

Collision avoidance for autonomous agents has been a widely researched topic for the past couple of decades. Modern solutions act as purely reactive techniques that create various problems, such as agents being stuck in various scenarios. The aim of this thesis was to explore a new way of solving collision avoidance for humanoid agents using genetic algorithms to search local space multiple steps ahead of the current simulation state. The application is capable of running multiple predefined test scenarios and logging the results of each run. The application provides two possible ways of seeing the results, either visually observing the scenario run or plotting the results logged by the application. The overall design of the application is general enough to allow simple modification to existing scenarios or creation of new ones. It is also possible to modify an existing genetic algorithm with new operators with minimal effort. The results show that even though various configurations of the implemented genetic algorithm perform similarly, there are some outstanding winners that might bring an alternative possibility to the already existing collision avoidance methods.