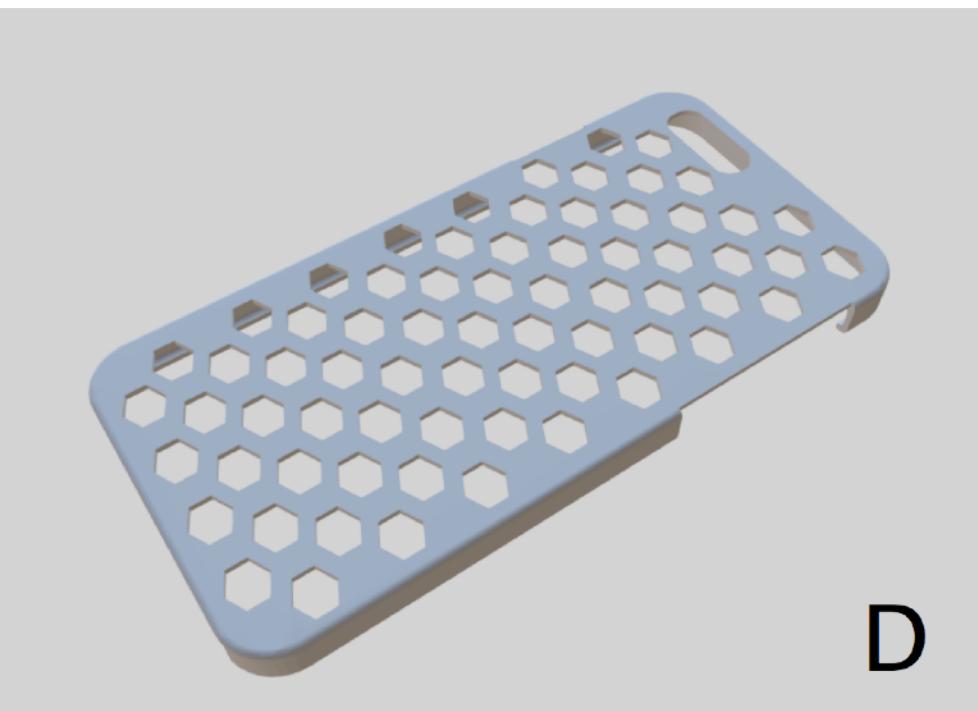
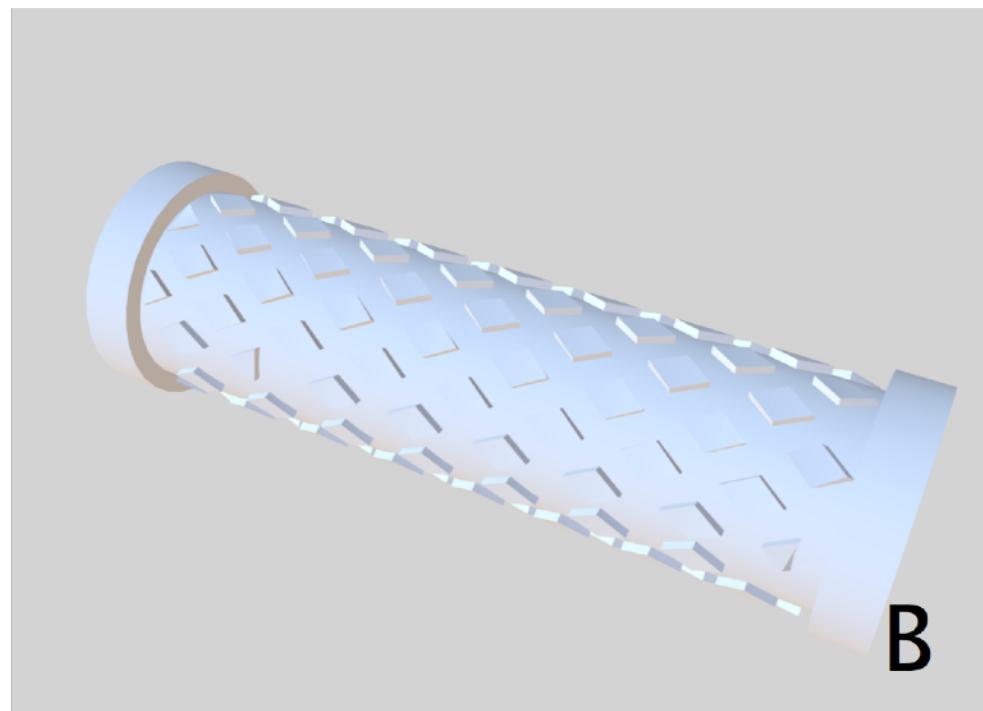
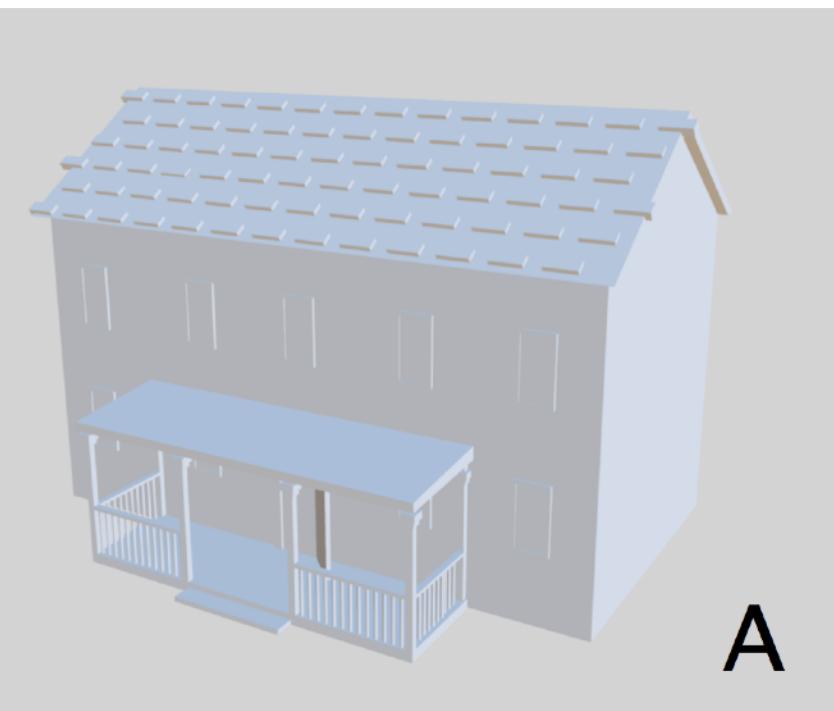


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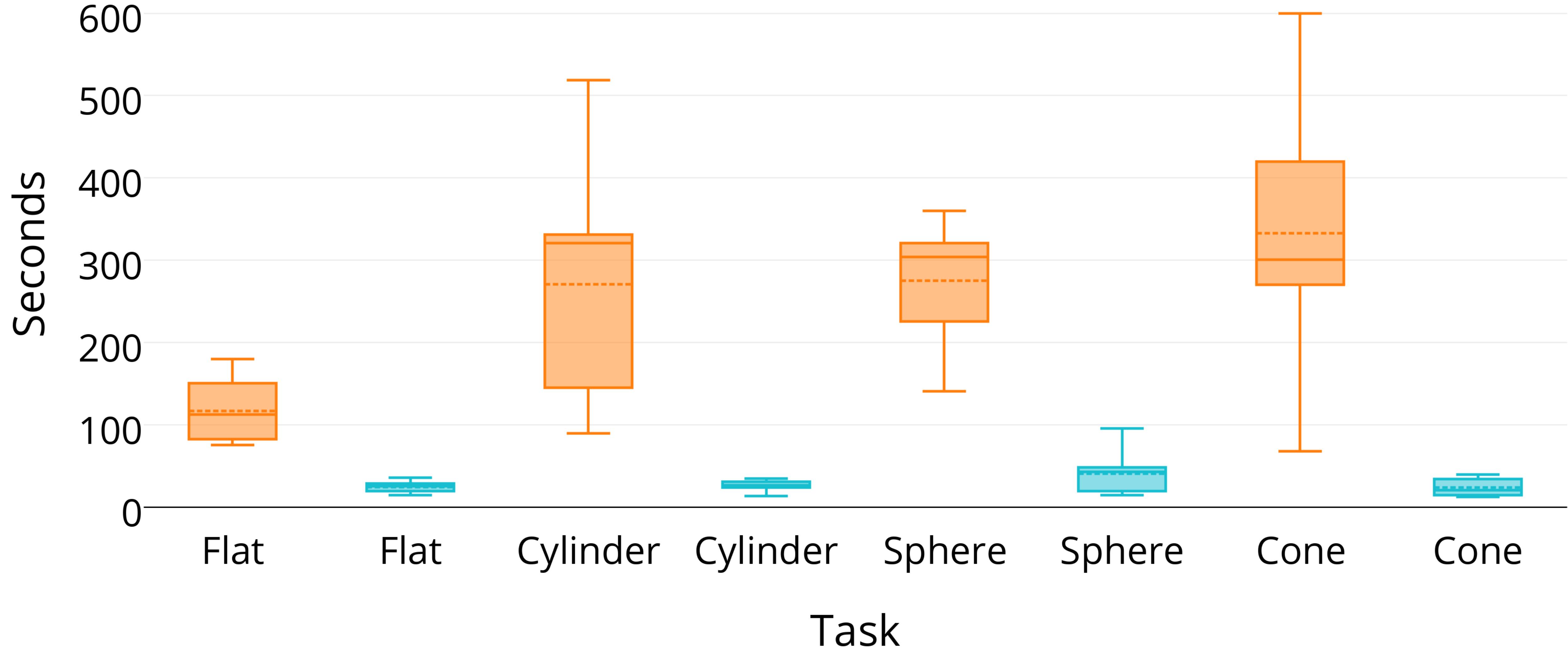
3. Texture Mesh Generation





**A****B****C****D****E****F**

Texture Creation Task



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Contributions

1. **Tabby, an interactive system** that instantiates the auto-completion method in the context of 3D texture design
2. **A set of workflow and techniques** that support 2D operations for designing 3D-printable texture patterns;
3. **A controlled experiment** with seven designers that shows users can efficiently and flexibly design textures compared to conventional tools

Thank you