

Open-world computer games present the players with a large degree of freedom to interact with the virtual environment. The increased player freedom makes open-world games a challenging domain for artificial intelligence. In this thesis we present three novel techniques to handle various types of complexity inherent in developing artificial intelligence for open-world games. We developed behavior objects that extend the well-known concept of smart objects and help in structuring codebase for reactive reasoning, we propose and implement constraint satisfaction techniques to specify behavior from a global viewpoint and we have shown how adversarial search techniques can mitigate the need for complex reactive decision mechanisms when a large number of parameters has to be taken into account. The general techniques are implemented and evaluated in the context of a complete open-world game Kingdom Come: Deliverance.