Parallel MPPI iteration

Precomputed Maps

SDF Gradient

SDF Potential

Bool Map

Goal Pos, $X_g = $ ✖

Robot State, $X_t = $ ●

Input

update

$\hat{\mu}_t, \hat{\mu}_{\pi_g,t}, \hat{\mu}_{\pi_s,t}$

$\pi_g(\theta_N)$

$\pi_{Mixed}(\theta_{M-2N})$

$\pi_s(\theta_N)$

θ_M

(a) Sample traj. θ_M

$\pi_g(\theta_{topN})$

$\pi_s(\theta_{topN})$

$\theta^{\pi_i}_{topN}$

$w_{\theta_{topN}}$

(b) Policy$_i$ Costs Compute

$\hat{\mu}_{\pi_g,t}$

Mixed $\hat{\mu}_t$

$\hat{\mu}_{\pi_s,t}$

(c) Mixed Traj. $\hat{\mu}_t$ Update