

# AniLA: Anisotropic Langevin Dynamics for training Energy-Based Models

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**Abstract**

## 1 Introduction

## 2 MCMC based EBM

Energy Based Models

MCMC procedures

Focus on Langevin Diffusion

## 3 ANILA sampler based EBM

### 3.1 Curvature informed MCMC

We introduce a new sampler based on the Langevin updates presented above.

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**Algorithm 1** ANILA EBM

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```
1: Input: parameter  $s$ 
2: for  $t = 1$  to  $T$  do
3:   Set  $\theta_{r,i}^0 = \bar{\theta}_{r-1}$ 
4: end for
5: ds
```

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### 3.2 Geometric ergodicity of ANILA sampler

## 4 Numerical Experiments

## 5 Conclusion