

# Distributionally-Informed Production Control: Bridging Diffusion and HJ-Safety Verification.

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# Training Journey: Four Runs, 8× A100

Run	GPUs	Model	Fix	Best $\varepsilon$
1	1×	30M	100k sim steps, CosineAnnealingLR	0.203
2	8×	7M	500k steps, ReduceLROnPlateau (p=20)	0.126
3	8×	30M	restore capacity, patience=50	<b>0.105</b>
4	8×	30M	low-noise curriculum (stopped)	0.108



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# Safety Verification

## The Python LevelSet Toolbox (LevelSetPy).

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Migration



Roosting



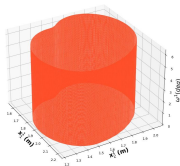
Flight



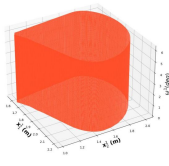
Tubing



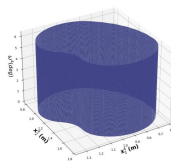
Flock 1's BRAT.



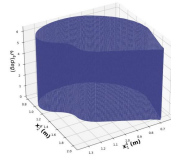
Flock 1's BRAT.



Flock 4's BRAT.



Flock 4's BRAT.









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