Multi Behavior Smart Agent for Non-Player Character based on Computational Intelligence

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Abstract

This Research is aims to design the behavior of Computer Controlled Character or (Non-Player Character(NPC)) to be more smart and realistic, look believable. This study examined the Computational Intelligence methods for single NPC and NPCs team behavior specifically multi behavior NPCs in the Squad Combat Game, as well as other games.

To realize it, used Computational Intelligence for NPC behavior, with a random Gaussian distribution-based methods, fuzzy logic, fuzzy coordinator, Genetic Algorithm, Harmony Search, Particle Swarm Optimization, and Simulated Annealing. NPC behavior variations proposed by the method of random Gaussian distribution. Ability of group decision making for war games in close range and long range distance have been proposed, using fuzzy logic and fuzzy coordinator. NPC behavior optimization with Genetic Algorithm is proposed, as well as with Harmony Search, Particle Swarm Optimization, and Simulated Annealing.

Application of this research to NPC behavior in Squad Combat Game and character movement behavior in animation.

Keywords: non-player character behavior, random Gaussian distribution, fuzzy logic, fuzzy coordinator, Squad Combat Game, optimization, Harmony Search, Particle Swarm Optimization, Simulated Annealing.