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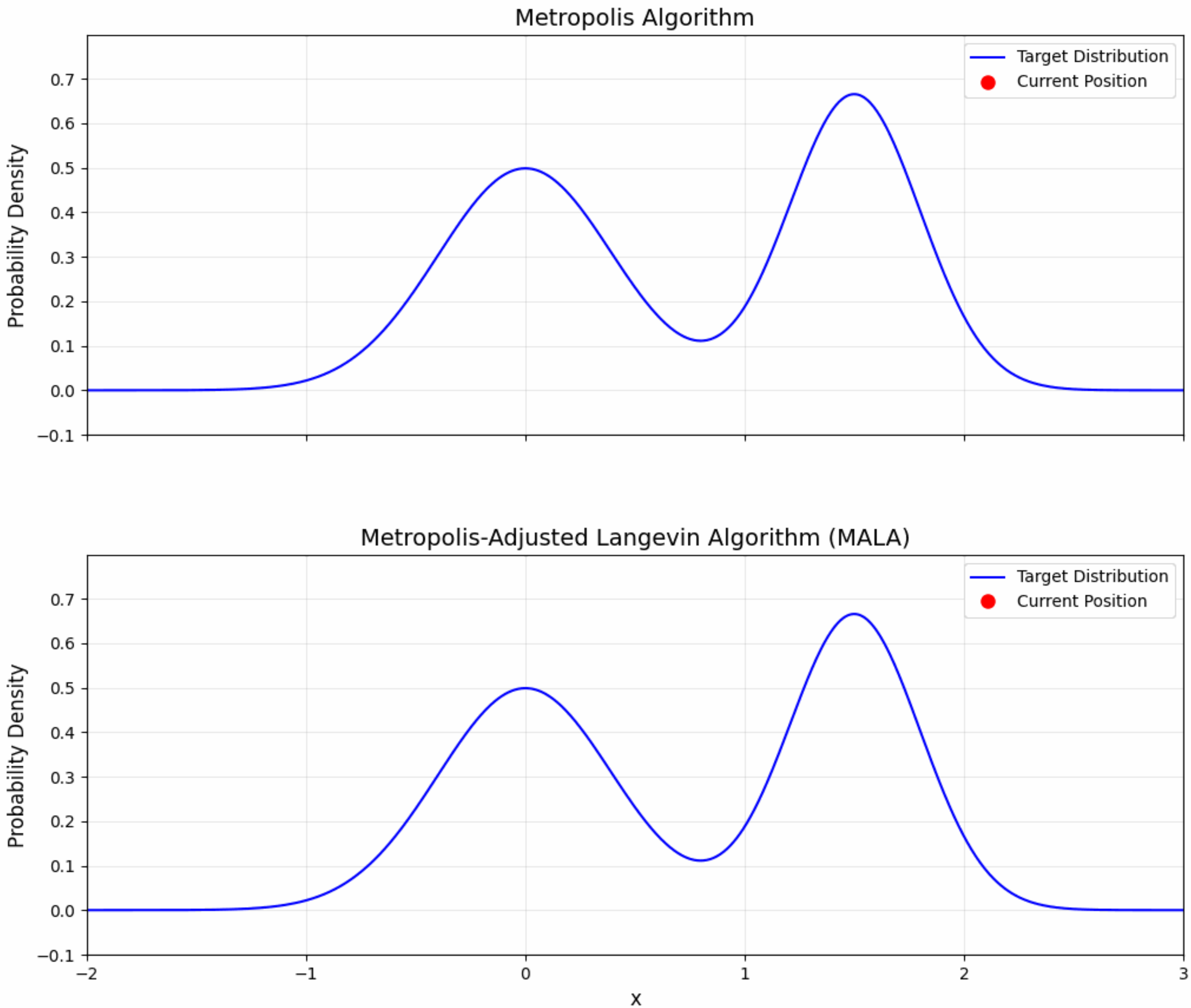
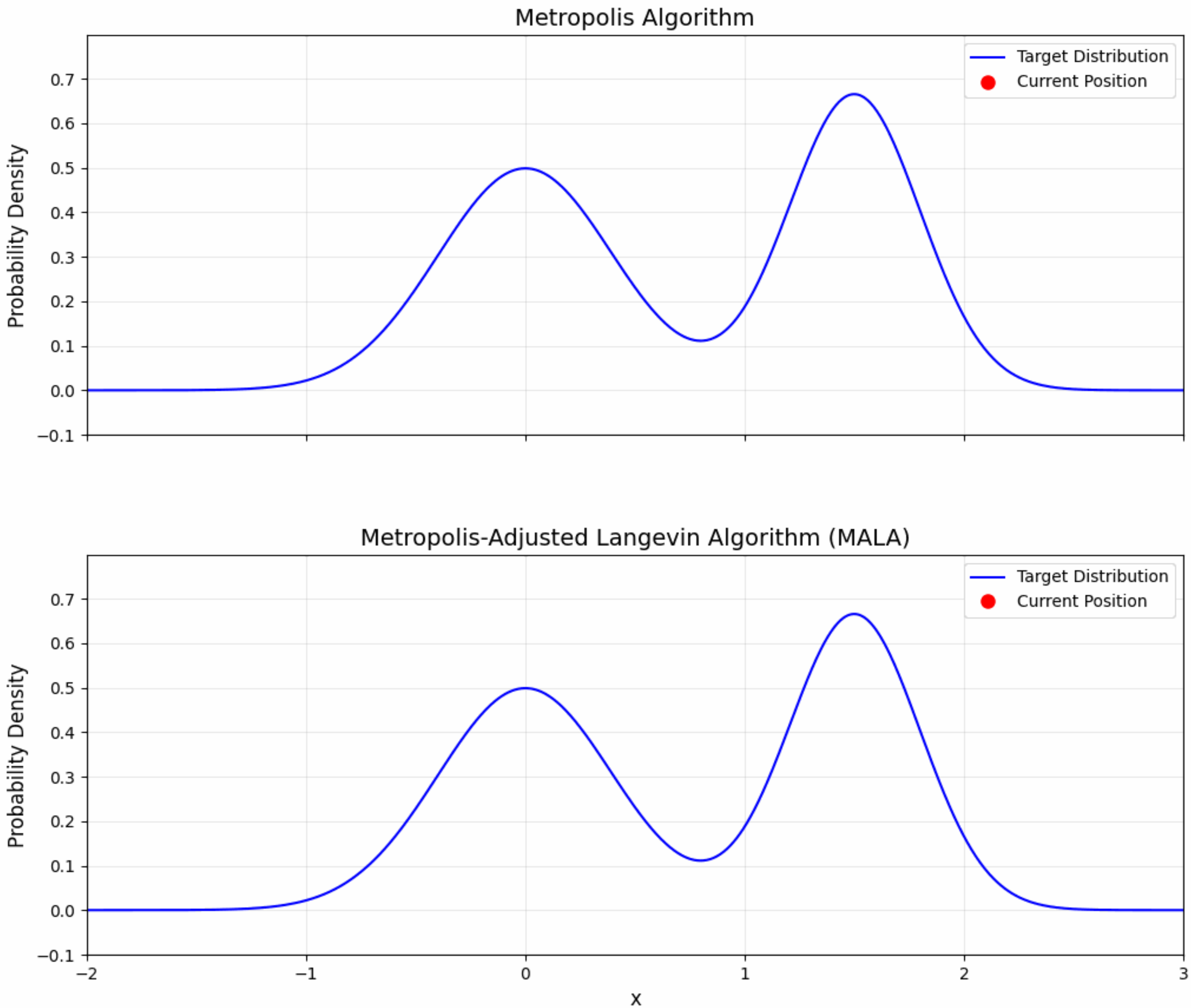
76

MCMC: algorithmes avancés

Metropolis vs MALA


Metropolis Algorithm
Target Distribution
Current Position
Probability Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−0.1
Metropolis-Adjusted Langevin Algorithm (MALA)
Target Distribution
Current Position
Probability Density
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−0.1
−2
−1
0
1
2
3
x

(animated)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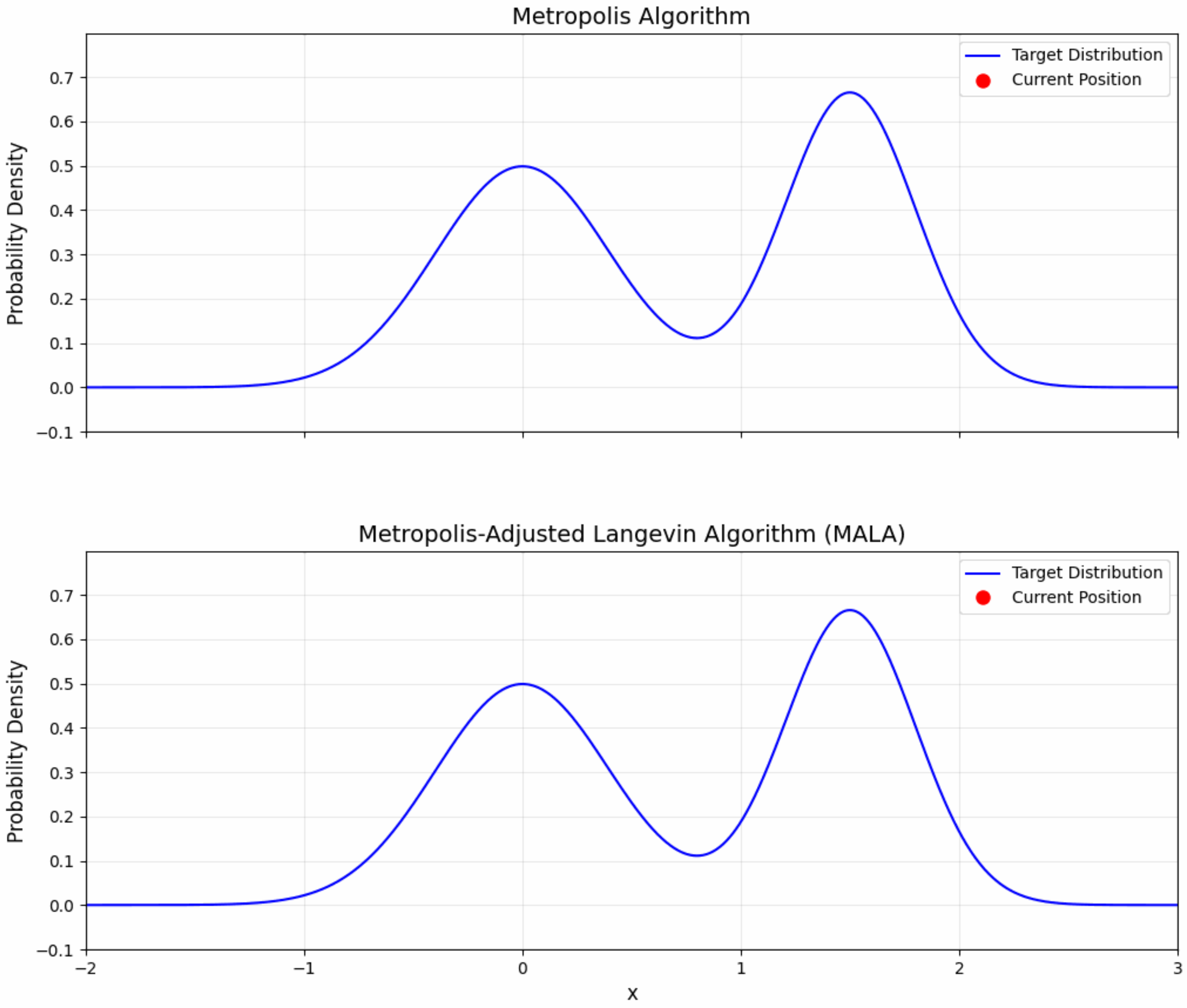
Metropolis vs MALA



(animated)

1. Pourquoi Monte-Carlo ? (Exemple de modèle hiérarchique)

2. Introduction à la méthode Monte-Carlo (historique, PRNG)

3. Algorithmes de simulation i.i.d (PRNG, transformation, rejet)

4. Méthodes MCMC (Gibbs, Metropolis)

5. Diagonstics de convergence MCMC

6. Méthodes MCMC avancées (Langevin, HMC, NUTS)

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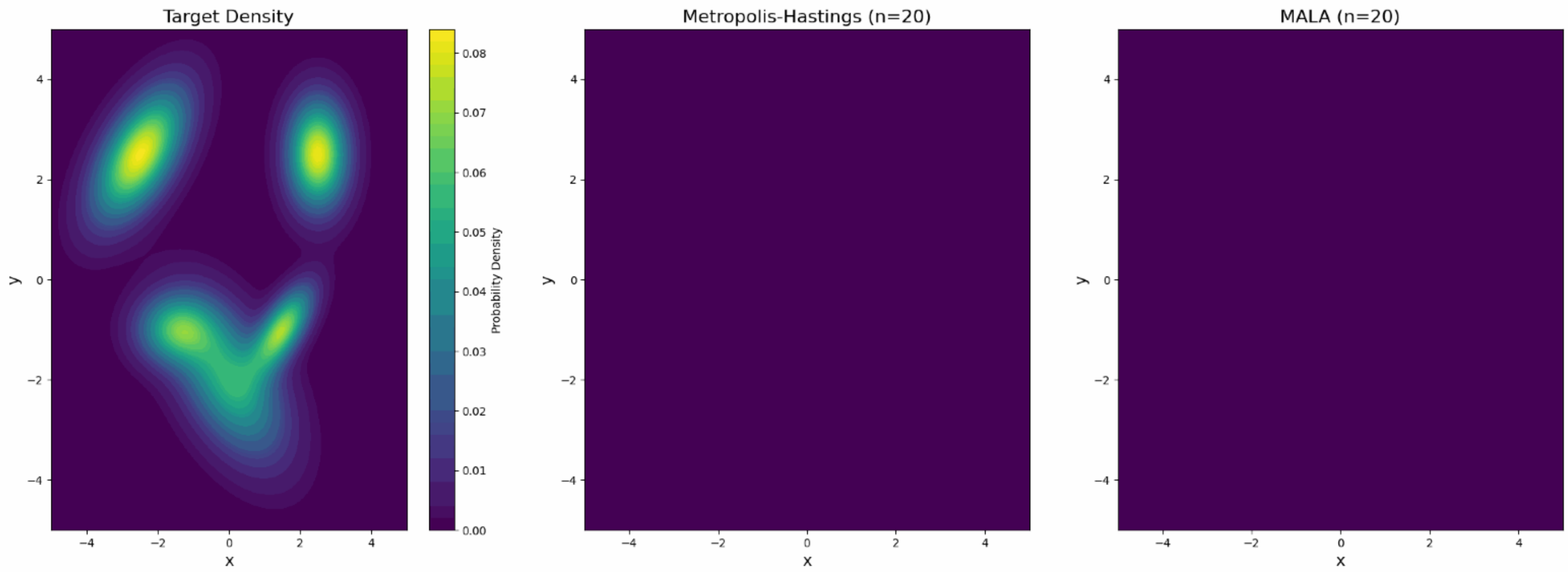
Metropolis vs MALA



(animated)