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Research Article

Games and Agents: Designing Intelligent Gameplay

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Abstract

There is an attention shift within the gaming industry toward more natural (long-term) behavior of nonplaying characters (NPCs). Multiagent system research offers a promising technology to implement cognitive intelligent NPCs. However, the technologies used in game engines and multiagent platforms are not readily compatible due to some inherent differences of concerns. Where game engines focus on real-time aspects and thus propagate efficiency and central control, multiagent platforms assume autonomy of the agents. Increased autonomy and intelligence may offer benefits for a more compelling gameplay and may even be necessary for serious games. However, it raises problems when current game design techniques are used to incorporate state-of-the-art multiagent system technology. In this paper, we will focus on three specific problem areas that arise from this difference of view: synchronization, information representation, and communication. We argue that the current attempts for integration still fall short on some of these aspects. We show that to fully integrate intelligent agents in games, one should not only use a technical solution, but also a design methodology that is amenable to agents. The game design should be adjusted to incorporate the possibilities of agents early on in the process.