

TORCS rally simulator and RL

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The Open Racing Car Simulator

<http://torcs.sourceforge.net/>

- works on Windows and Linux
- easy to install (at least in linux)

Simulated Car Racing Championship Server

<https://sourceforge.net/projects/cig/files/SCR%20Championship/>

- competition every year to develop the best racing algorithm
- easy access to relevant sensor data

TORCS

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Intro to
TORCS

Code and
installation

Sensors

Projects

What does it look like?



Installation

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Tambet has written step-by-step installation instructions:

<https://courses.cs.ut.ee/2016/scml-seminar/spring/Main/VirtualRacing>

6 steps in Linux, 2 steps in Windows.

Championship Server Code

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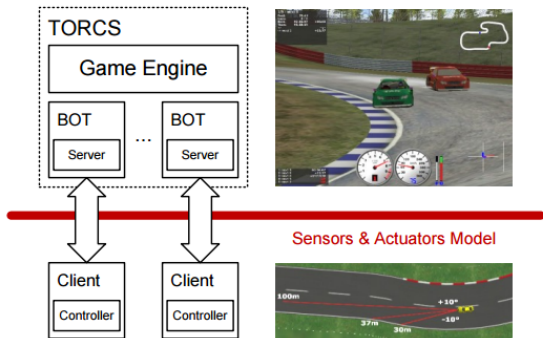


Figure 1: The architecture of the competition software.

Championship Server Code

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- Server and Bots are separated and communicate through UDP
- This means Bots can be written in any language
- real time - server does not wait for the Bot to calculate
- can be run in text mode

Sensors and actuators

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Code and
installation

Sensors

Projects

Important stuff:

- Sensors sense the state of the car
- Actuators play out our commands

Sensors

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Sensors

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Most useful sensors:

- distance from center of track
- angle to the direction of the road
- distance from the edge of the road with 10 degree steps
- speed
- distance raced (to calculate reward in RL)

Sensors

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Let's see the list of available sensors and actuators

Python sample code

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This seems so damn complicated...

<https://github.com/lanquarden/pyScrcClient>

A driver in 100 lines of code (hardcoded, not RL)

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Sensors

Projects

Does anyone still think this is beyond your coding skills?

BotMobile

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Code and
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Sensors

Projects

An unnecessarily complicated version of RL for TORCS was made by us in a hackathon.

<https://github.com/tambetm/botmobile>

It has parts of the code needed for controlling a driving wheel. Also code for overriding AI commands.

Tricks and tips:

- turn off damage to your car by -nodamage when launching torcs
- -nolaptime should remove max time allowed per lap
- guess what -nofuel does?

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installation

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Projects

DISCUSSION

Thanks!

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Sensors

Projects

Thank you for your attention!