## 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 fa- cilitate 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 cen- tralized 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 卒論用**Tex** の使い方

1 章では，卒論用の Tex ファイルの例を示します．引用はこんな感じ [1] で行います．

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# 参考文献

[1] S. Ren, K. He, R. Girshick, and J. Sun, “Faster r-cnn: Towards real-time object detection with region proposal networks,” Advances in Neural Information Processing Systems, vol.28, pp.1–9, 2015.

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