

Milestone Report

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DATASET

METHODS

Conditional Variational Autoencoder

Invertible Neural Network

EXPERIMENTAL EVALUATION

Evaluation protocol

Results

DoF	$e_{\text{posterior}}$	e_{resim}	Trainable Parameters	Model
2	0.077	0.003	164,808	cVAE
3	0.045	0.045	370,214	
4	0.063	0.006	373,220	
2	0.061	0.012	169,632	INN
3	0.066	0.036	369,660	
4	0.044	0.075	374,960	

TABLE I
CAPTION TO COME

NEXT STEPS

REFERENCES

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- [5] Y. Zhou, C. Barnes, L. Jingwan, Y. Jimei, and L. Hao, "On the continuity of rotation representations in neural networks," in *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2019.
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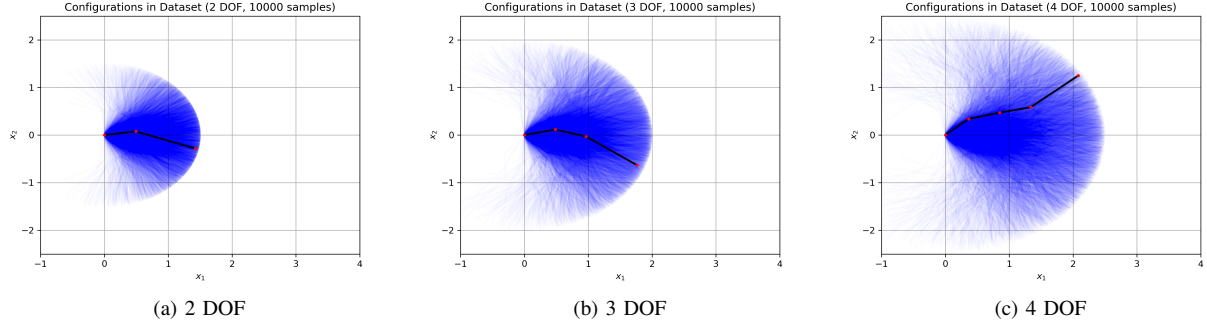


Fig. 1. Illustration of datasets used during training of models. Only a subset of the samples contained in the datasets is shown here. One configuration in the dataset is highlighted to illustrate the configuration of the robot arm.

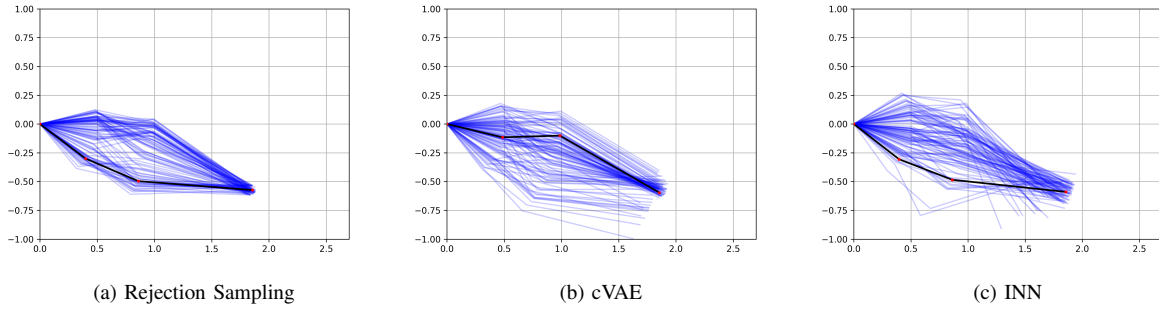


Fig. 2. Arm configuration of a planar manipulator with 3 revolute joints and end-effector position at $(x, y) = [1.83, -0.57]$. 100 samples are drawn from each model's predicted posterior $\tilde{p}(x|y_{gt})$, one random sample configuration is highlighted.

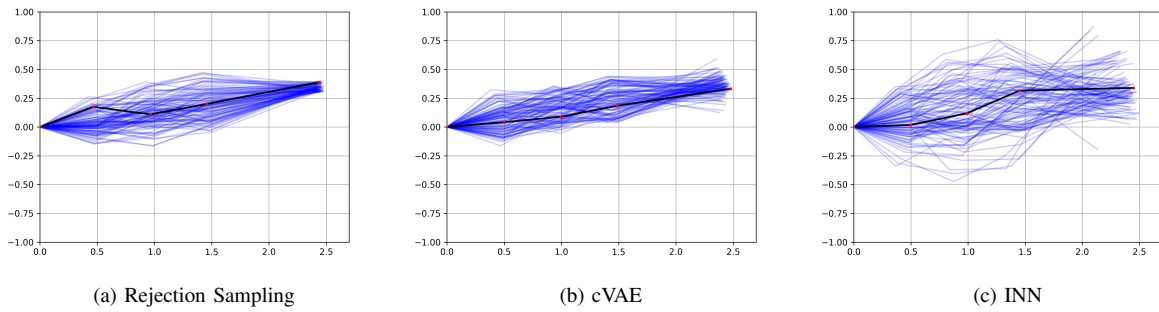


Fig. 3. Arm configuration of a planar manipulator with 4 revolute joints and end-effector position at $(x, y) = [2.44, 0.35]$. 100 samples are drawn from each model's predicted posterior $\tilde{p}(x|y_{gt})$, one random sample configuration is highlighted.