



Estimation and Visualization of Isosurface Uncertainty from Linear and High-Order Interpolation Methods

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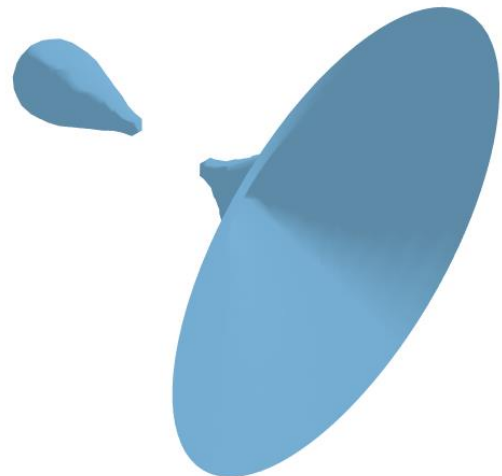
Jixian Li
SCI Institute, University of Utah

Tushar M. Athawale
Oak Ridge National Laboratory

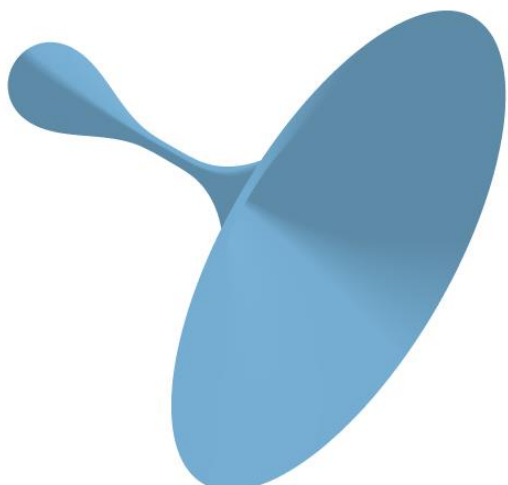
Chris R. Johnson
SCI Institute, University of Utah



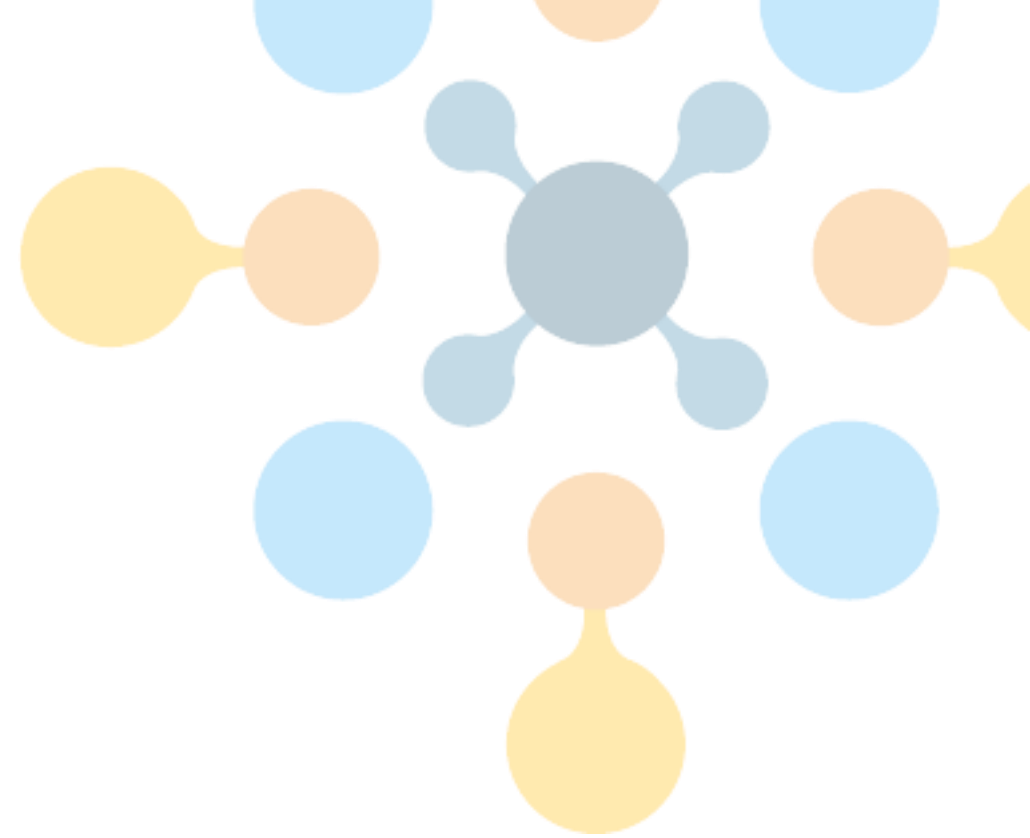
Teardrop



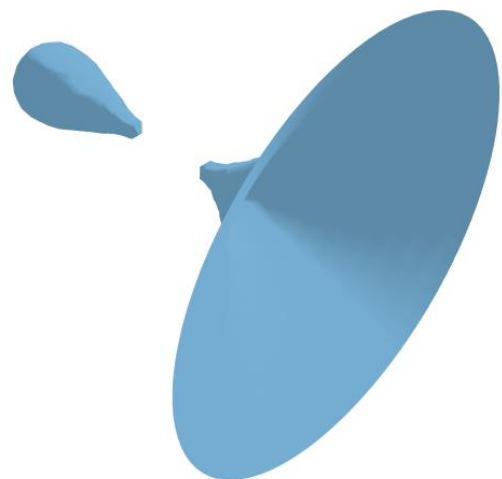
Marching Cubes (MC)



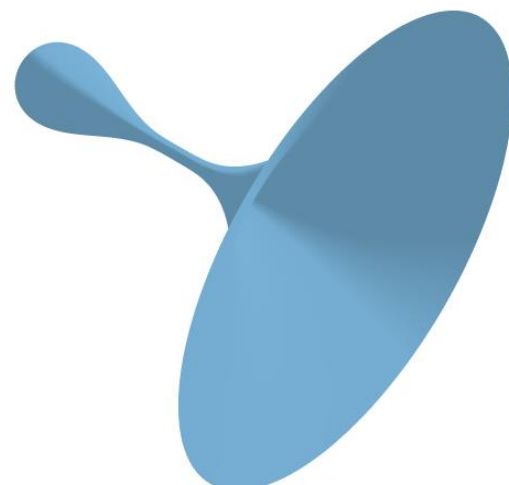
Target



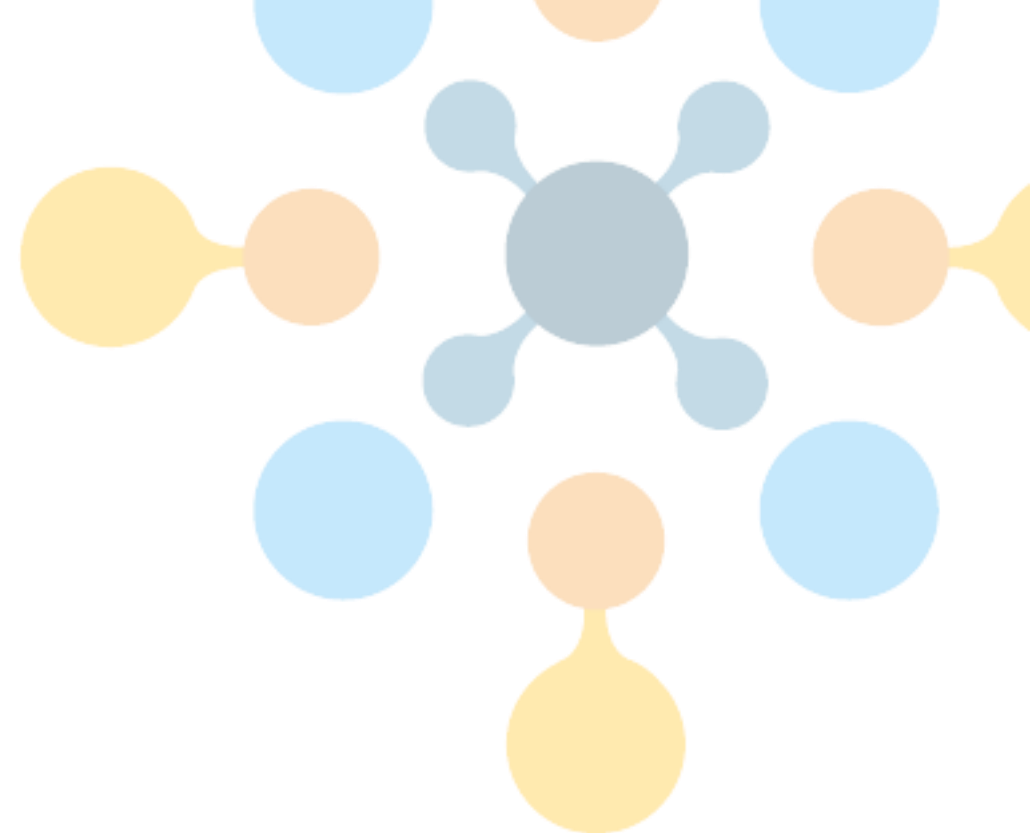
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Marching Cubes (MC)



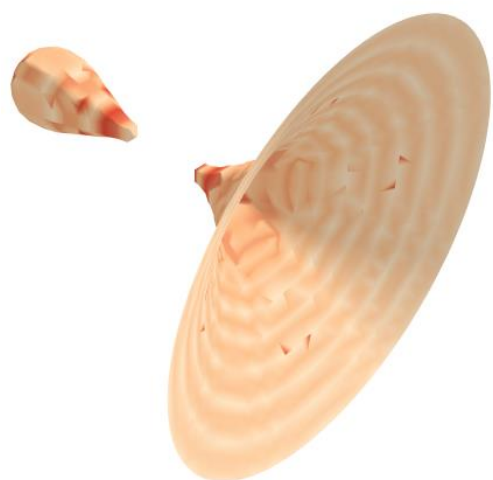
Target



Edge Crossing Error



0.005
0.004
0.003
0.002
0.001

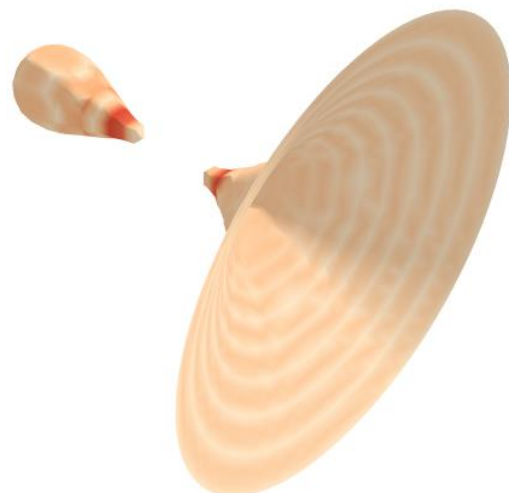


Estimated Errors

Edge Crossing Error

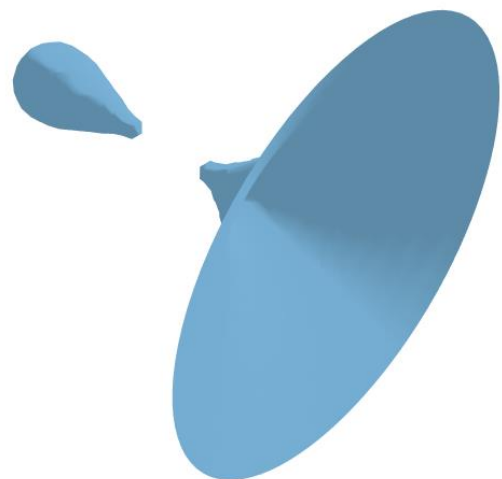


0.005
0.004
0.003
0.002
0.001

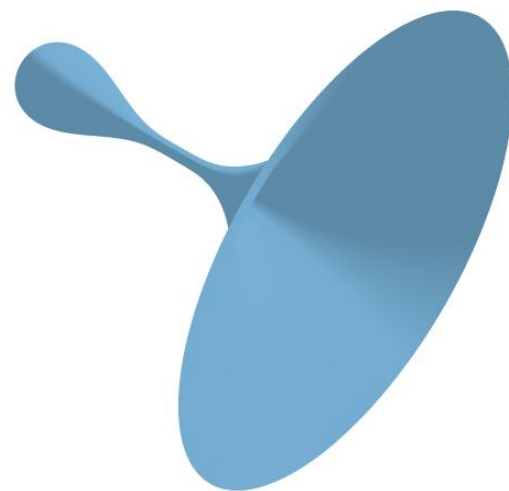


Measured Errors

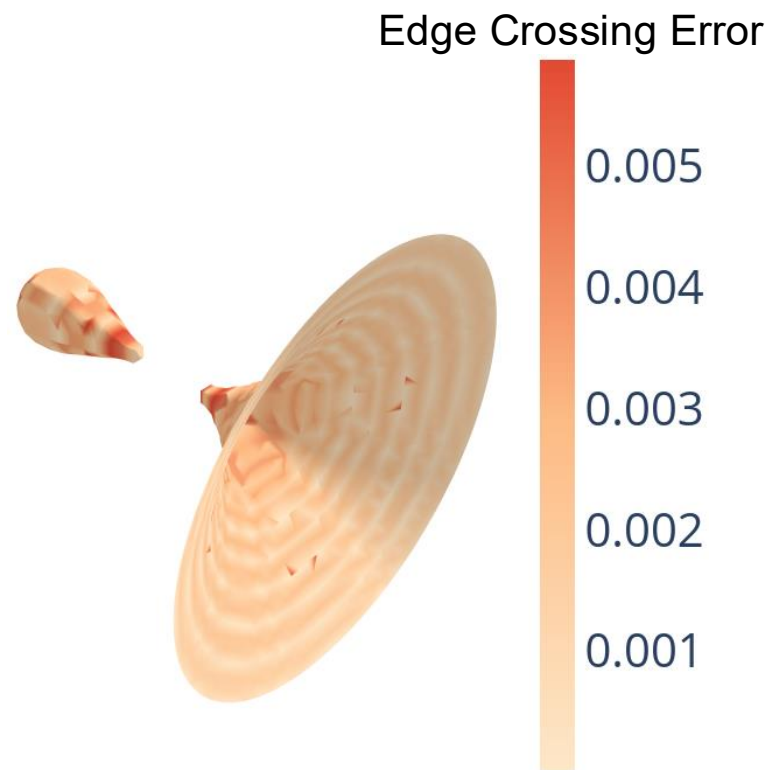
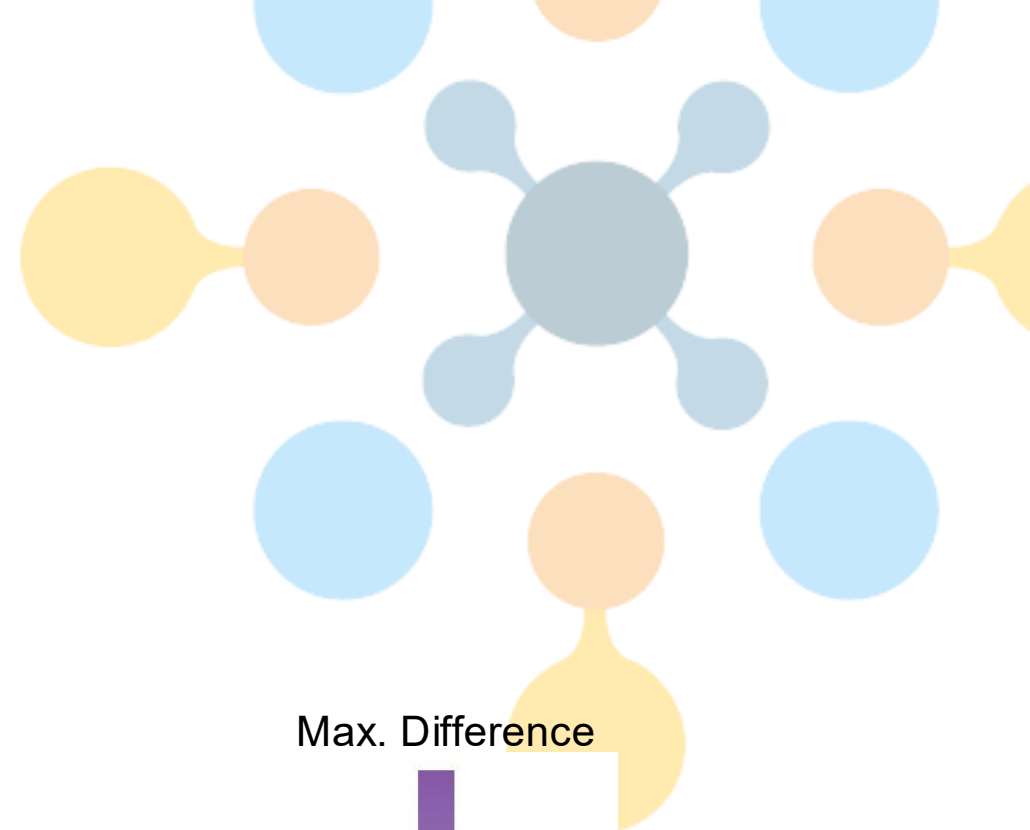
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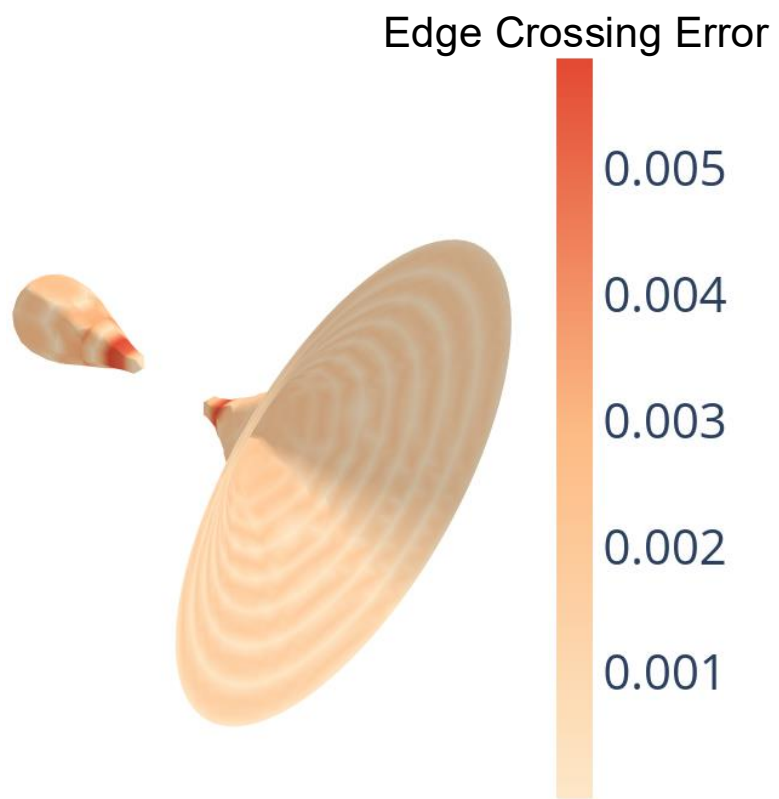
Marching Cubes (MC)



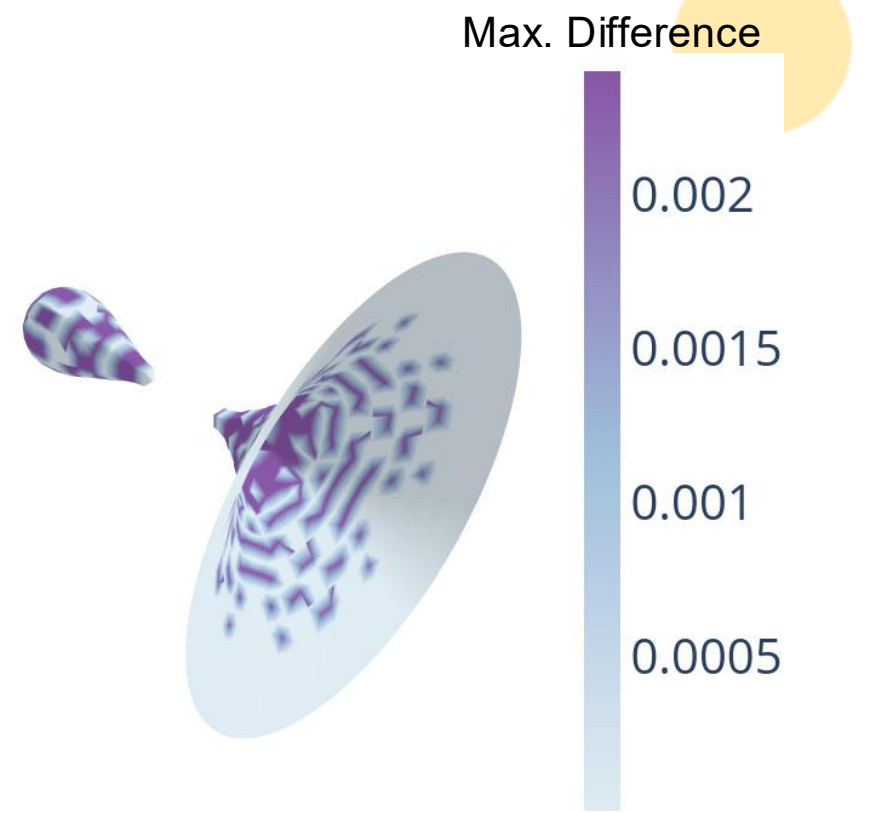
Target



Estimated Errors

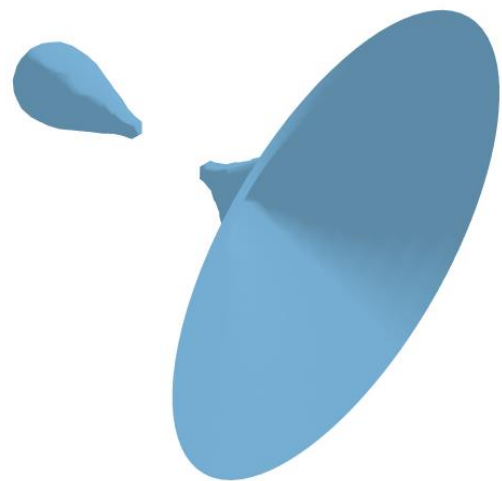


Measured Errors

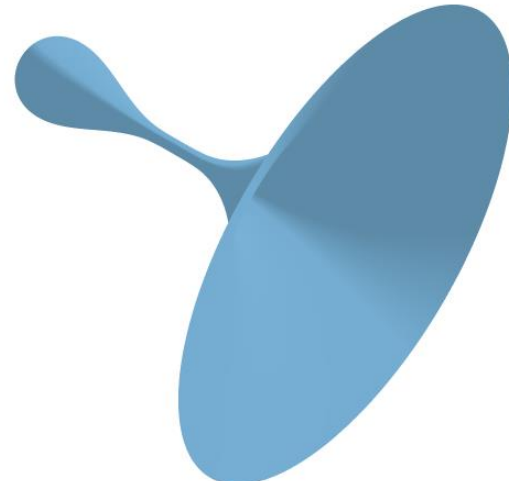


Interpolation Methods Max. Variation

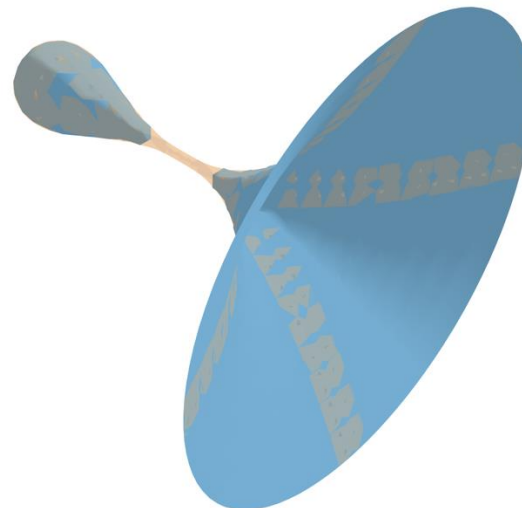
Teardrop



Marching Cubes (MC)

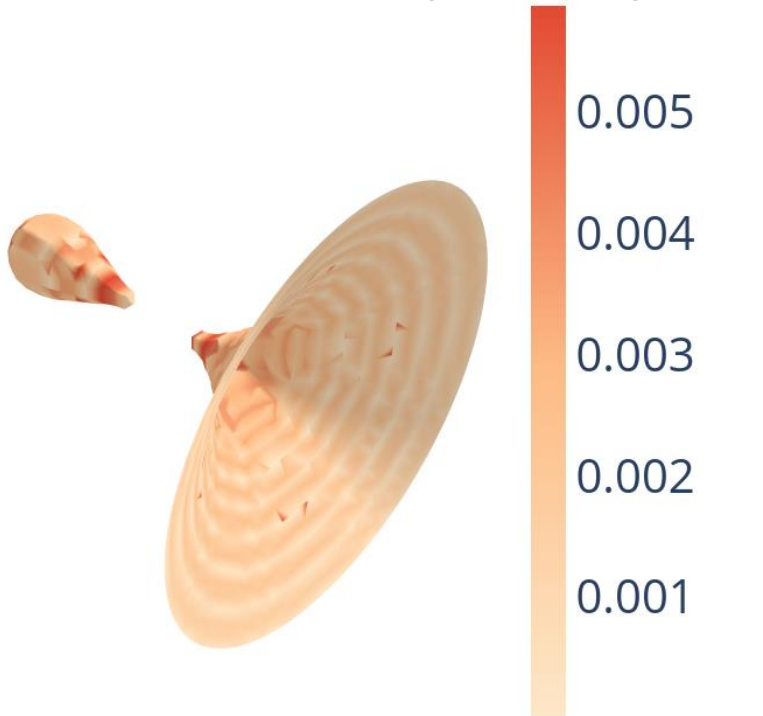


Target



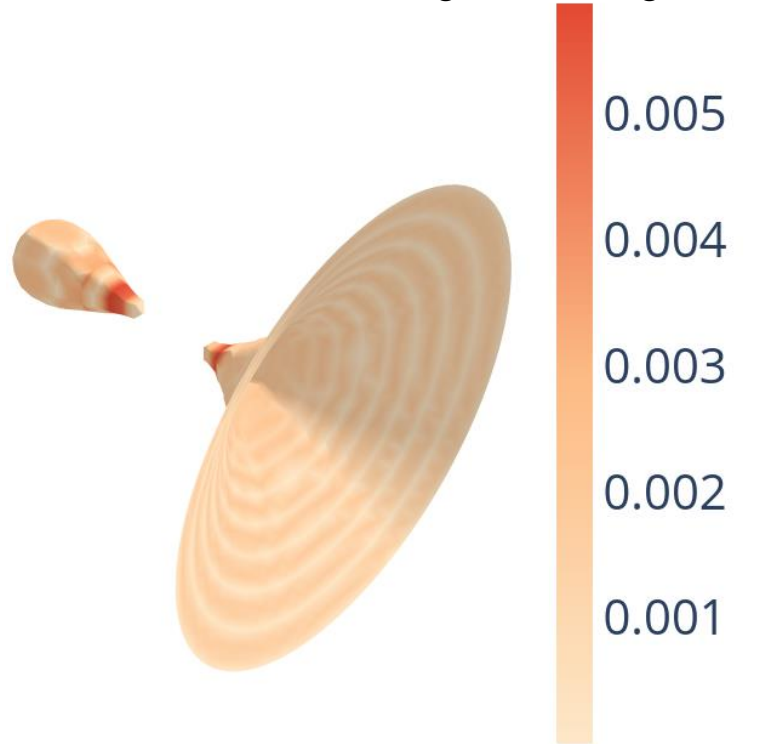
Possible Isosurfaces

Edge Crossing Error



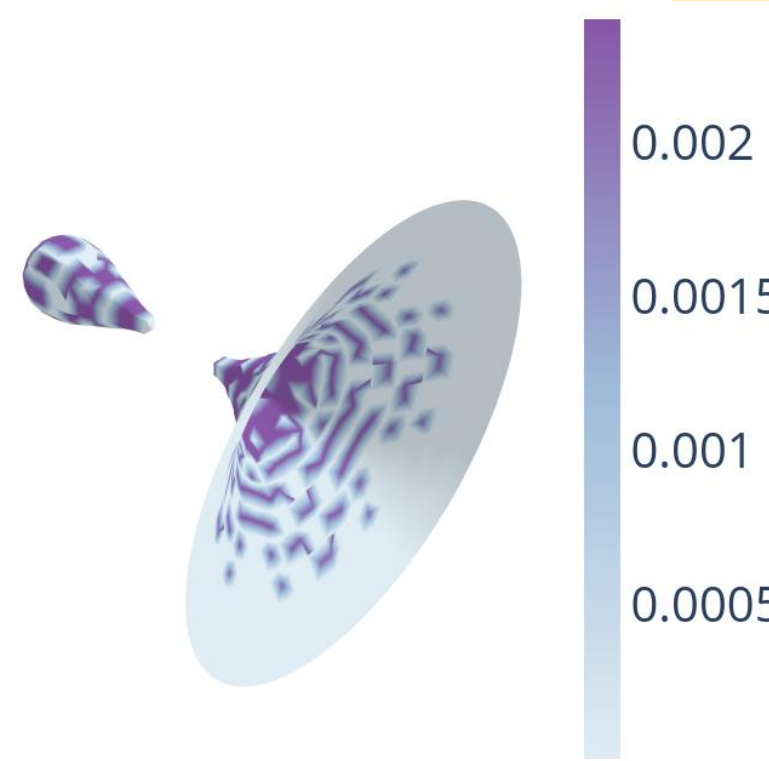
Estimated Errors

Edge Crossing Error



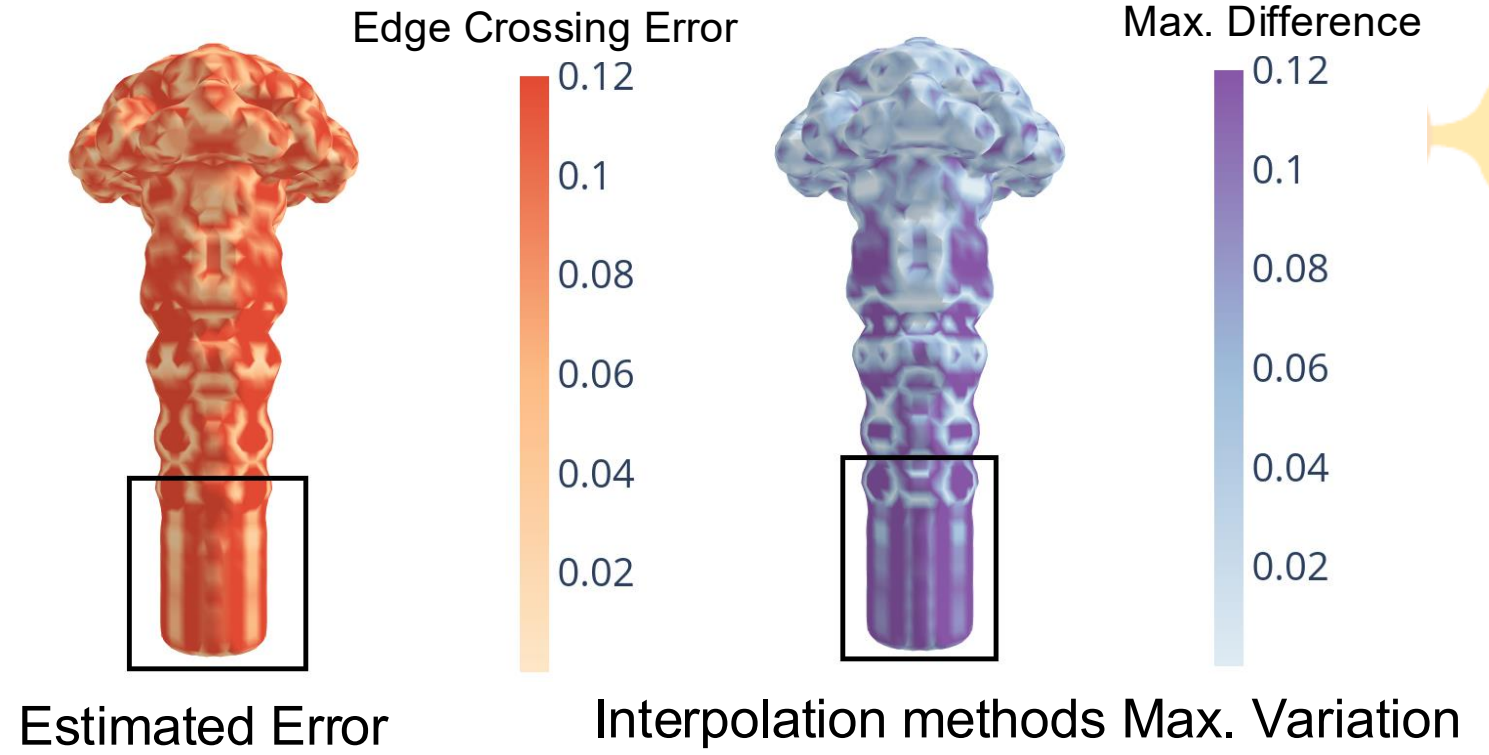
Measured Errors

Max. Difference

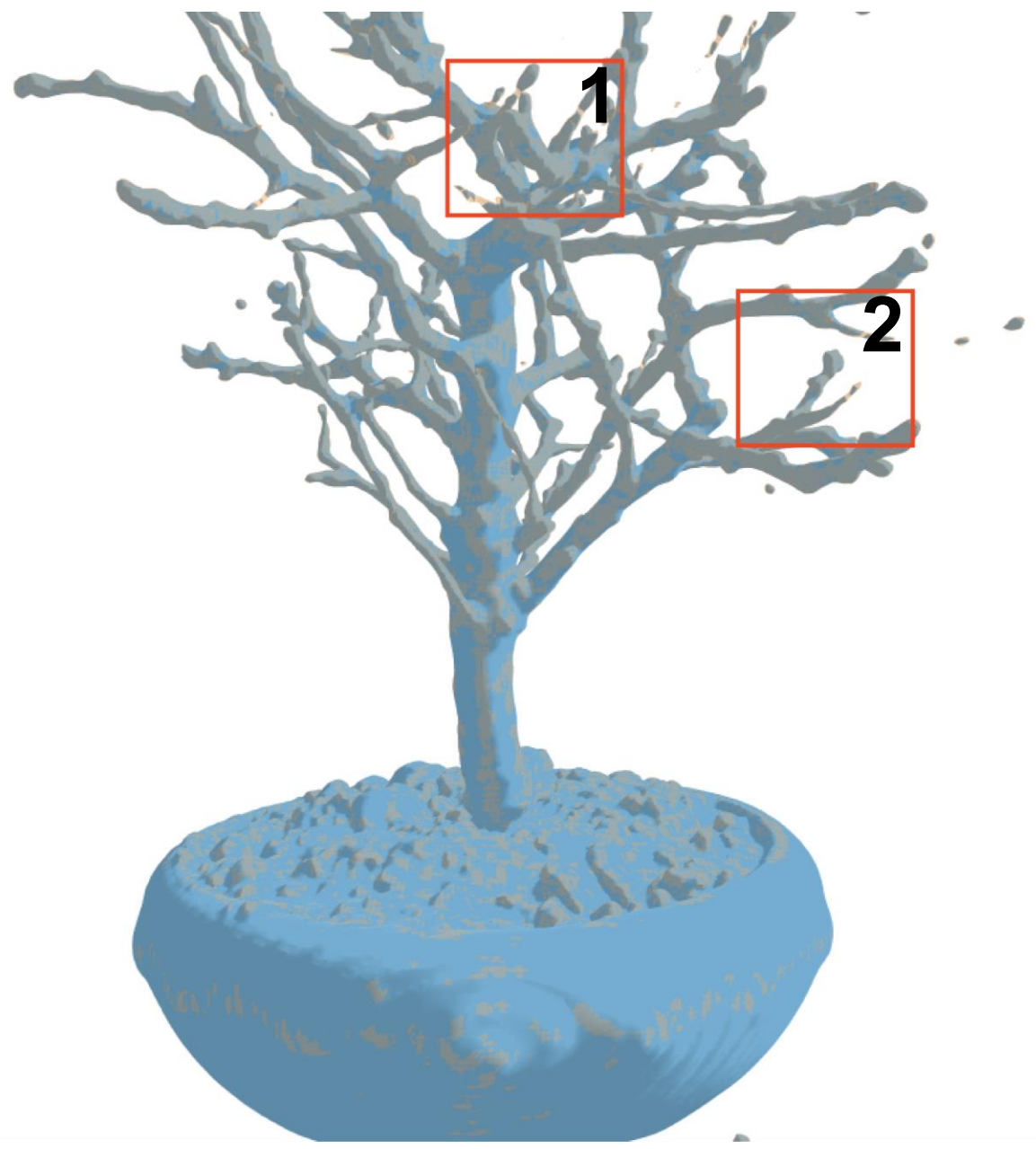


Interpolation Methods Max. Variation

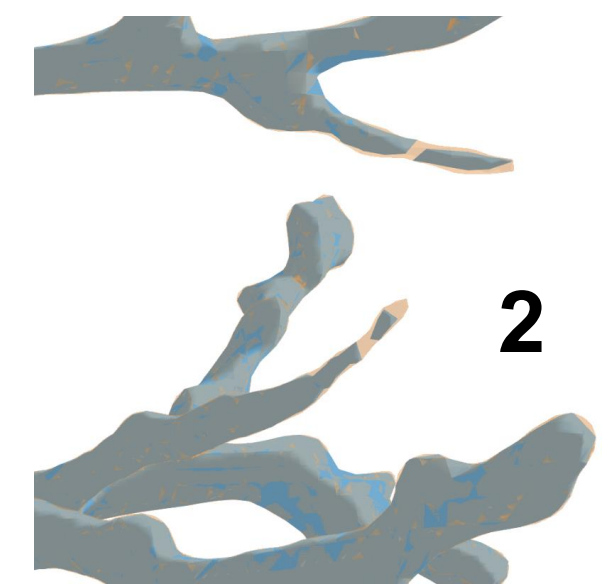
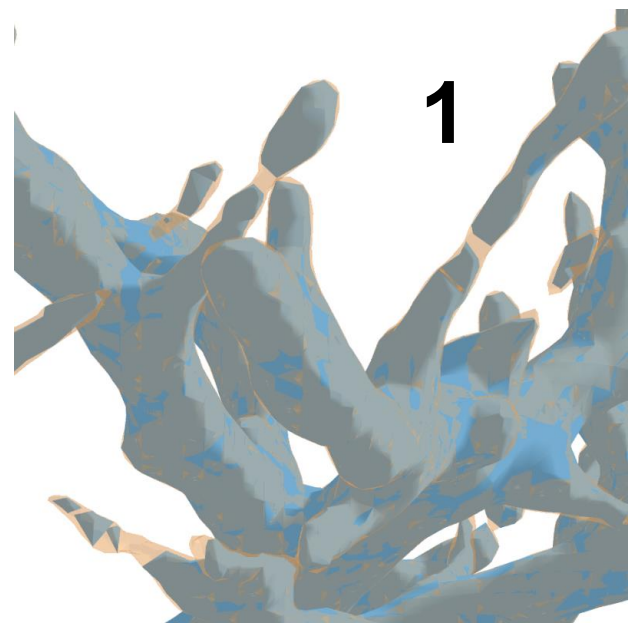
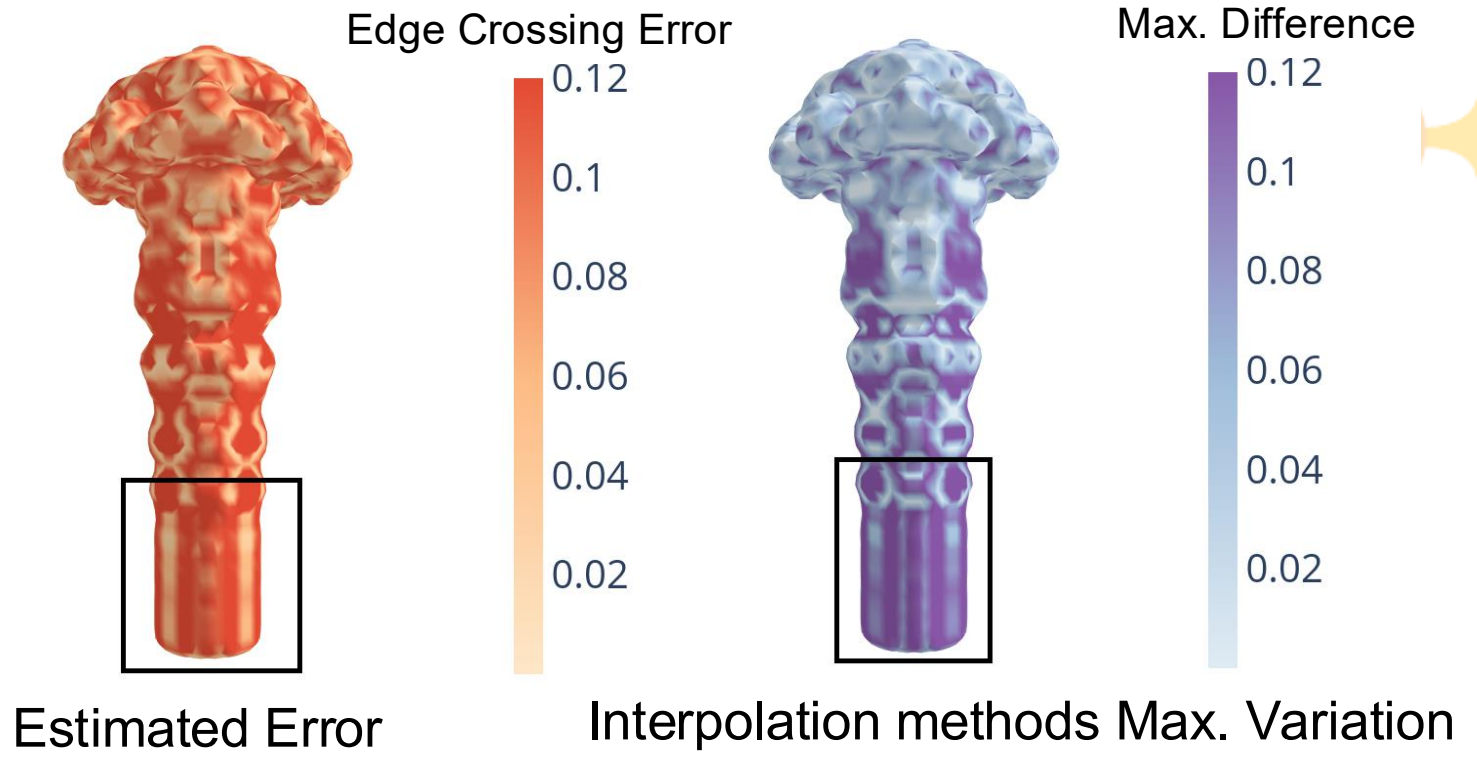
Fuel



Bonsai Tree



Fuel



Thank you

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- Preprint link: <https://arxiv.org/abs/2409.00043>



