Guide for State-Based Agent

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Preparation Visit cuLearn for Q2 or https://bit.ly/2MDxHW2 and Download zip file and then extract the zip file. Run “rcssserver” in rcssserver-14.0.3-win folder, “monitor” in rcssmonitor-14.1.0-win folder and then “TeamStart” in Krislet folder.

State-Based Agent Function : E x Q → Ac x Q

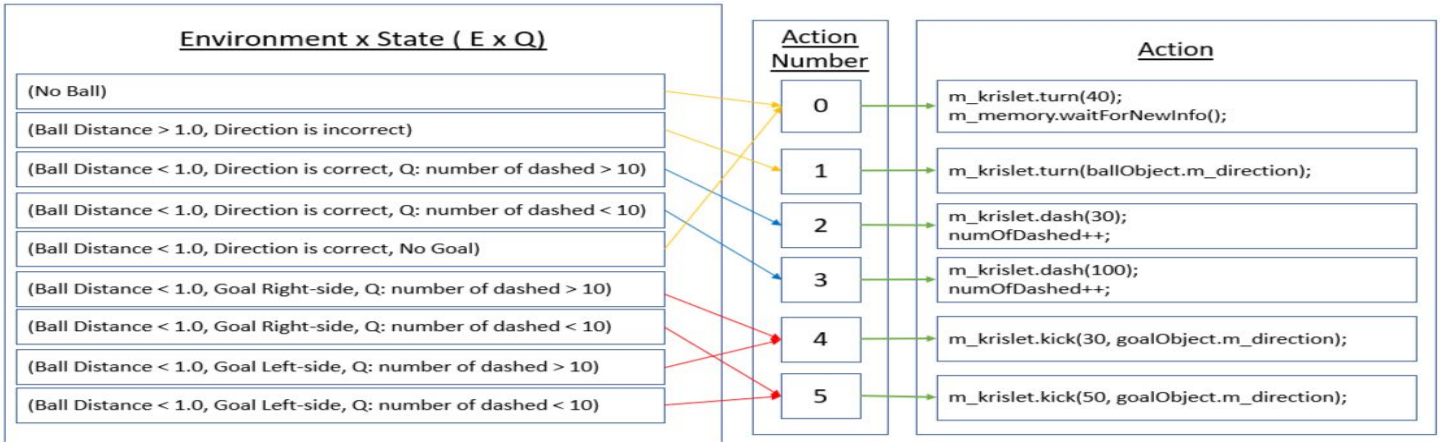


Figure1: Agent Function

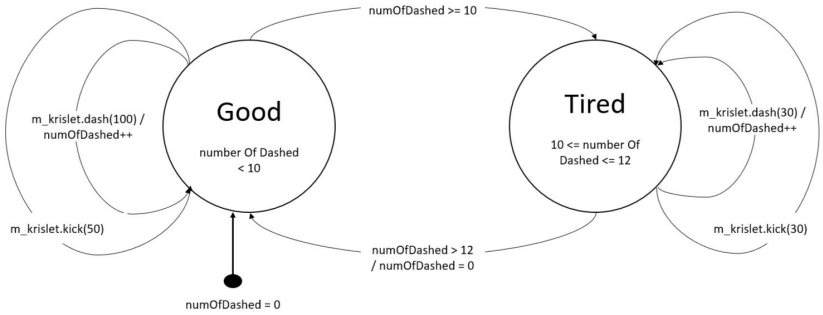
Description: This state-based agent makes a decision based on the present environment and the current state, the number of dashed. The agent could run faster or slower, or kick harder or less hard under the same environment, depending on the current state. It also maintains an interaction with its environment and updated its state, responding to changes occurred in order to achieve its goal, “scoring”.

Environment: An agent gets the environment information in the form of “ObjectInfo” class each cycle from Memory. The environment information consists of what the agent saw and information from its server.

action Number: It is stored in “AgentFunction.txt” and mapped to each environment line pre-written. It is concatenated to the last of the line as a “character”. (e.g. Ball X BallDistanceLessThanOne X GoalNull_**0**)

Action: The agent takes an action based on the action number and implemented through a "switch..case".

State Machine: The state variable is “numOfDashed” and is a local variable working during its thread running. When numOfDashed < 10, the agent is good state and when numOfDashed >= 10, it is under tired state, affecting to power for run and kick.



Modify the behavior of the agent (No recompiling required)

1. Open “AgentFunction.txt” in Krislet folder. (both before/after executing the program possible).
2. Check how each environment is currently mapped to the action through the action number in figure 1.
3. For the proper behaviour as a soccer player, it is recommended to modify the action numbers within each group: The first group is (2, 3) and the second is (4, 5).
4. After modifying the action number in the text file, save the change by pushing “Ctrl+s” and the agent action will be accordingly changed.