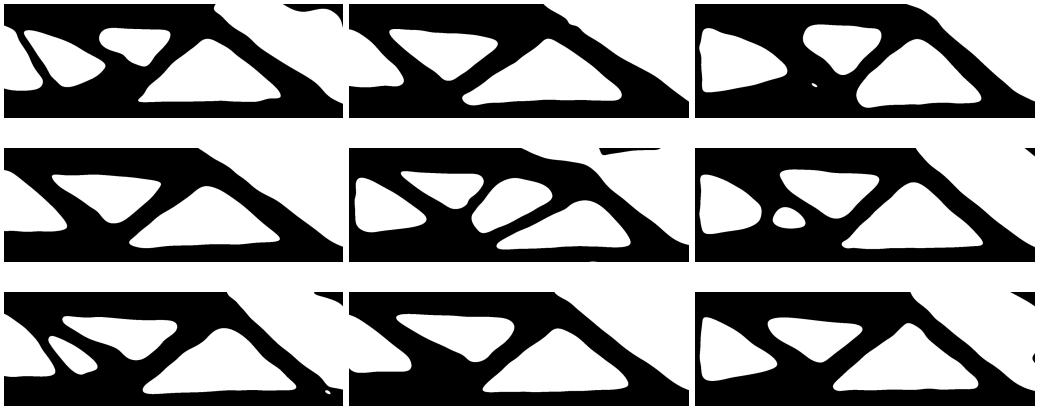
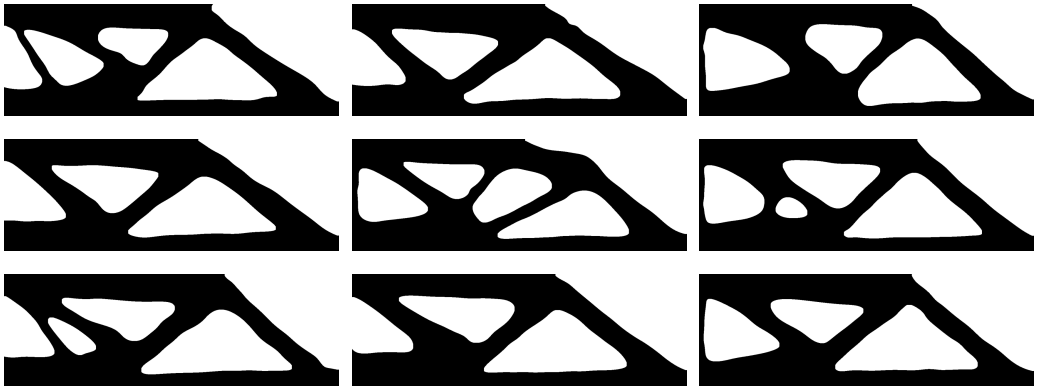
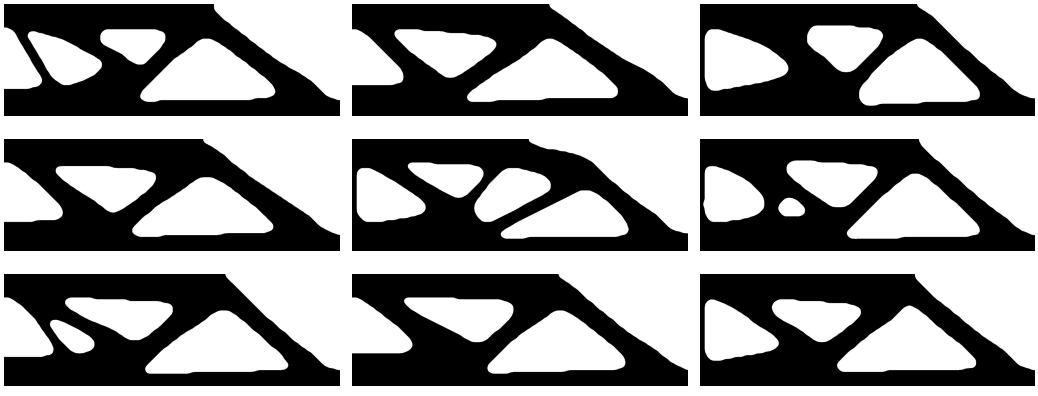
Rebuttal GenTO (ICML 2025)



(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.

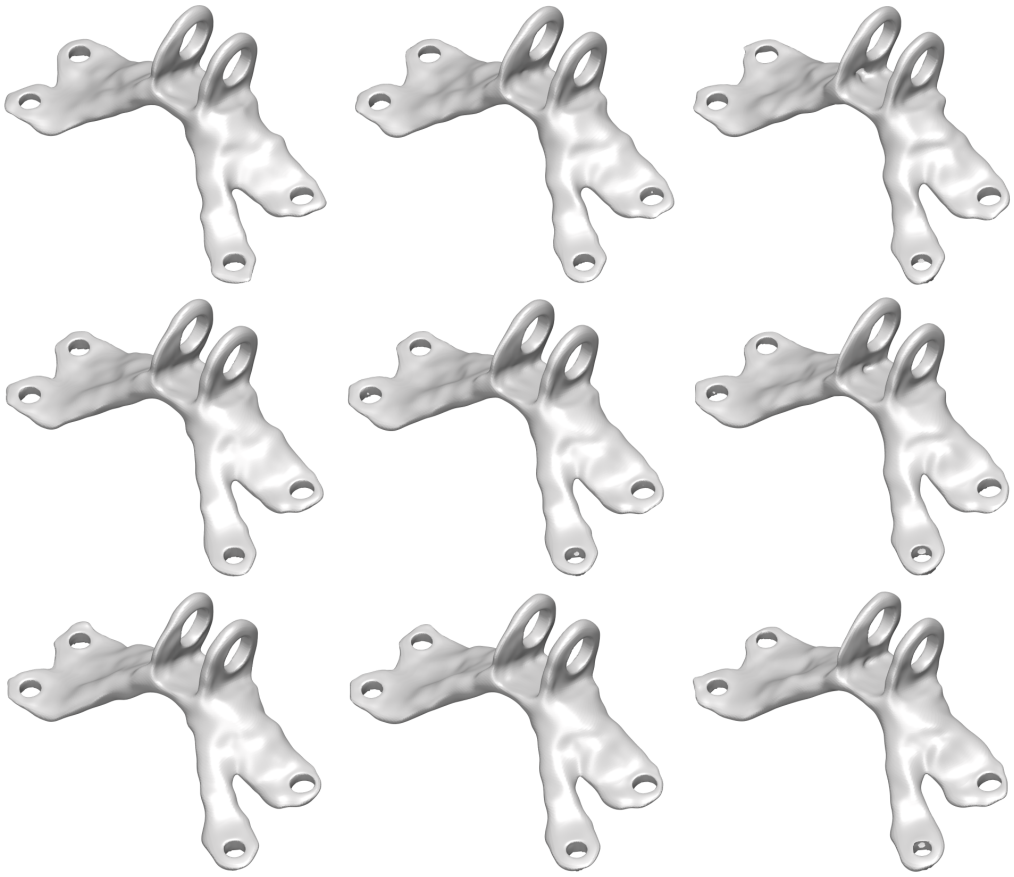


Figure 2. **Diversity constraint:** Without the diversity constraint we observe mode collapse in the discovered solutions. This problem is especially pronounced in the 3D case of the jet engine bracket

Table 1. Ablation of the diversity constraint in 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, $D_{Hausdorff}$ 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	$\mathbb{E}(D_{W_1}) \uparrow$	$\mathbb{E}(D_{Hausdorff}) \uparrow$	$\mathbb{E}(D_{SSIM}) \uparrow$
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