基于强化学习和注意力机制的车辆换道研究

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***Abstract*— 这里是华丽丽的摘要**

I. 简介

II. 任务描述与分析

整体任务为根据输入的车辆周围情况，借助深度强化学习算法得到高层的指令规划。再借助仿真器内部的运动规划器，将高层指令转化为具体的轨迹让底层控制器有效跟踪。

A. 仿真环境描述

整体实验基于 *highway_env* 开发，具有较强的灵活性。下面分别针对状态空间、动作空间等进行叙述。

1) 状态空间: 在环境中，状态空间可以选择底层的低维向量输入，也可以选择高维的图像输入和占用格作为输入。下面重点叙述使用低维向量输入和图片输入的基本情况。

当使用低维输入时，传入最近 15 辆车的坐标、速度、倾斜角度等信息表示出来，包括 $x, y, vx, vy, cos_h, sin_h$。传入一个大小为 $[15, 7]$ 的数组。方便后面网络进行处理，其中第一行表示的是本车的未知

III. 强化学习算法

IV. 注意力机制

V. 实验分析

致谢

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