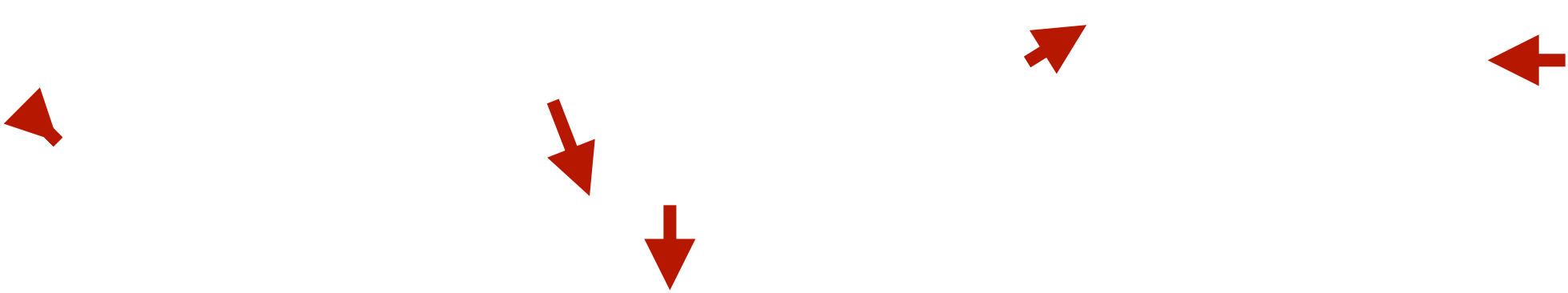
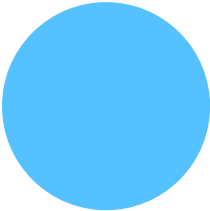
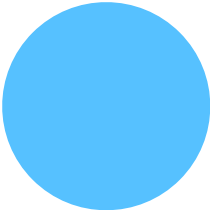


FCAI

fcai.fi



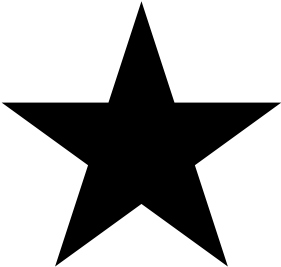


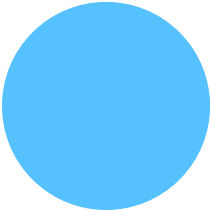


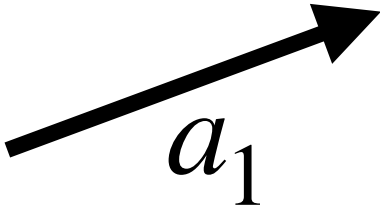
Child creation methods

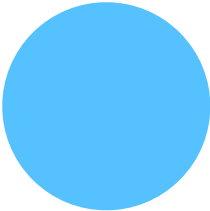
Illustration



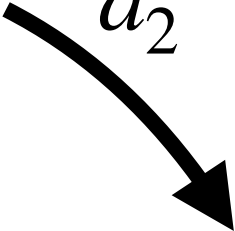






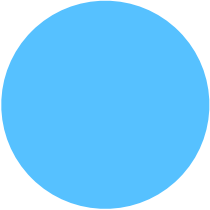


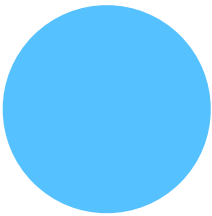
a_2



a_3

















a_0











a_1



a_2



a_3

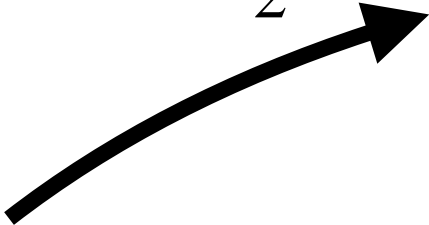






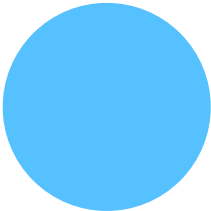
a_1

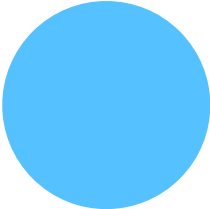
a_2





a_3





Dynamics not satisfied!

Dynamics constrained!

$$J(a_{0:H}, s_{0:H}) = \sum_{t=0}^H \gamma^t r(s_t, a_t) \quad \text{s.t.} \quad \|s_{t+1} - f(s_t, a_t)\| = 0$$



Optimising states and actions

Dynamics constraint

Nodynamics rolled out



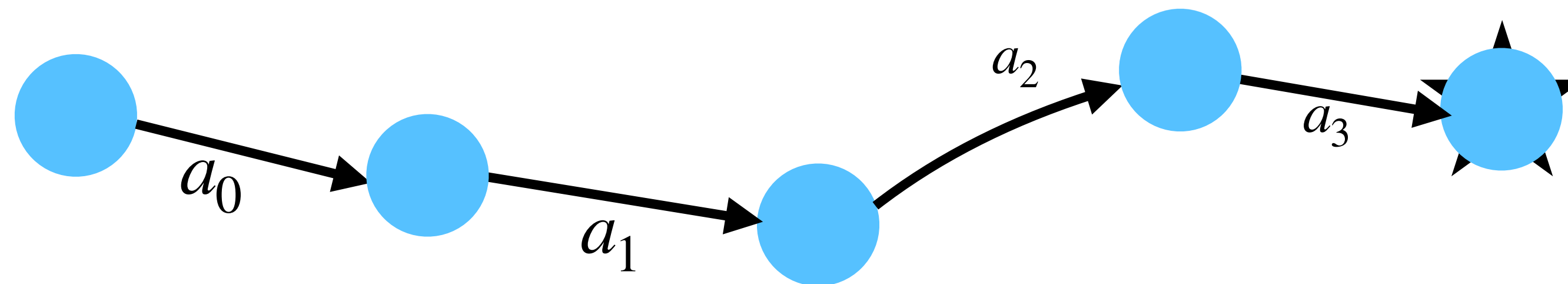
Collocation methods

Illustration

$$\boxed{J(a_{0:H}, s_{0:H})} = \sum_{t=0}^H \gamma^t r(s_t, a_t) \quad \text{s.t.} \quad \boxed{\|s_{t+1} - f(s_t, a_t)\| = 0}$$

Optimising states and actions

Dynamics constraint
No dynamics rollout



Dynamics constraint satisfied!

Finite Horizon Planning has Limitations