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Título del proyecto: Multi-objective reinforcement learning for ethical autonomous driving
Descripción del proyecto: The purpose of this project is to investigate how to exploit multi-objective reinforcement learning to help an agent learn ethical behaviours in a driving environment. On the one hand, we will investigate how to extend a state-of-the-art algorithm to create driving environments where the learning of ethical behaviours is guaranteed while considering a user’s preferences over different ethical objectives. We will empirically study the learning of ethical policies in a simulated driving environment that will be developed as part of the project. As an important aspect of this empirical evaluation, we will investigate whether it is enough for a learning agent to employ low-cost learning algorithms (e.g. Q-learning), or whether instead it is more convenient to resort to Deep Reinforcement Learning. The project will combine recent work by IIIA on multi-objective reinforcement learning for ethical learning with quality guarantees with recent work by ICMAT on decision making models for automated driving systems that consider ethical and operational preferences.