I learned about DEEP RL:

https://homes.cs.washington.edu/~todorov/courses/amath579/reading/Continuous.pdf

I found:

<https://github.com/matthiasplappert/keras-rl>

OpenAI Gym - <https://gym.openai.com/docs>

Good articel kerasrl: <https://oshearesearch.com/index.php/2016/06/14/kerlym-a-deep-reinforcement-learning-toolbox-in-keras/>

Traffic light sim: <https://www.youtube.com/watch?v=s6tfcSIBjsU>

<http://sumo.dlr.de/wiki/Simulation/Traffic_Lights>

action/tl= {r|g|G|y|o|O|u}

tls=#connections

|  |  |
| --- | --- |
| **Character** | **Description** |
| r | 'red light' for a signal - vehicles must stop |
| y | 'amber (yellow) light' for a signal - vehicles will start to decelerate if far away from the junction, otherwise they pass |
| g | 'green light' for a signal, no priority - vehicles may pass the junction if no vehicle uses a higher priorised foe stream, otherwise they decelerate for letting it pass |
| G | 'green light' for a signal, priority - vehicles may pass the junction |
| u | 'red+yellow light' for a signal, may be used to indicate upcoming green phase but vehicles may not drive yet (shown as orange in the gui) |
| o | 'off - blinking' signal is switched off, blinking light indicates vehicles have to yield |
| O | 'off - no signal' signal is switched off, vehicles have the right of way |

Reward design:

<https://deepblue.lib.umich.edu/bitstream/handle/2027.42/89705/jdsorg_1.pdf?sequence=1>

pybrain explained: <http://simontechblog.blogspot.de/2010/08/pybrain-reinforcement-learning-tutorial_21.html>

DQN: <https://jaromiru.com/2016/10/03/lets-make-a-dqn-implementation/>

All connections with the same tl id are on the same junction

Convert to readable data with: netconvert -s rilsa1.net.xml --plain-output-prefix

User doc <http://www.sumo.dlr.de/wiki/Networks/Building_Networks_from_own_XML-descriptions#Node_Descriptions>

* traffic\_light: The junction is controlled by a traffic light (priority rules are used to avoid collisions if conflicting links have green light at the same time).

tlLogic.id==junction.id