

## AI Game Programming Wisdom - Color Plates

**Figure 01.** A scene from the cinematic sequence introducing the “Lost Brother” challenge in the game *Black and White*. Referenced in article 10-5. Courtesy of Lionhead Studios.

**Figure 02.** A happy young cow with a big appetite and a history of violent confrontation. From the game *Black and White*. Referenced in article 11-07. Courtesy of Lionhead Studios.

**Figure 03.** An example of formations in *Empire Earth*. Referenced in article 5-6. Courtesy of Chad Dawson and Stainless Steel Studios.

**Figure 04.** A part of a navigation mesh covering a staircase. Each convex polygon (with an ‘X’ in the center) is a node of the navigation mesh. Referenced in article 2-1 and 4-3. Courtesy of Paul Tozour and Ion Storm Austin.

**Figure 05.** A part of a navigation mesh covering a balcony. Referenced in article 2-1 and 4-3. Courtesy of Paul Tozour and Ion Storm Austin.

**Figure 06.** Yaw and pitch lines. These lines indicate an AI’s field of view (the maximum vertical and horizontal angles) and the degree to which the intensity of a visual stimulus changes depending on its angle from the direction the AI is looking. These diagnostics are available in both the level editor and the game itself. Referenced in article 2-1. Courtesy of Paul Tozour and Ion Storm Austin.

**Figure 07.** Visual distance arcs. These arcs indicate how the intensity of a visual stimulus changes depending on its distance from the AI. These diagnostics are available in both the level editor and the game itself. Referenced in article 2-1. Courtesy of Paul Tozour and Ion Storm Austin.

**Figure 08.** Pathfinding diagnostics. The green line segments show an AI’s path on the navigation mesh, while the blue line segments illustrate the local path that the AI found around the barrels. Referenced in article 2-1 and 4-3. Courtesy of Paul Tozour and Ion Storm Austin.

**Figure 09.** Recent-path diagnostics. Each AI keeps track of the locations it has visited recently, up to some fixed maximum number of past locations. The line segments fade from red (most recent) to blue (least recent). This gives designers an easy way to figure out the path that a given AI followed to get to its current location. Referenced in article 2-1. Courtesy of Paul Tozour and Ion Storm Austin.

**Figure 10.** Patrol paths. This particular path illustrates the use of “choice points” which allow AIs to randomly select possible paths to follow (with probabilities set at 50/50 and 90/10), circular paths (in the lower right corner), and an AI in formation (in center left). These diagnostics are available in both the level editor and the game itself. Referenced in article 2-1. Courtesy of Paul Tozour and Ion Storm Austin.

**Figure 11.** AI behavior diagnostics. This display shows the AI’s current “alertness thermometer” (red bar at the left), its name (top of white text in center), its current state stack (center three rows of white text), and its current audio occlusion level (blue bar at right) – that is, the extent to which its hearing is currently impeded by various sounds in its vicinity, making it more difficult for the AI to hear the player. Referenced in article 2-1. Courtesy of Paul Tozour and Ion Storm Austin.