CI - Project Proposal: Genetic algorithms on traffic light controllers to optimize the pedastrians and vehicle flow

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1 Proposal

The increase over the years of urban traffic has resulted in traffic congestion, stress and hazards to pedestrians due to the inefficient traffic light controls. The current traffic light controllers are programmed to change over a specific cyclic pattern, which is arguably a sub optimal solution. The improvement of these controllers will enhance the traffic congestion and reduce the average time span of cars on the roads.

Our proposal is to provide a better solution to this problem by using computation intelligence techniques. The idea is to optimize through genetic algorithms the switches between red and green of the traffic light controller. The problem will be solved on a simulated environment in Python 3.6. In our simulation, we will test multiple configurations of roads with a different number of cars and pedestrians. Several authors tried to solve this problem in the past, for instance [1] [2]. The goal of this project is to reproduce the results of these papers since it seems to be an interesting problem and there is a chance to see some kind of intelligence in our traffic lights in the future. The work from this project could lead to further research and build a real world application. Moreover, is a good opportunity to go indeepth through genetic algorithms, which sometimes are getting better results than neural networks [3].

References

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