

FCAI

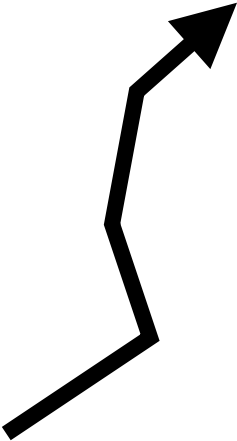
fcai.fi

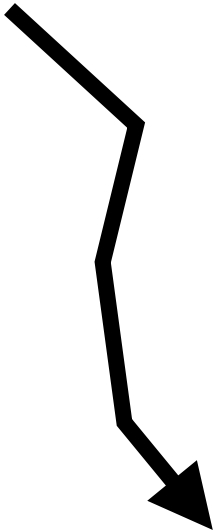
Shooting Methods

Cross-Entropy Method

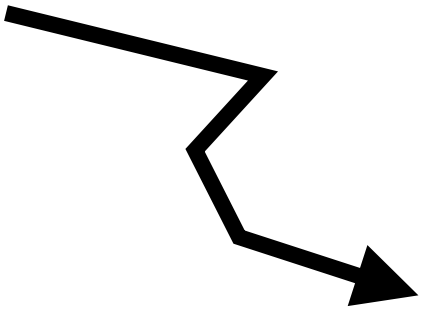
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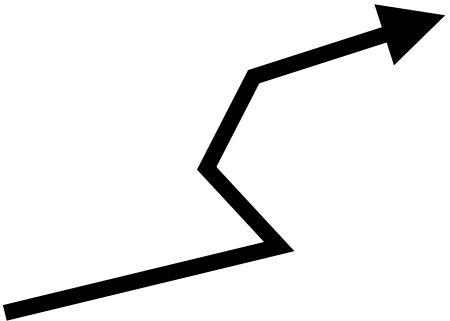
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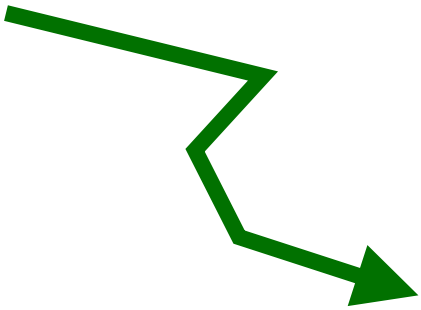


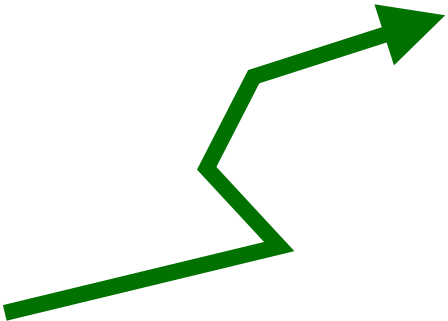


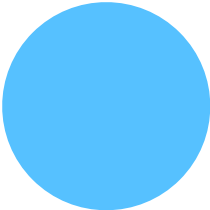




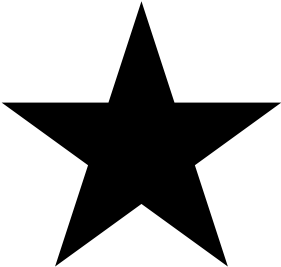








Iteration 2



top-*K*

Initialise action sequence sampling distribution $\{a_t \sim \mathcal{N}(\mu_t, \sigma_t^2)\}_{t=0}^H$

For each iteration

Sample N action sequences $\{a_{0:H}^i\}_{i=1}^N$ from sampling distribution

Evaluate objective $J(a_{0:H}^i) = \sum_{t=0}^H \gamma^t r(s_t, a_t^i)$ for each sample

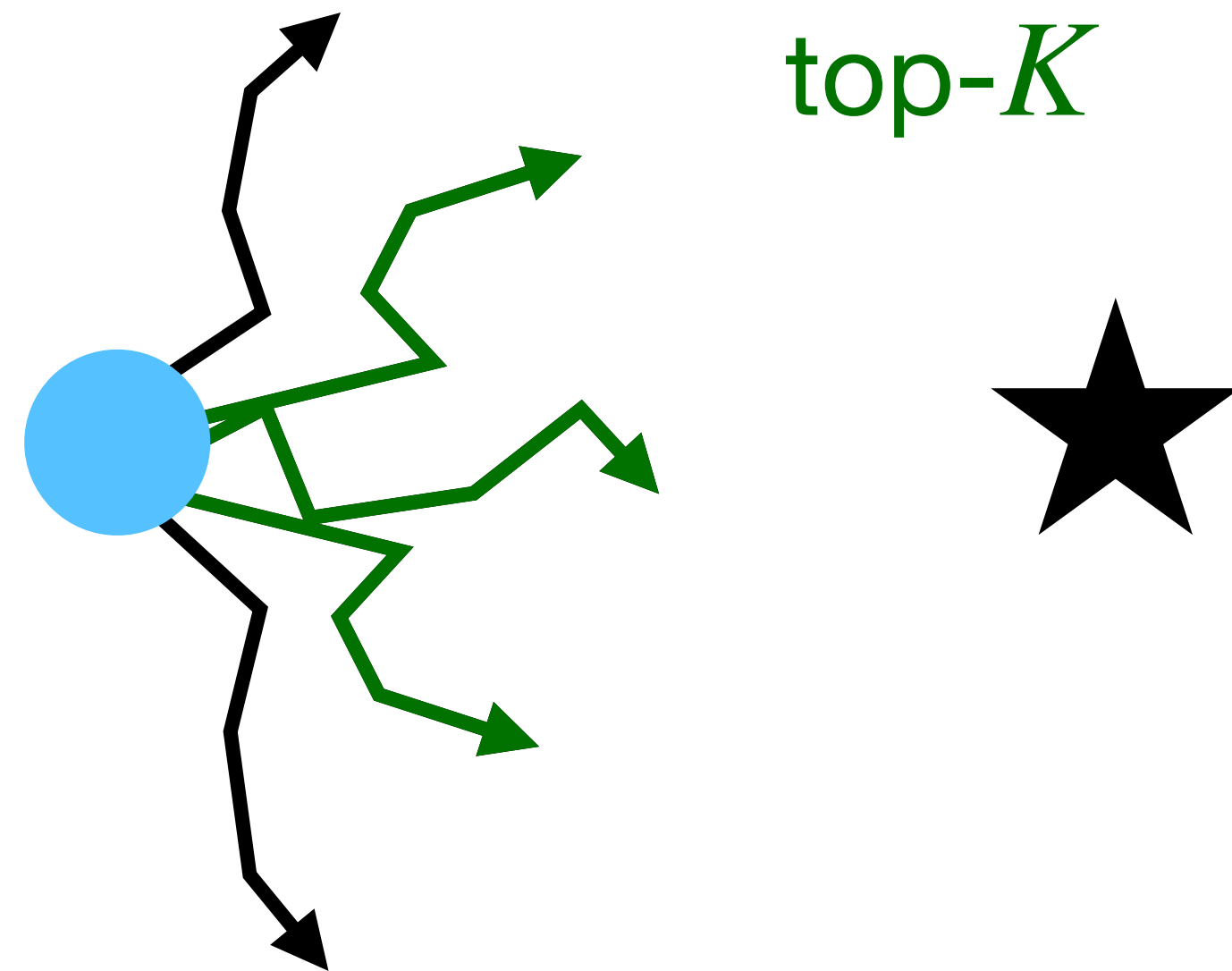
Select top K performing samples, i.e. highest value $J(a_{0:H}^i)$

Update parameters $\{\mu_t, \sigma_t^2\}_{t=0}^H$ of action dist. using top K samples

Shooting Methods

Cross-Entropy Method

Iteration 2



Initialise action sequence sampling distribution $\{a_t \sim \mathcal{N}(\mu_t, \sigma_t^2)\}_{t=0}^H$

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Update parameters $\{\mu_t, \sigma_t^2\}_{t=0}^H$ of action dist. using top K samples

Shooting Methods

Cross-Entropy Method

Iteration 3

Initialise action sequence sampling distribution $\{a_t \sim \mathcal{N}(\mu_t, \sigma_t^2)\}_{t=0}^H$

For each iteration

Sample N action sequences $\{a_{0:H}^i\}_{i=1}^N$ from sampling distribution

Evaluate objective $J(a_{0:H}^i) = \sum_{t=0}^H \gamma^t r(s_t, a_t^i)$ for each sample

Select top K performing samples, i.e. highest value $J(a_{0:H}^i)$

Update parameters $\{\mu_t, \sigma_t^2\}_{t=0}^H$ of action dist. using top K samples

