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METHODS FOR SOFTWARE
SYSTEMS



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Applying Reinforcement Learning to Successfully Drive a Car Around a Track

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This work addresses the problem of controlling a car to optimise route traversal using deep reinforcement learning techniques. Two methods are investigated to enable the car to successfully traverse the track. The first method uses radar information used in games - the car uses eight beams to measure the distances from itself to the track boundaries. The second method relies on image analysis, where the car receives information from the environment through in-game visual frames. The aim of this paper is to compare the performance and feasibility of these two different approaches to the problem of car route traversal by testing them in different contexts and using different strategies. In order to increase the generalization ability of the models, additional strategies such as learning on different maps and changing the starting position of the car on the track are applied in both approaches. The experiments allow to evaluate the advantages and disadvantages of each approach and to highlight how the additional strategies influence the learning process and the final performance.