Title

First AUTHOR(1) and Second AUTHOR(2)

First Institution
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Second Institution
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When ...

At ...

Outline

Outline

(Situation or used env)

- Motions, single agent behaviors, collective behaviors
- Competiting 11 vs 11 in simulation (3DSSL RoboCup competition)

(Problem or questions)

- Different positions
- Different roles and skills
- Different optimizations
- Different characteristics ?

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Outline

- References ...

Outline

According to n trials with p parameters :

- s : success_rate of 1 trial
- ν : averages and standard deviations (*i.e.* results) of 1 trial
- ν' : best acceptable results
- h : quality of the results (*ACCEPT*, *EQUIVALENT* or *REJECT*)

$\mathcal{H}$: history set that regroups (p, h) pairs

$\mathcal{L}$: parameters bound

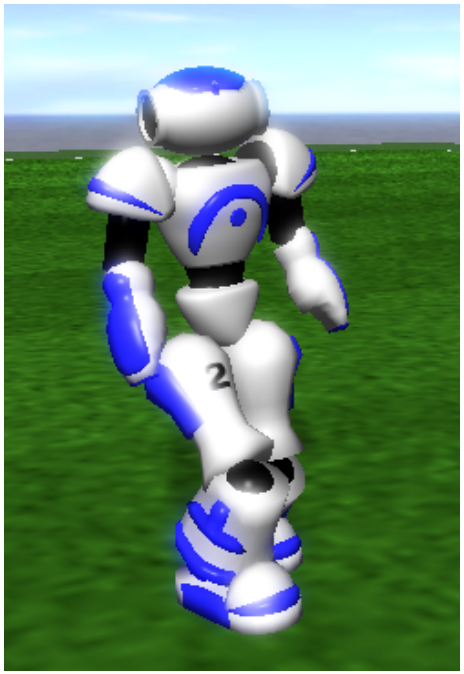
Algorithm 1 `evolving` (n, $\mathcal{L}$, `pickOut`)

1: $(\nu', \mathcal{H}) \leftarrow (\emptyset, \emptyset)$
2: **for** $i = 0$ to n **do**
3: $p \leftarrow$ `newParams` $(\mathcal{H}, \mathcal{L})$
4: $(s, \nu) \leftarrow$ `performTrial` (p)
5: $(\nu', h) \leftarrow$ `pickOut` (s, ν, ν')
6: `insert` $((p, h), \mathcal{H})$
7: **end for**
8: **return** `paramsFrom` (ν')

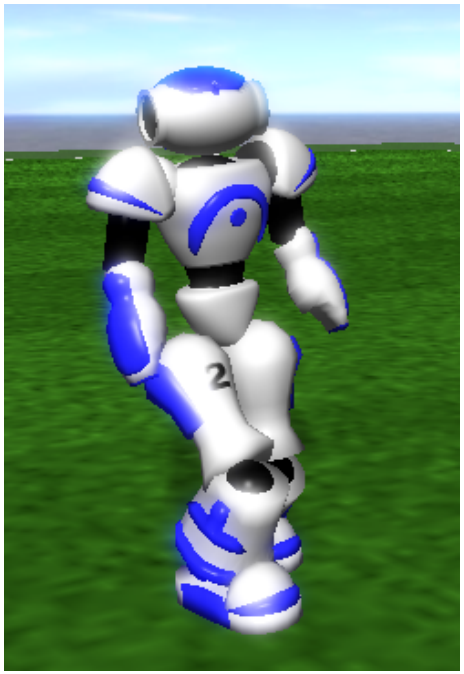
Outline

Table: `pickOut` decision parameters

SUCCESS_RATE	0.75
XY_RATIO	0.25
α	3.0
β	1.0
γ	0.7



(a) Default



(b) Optim.1

(c) Optim.2

Figure: Three resulting NAO profiles

Outline

- Few points to conclude
- ...

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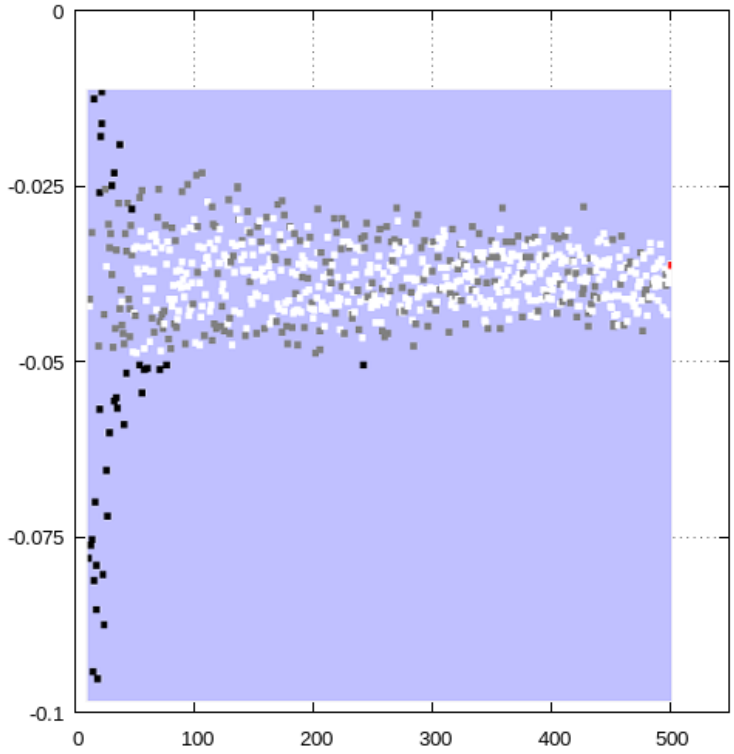
Checking NAO's model proper sizing:

- *ThighRelHip2_Z* : relative distance between hip and thigh center of mass
- (*ThighRelHip2_Z* value is $-0.04[m]$)
- From -0.01 to $-0.10[m]$

Experiment over 500 iterations:

- *REJECT* represented in black
- *EQUIVALENT* represented in gray
- *ACCEPT* represented in white
- *Optim.2* value is $-0.038[m]$



Two parameters important in human morphology:

- *ThighRelHip2_Z*: semi-length of the femur
- *ratio_flexion*: hip height over total leg's length

Three general parameters to adjust the walk:

- *long_offset_MidAnkles_2_Torso_Init*: horizontal distance between ankles' middle and torso center
- *height_lift*: maximal height of lef lift-off
- *xlength_step_max*: maximal step length