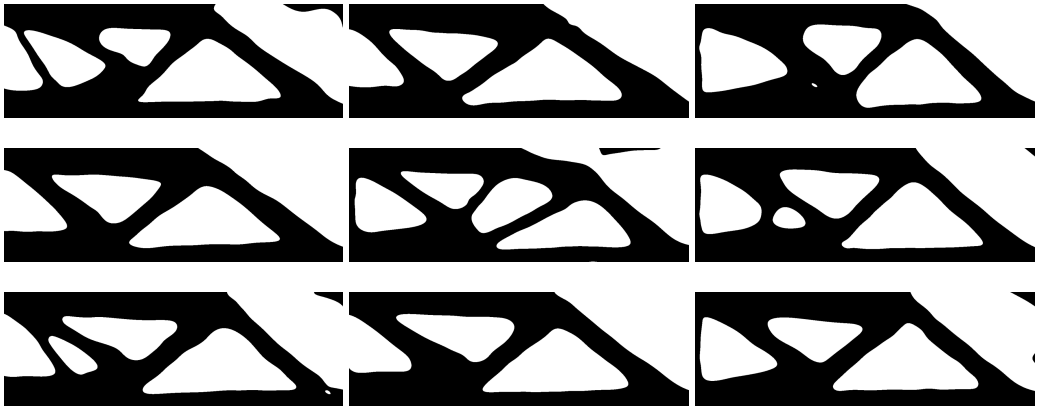
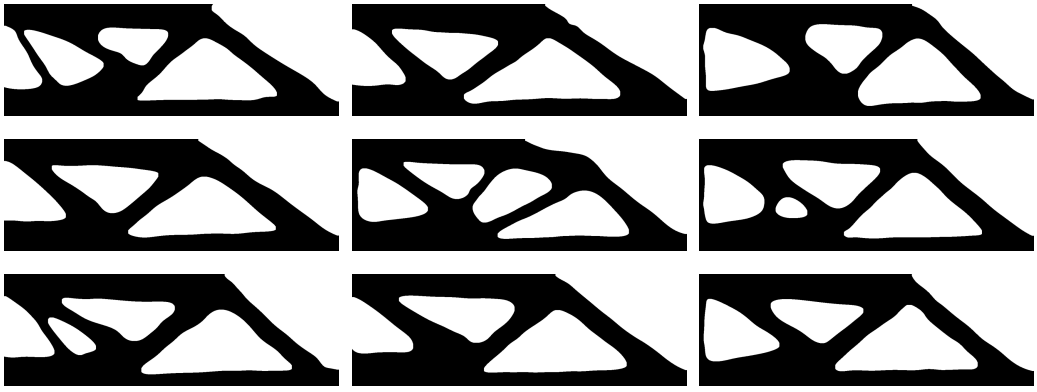
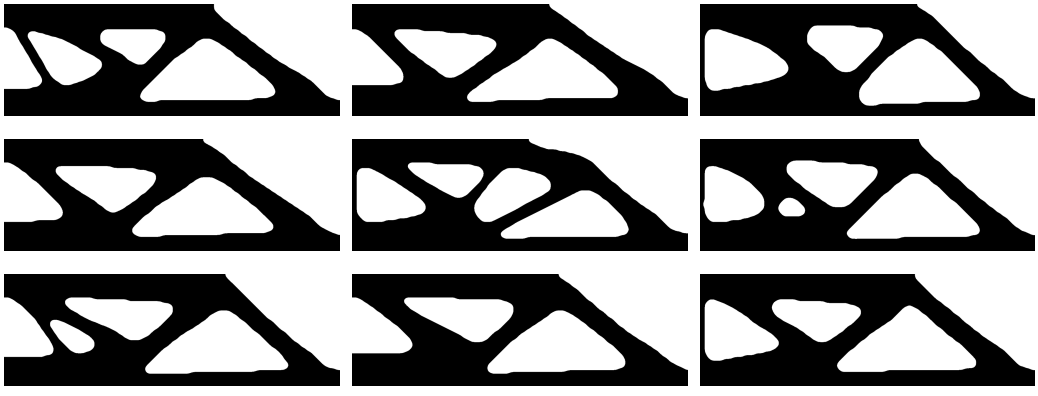
Rebuttal GenTO (ICML 2025)



(a) Output of GenTO model. The same output is shown in Figure 4 in the paper.



(b) Method **A**: Simple postprocessing using OpenCV to remove artifacts.



(c) Method **B**: Finetune by running a few FeniTop iterations to convergence (5% of total iterations).

Figure 1. **Postprocessing:** Showcasing 2 possible postprocessing steps to remove artifacts from the GenTO solutions.

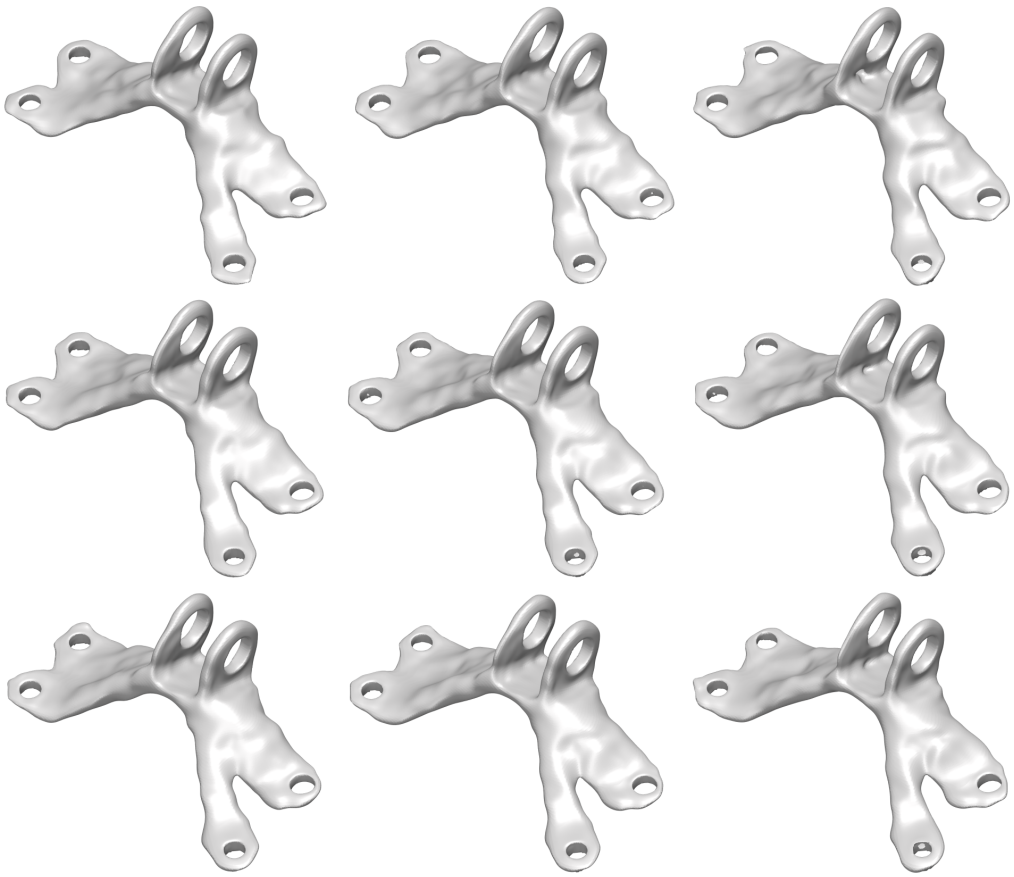


Figure 2. **Diversity ablation:** Without the diversity constraint we observe mode collapse in the discovered solutions. This problem is especially pronounced in the 3D case of the jet engine bracket.

Table 1. **Diversity Ablation:** For both 2D (MBB beam) and 3D (Jet engine bracket). We use multiple distance metrics to quantify the diversity of solutions: D_{W1} is the Wasserstein-1 distance, D_H is the Hausdorff distance and D_{SSIM} is the structural dissimilarity index measure. **N** is the number of solutions generated by a method.

Problem	**Method**	N	$\mathbb{E}(D_{W_1}) \uparrow$	$\mathbb{E}(D_H) \uparrow$	$\mathbb{E}(D_{SSIM}) \uparrow$
2D MBB					
	DB	2	0.0068	62.50	0.0605
	GenTO (equidistant)	9	**0.0214**	**220.79**	0.0908
	GenTO (equidistant) w/o diversity	9	0.0178	180.47	0.0867
	GenTO (equidistant) postproccess **A**	9	0.0199	88.77	0.0832
	GenTO (equidistant) postproccess **B**	9	0.0191	90.79	0.0833
	GenTO (uniform)	$\mathcal{U}([0,1]^2)$	0.0161	101.57	**0.1034**
	GenTO (uniform) w/o diversity	$\mathcal{U}([0,1]^2)$	0.012	77.54	0.0724
3D Bracket					
	GenTO (equidistant)	9	**0.0065**	**25.31**	**0.0476**
	GenTO (equidistant) w/o diversity	9	0.0019	5.92	0.0299
	GenTO (uniform)	$\mathcal{U}([0,0.25]^2)$	0.0017	6.98	0.0345
	GenTO (uniform) w/o diversity	$\mathcal{U}([0,0.25]^2)$	0.0012	5.19	0.0138