

# Master's thesis

## Simulation of complex actuators

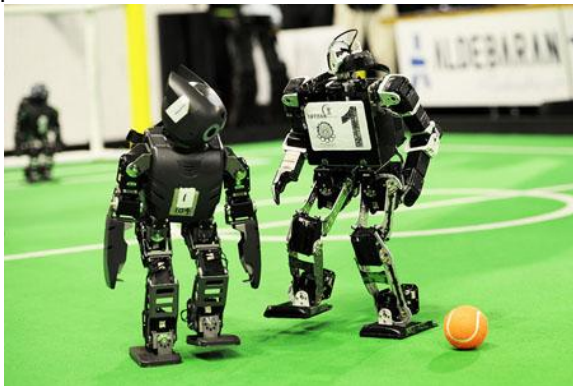
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Academic year 2015-2016

# Context & Motivation

- todo :
- modifier le schéma bloc
  - ajouter TCP/IP au dessus de la flèche entre simulator et Controller

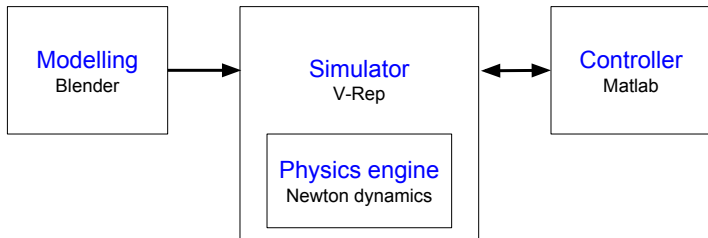


# Problem statement

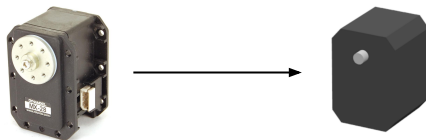
## Goals

- ▶ realistic rigid bodies physics simulation
- ▶ constraints
- ▶ the model of the robot should be able to interpret the same instructions that the real robot will

# Proposed environment



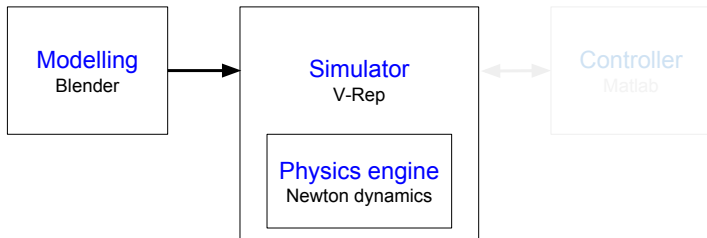
# Modelling (1/2)



## Problems

- ▶ mass & inertia
- ▶ volume
- ▶ function
- ▶ constraints

## Modelling (2/2)



### Blender

- volume

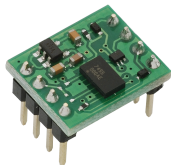
### V-Rep

- function

### Newton

- mass & inertia
- constraints

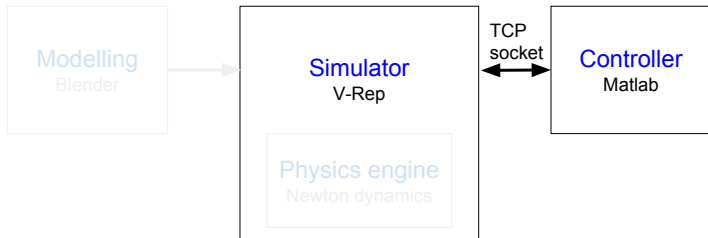
# Control (1/2)



## Problems

- ▶ use same orders as real robot
- ▶ retrieve state of simulation

## Control (2/2)

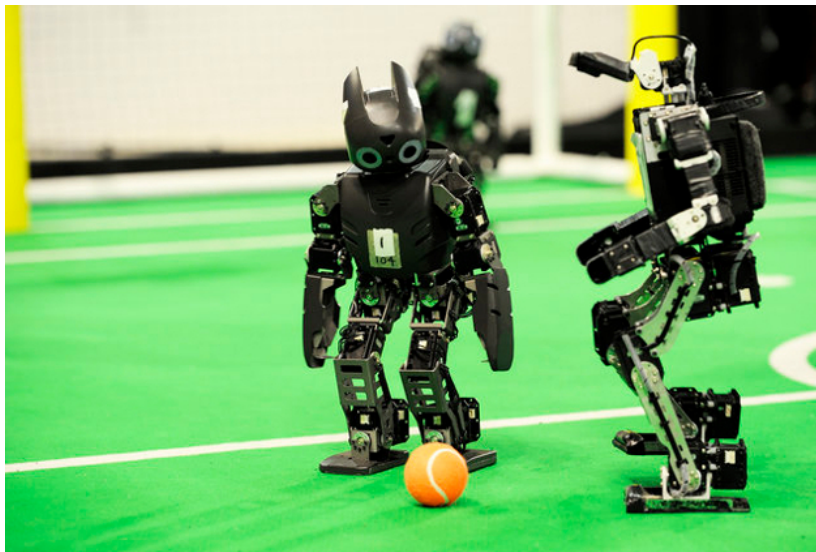


### Solutions

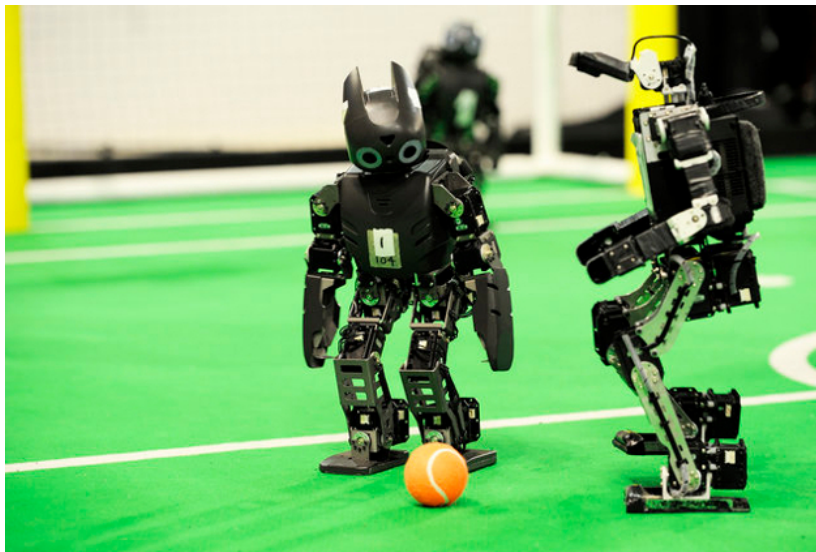
- ▶ remote control through TCP socket
- ▶ scripts



## Applications (1/2)



## Applications (2/2)



# Conclusion

