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# End to End Driving Assistant System using Proximal Policy Optimization

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**Abstract:** *Machine learning is critical in the advancement of autonomous driving technology and we will use state-of-the-art methods to train an agent to drive autonomously with an open-source simulator Carla we can conduct our experiment with a hyper-realistic urban simulation environment providing us with valuable data for training our models. autonomous driving systems struggle with road geometry and complexity many solutions rely on hand-crafted driving policies which are expensive and sub-optimal deep reinforcement learning DRL has shown promise in learning complex decision-making tasks this thesis explores using an on-policy DRL algorithm called proximal policy optimization (PPO) to navigate a predetermined route in a simulated driving environment the goal is to train an agent on a continuous state and action space our contribution is a ppo-based agent that can reliably drive in our Carla based Environment. the aim is to develop an end-to-end solution for autonomous driving that can avoid crashes and drive in the right direction this paper summarizes results and analyses and discusses further work to simplify the problem.*

**Keywords:** Machine Learning, Carla Simulator, Deep Reinforcement Learning, Proximal Policy Optimization

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