Behavioral Cloning

- Modeling the conditional probability \( p(a|s) \)
- Implicit BC
- \( \pi \) suffers from manifold overfitting
- \( \pi \) generalizes poorly

- \( \pi \) joint suffers from manifold overfitting

Main Experiments

Comparing generative models on Maze

- Energy-based model (EBM), variational autoencoder (VAE), generative adversarial network (GAN), diffusion model (DM)

Ablation Studies

Evaluating generalization performance on Fetch

- Varying the noise added to initial states and goal locations

Our Approach: Diffusion Model-Augmented Behavioral Cloning (DBC)

Stage 1: Learning a Diffusion Model

Stage 2: Learning a Policy with the Learned Diffusion Model