Benchmarking Invertible Architectures on Inverse Problems

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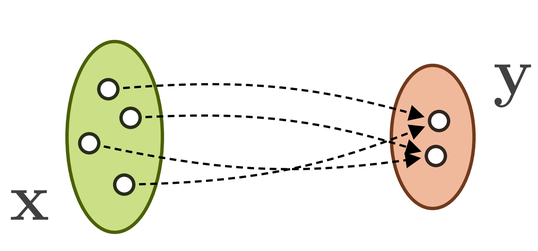
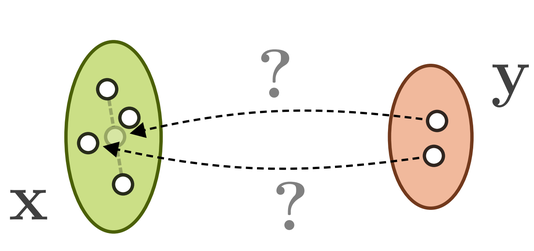
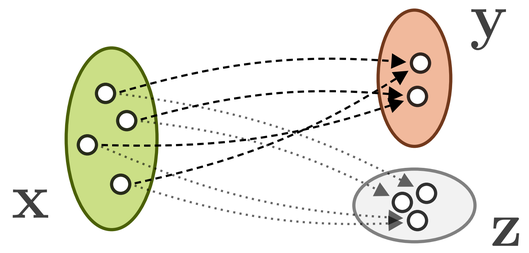
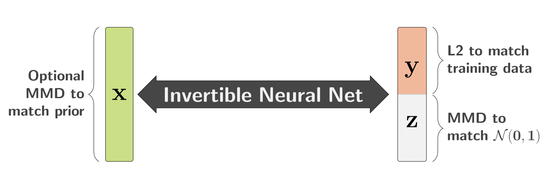
Inverse Problems

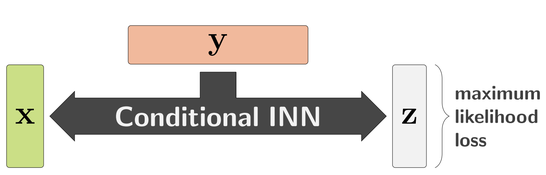


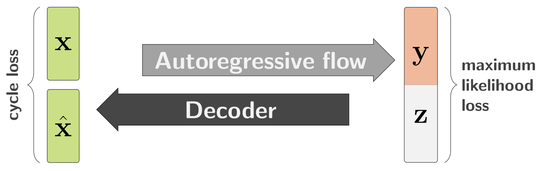


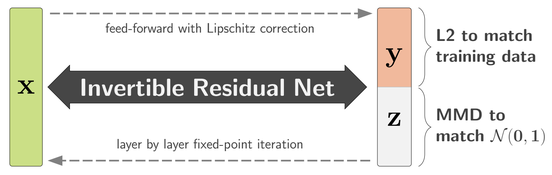


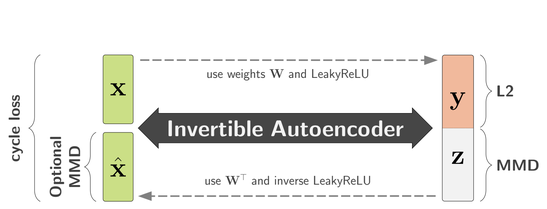
Invertible Architectures

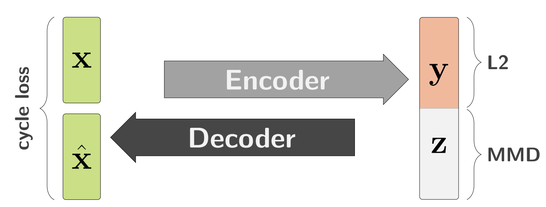


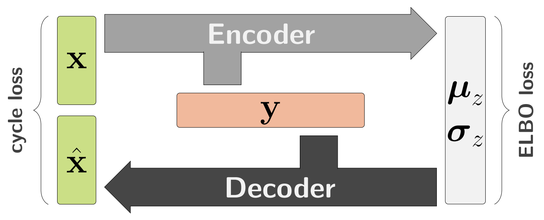


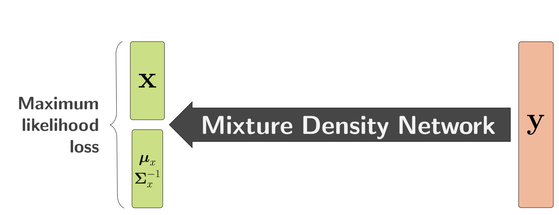






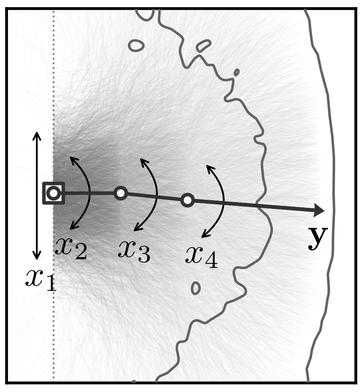




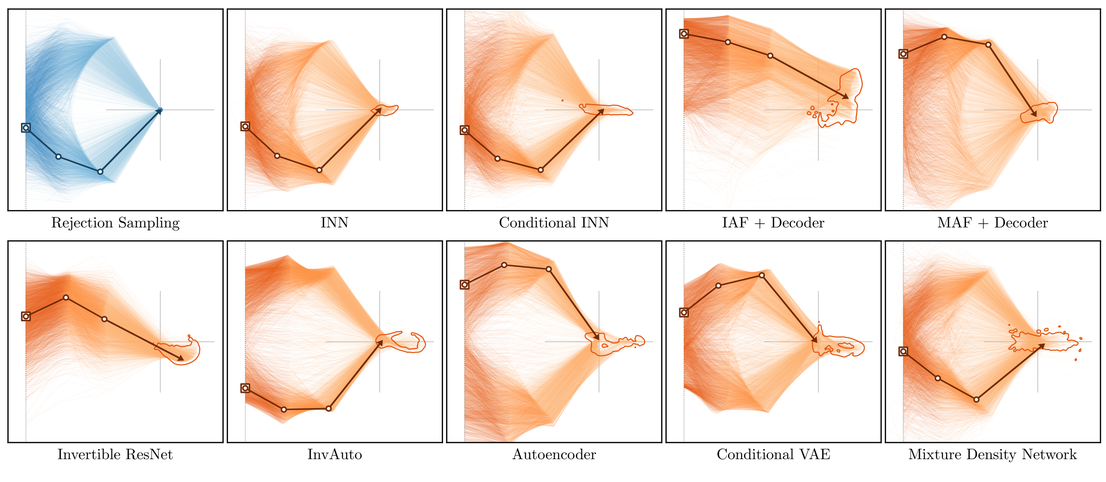


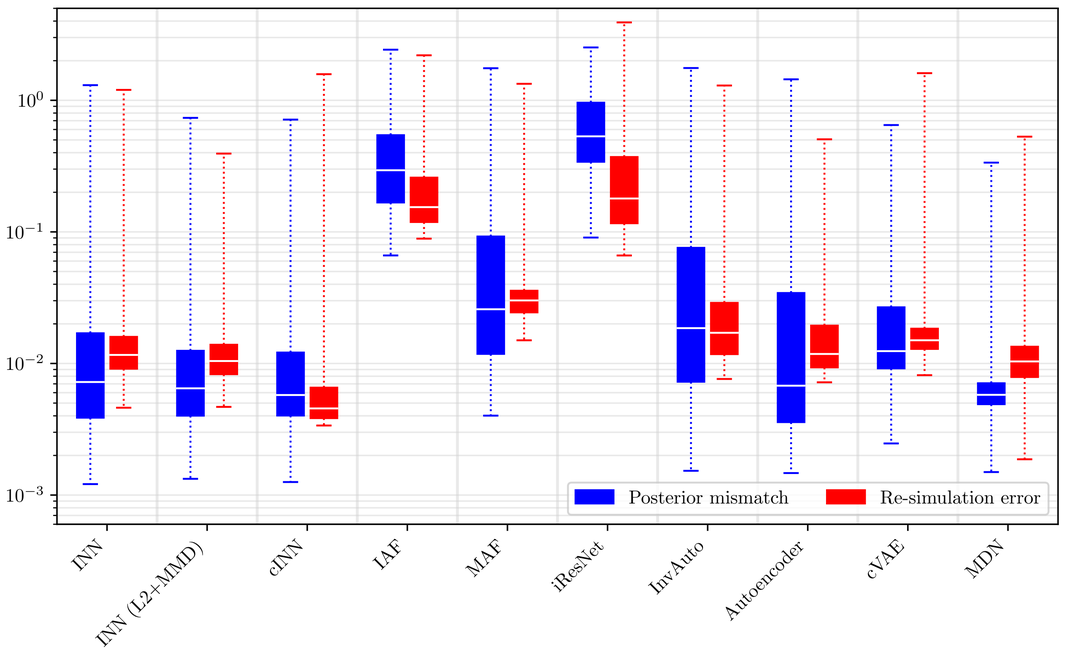
- all networks scaled to about 3 million trainable parameters
- same training data and number of updates for all experiments
- ground truth posterior $p(\mathbf{x} \mid \mathbf{y})$ available via rejection sampling

Inverse Kinematics Benchmark

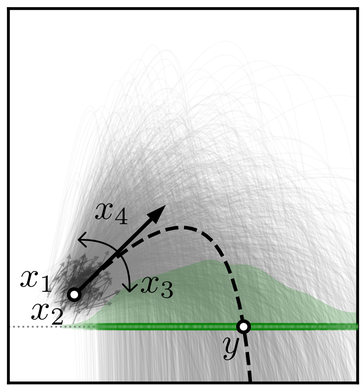


- 2D robot arm with three segments
- $\mathbf{x}$ are vertical position and three joint angles
- $\mathbf{y}$ is 2D position of arm's end point
- Gaussian prior favoring fully stretched pose

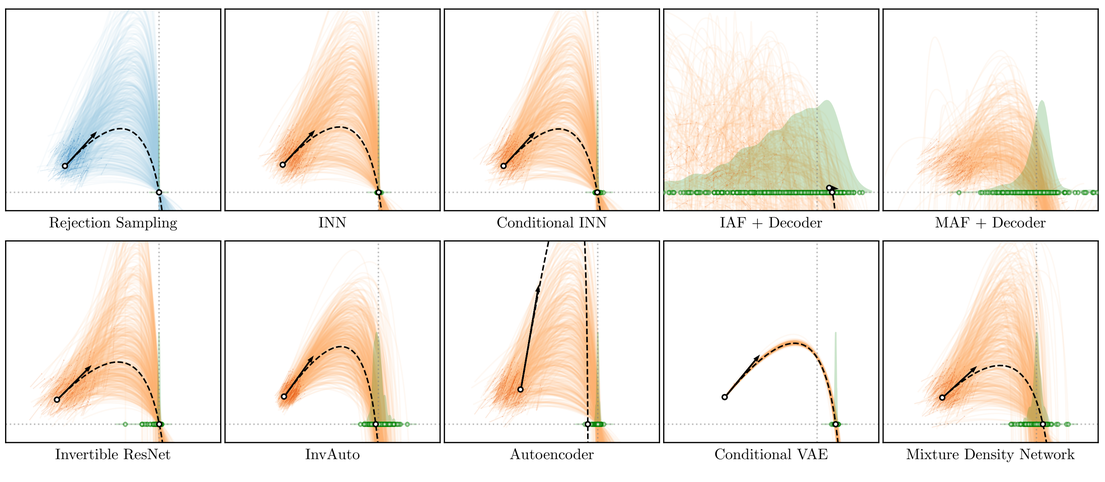


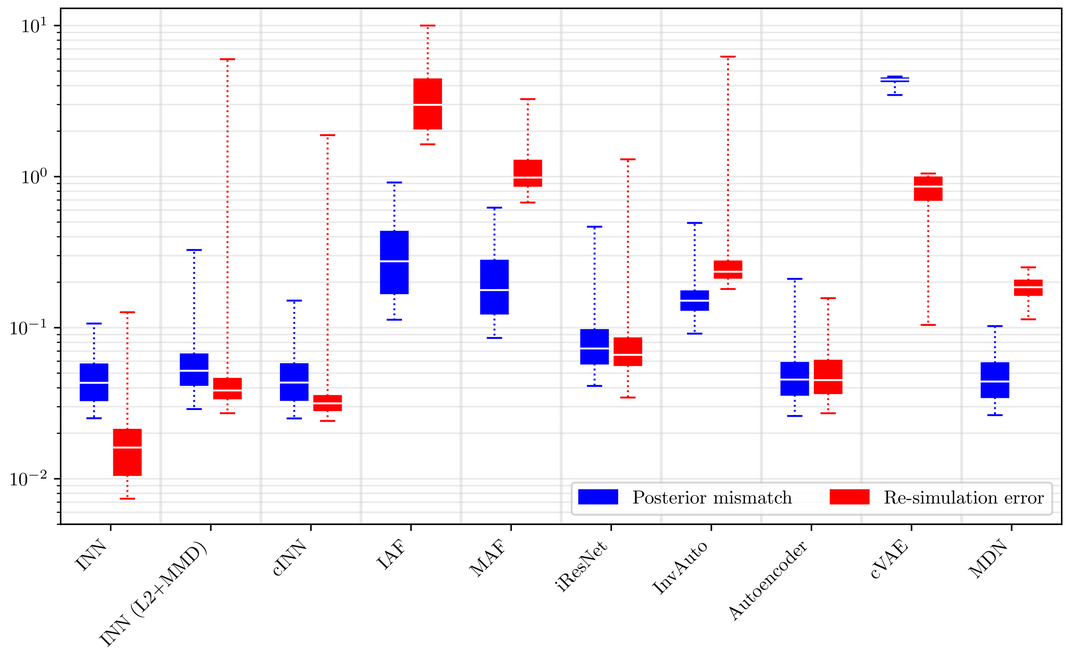


Inverse Ballistics Benchmark



- point mass thrown up and right until it hits ground
- $\mathbf{x}$ are initial position angle and force
- y is where it hits the ground
- Mix of Gaussian, uniform and Poisson priors





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