

Particle filter

We want to target the family of distributions $p(\mathbf{x}_{1:t} \mid \mathbf{y}_{1:t}, \theta), t = 1, \dots, T$.

Assume we can sample from a proposal $q(\cdot \mid \mathbf{x}_{t-1}, \mathbf{y}_t, \theta), t = 1, \dots, T, q(\cdot \mid \mathbf{x}_0, \mathbf{y}_1, \theta) = q(\cdot \mid \mathbf{y}_1, \theta)$.

Assume we can only evaluate p and q up to some multiplicative factors.