Modular reinforcement learning tips

By now you are fairly far along on the modular RL assignment, but if you need them, here are some tips.

Traffic Simulator

First off you have to design your traffic simulator, which should include:

A road with 2,3 or four lanes;

A traffic light;

Your car;

Other cars (which may be moving or parked);

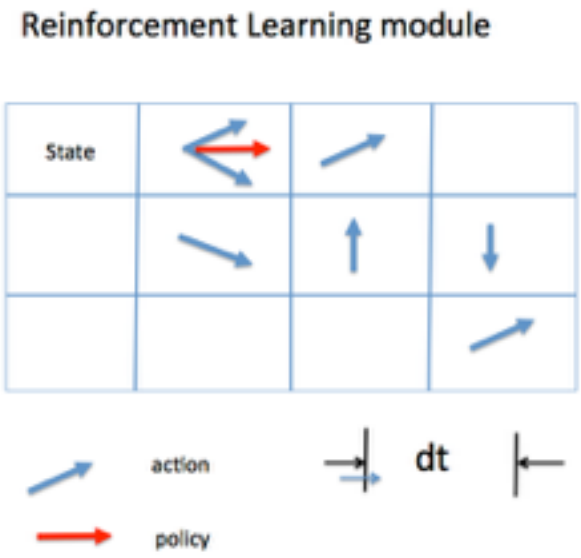
Pedestrians (who like to cross the road);

When you run the simulator for a time interval dt, all the simulator entities are advanced, according to their behavioral protocol.

RL module

For each module you need to choose a discrete state space and action set, the reward for taking an, action, and the state and action values.

The policy is the action that is chosen in each state. Initially policies are randomized. As RL progresses, they gradually assume sensible values.



System Development

Train each module separately. One module would want the car to go forward. Another stops for red lights. Another passes a parked car. Yet another stops for pedestrians.

When these are all trained up, then you need a protocol for adjudicating between their possibly different recommendations.