



NO ONE LIVES FOREVER 2

When stealth and skullduggery abound, having realistic AI becomes absolutely vital

Monolith imbued *NOLF* with more than just a chic Sixties setting and a strong female lead character. Critical to its success was its evolutionary AI: enemies dodged, looked for cover, and interacted to some extent with the environment, all of which helped cement the compelling experience.

NOLF 2 is taking all these points still farther, and the vital relationship between "realistic" AI and immersive level and game design is high on the developers' priority list. So we asked Lead Designer Craig Hubbard, Lead Level Designer John Mulkey, and AI Engineer Jeff Orkin about the challenges involved in creating that realistic setting.



DEVELOPER
Monolith

PUBLISHER
Vivendi Universal

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First half 2003

PC Gamer: From a technical standpoint, is *NOLF 2*'s AI engine an enhancement of the original, or redone for the new game?

JEFF ORKIN: Both, really. Rather than wasting time reinventing pathfinding algorithms and animation controllers, building on the existing engine let us immediately move on to more interesting problems, like creating ninjas that can jump from rooftop to rooftop, and developing truly autonomous characters with our new Goal System and SmartObjects. We retained the functionality for things *NOLF* did well, like AIs finding cover and dodging enemy fire, and wrapped it in new code for Goals that let AIs make their own decisions based on their observations of the current state of the world. AIs monitor visual and audio stimulus and their proximity to SmartObjects to determine the most appropriate Goal to activate. AIs can choose to activate any Goal in their GoalSet, and assigning different GoalSets to different characters can create a wide variety of behaviors. The result is more open-ended gameplay and more variety for the player.

PCG: What were the key elements of NPC movement and action that would give it that immersive feel?

CRAIG HUBBARD: The main goal was to make the characters *live* in the environment instead of just standing around waiting for the player to show up. NPCs can decide to sit down at a desk and type a report, go outside for a smoke, search a filing cabinet, lie down and take a nap, and even go to the restroom — all without any specific scripting. If they walk into a dark room, they'll flip on the lights. If they hear an alarming disturbance, they know where to search for intruders.

PCG: How have you approached having scripted AI movements versus individual AI characters reacting to in-game events?

JOHN MULKEY: We've developed a system wherein the AI are given sets of goals that determine their behavioral tendencies, and then we've filled the world with things for the AI to do and objects that tell them how to interact with the

