

令和5年度 卒業論文

Traffic Intersection Negotiation using Multi-Agent Policy Optimization

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Abstract

This paper addresses the ongoing challenge of enabling autonomous vehicles to safely and efficiently cross intersections, necessitating advanced training techniques. In order to facilitate large-scale training, the utilization of multi-agent reinforcement methods typically involves simplifying agent policy architectures and placing greater emphasis on estimation. To this end, our study proposes a novel multi-agent policy gradient method for training agents within unsignalized intersection environments, employing a straightforward centralized learning framework and decentralized execution. This research places particular emphasis on optimizing agent policy architectures, with a key focus on the application of Beta distributions. We demonstrate that this approach yields superior stability and enhanced rewards compared to conventional algorithms utilizing Gaussian distributions.

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第1章 Introduction

1.1 Background

Lorem Ipsum is simply dummy text of the printing and typesetting industry [1]. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

1.2 Problem Statement

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第2章 Literature Review

Lorem Ipsum is simply dummy text of the printing and typesetting industry [2]. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of [3] Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

第3章 Methodology

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3.3 Preliminary

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