

## Abstract

Stories are all about characters. In traditional media, their behaviour is entirely dictated by the author. In games however, characters have a lot more freedom to express themselves and thus create unique experiences. Aside from scripted events and cutscenes, artificial intelligence is what controls them. Therefore, AI has the responsibility to make them act and perform convincingly enough to fool the player into thinking they are more than just a machine. Games and their characters want to be remembered and immerse the player. The success of these tasks ultimately depends on how believably the characters can pretend to be part of the game world, how well they express emotions, and how well they react to what the player does.

This paper establishes the need for personality and believability in artificial characters, analyses numerous examples of character AI, and distills the gathered information into a collection of approaches that aims to help developers create memorable machines.

## The Goal of Character AI in Games

Game development is all about creating experiences and everything that goes into a game should support that goal.

Intelligence in this context is not about winning every game, always playing perfectly, or real intelligence, but about telling a story that creates the illusion of intelligence [1] and presenting the player with a richness in behaviour that allows them to project their own narratives onto the character's actions [2]. The goal of character AI in games is to immerse, convince, fool, affect, act for, react to, and acknowledge the player for the sole purpose of creating unique and memorable experiences.

## Breaking Immersion through Unbelievable Behaviour

Often, NPCs have to perform complex actions that developers do not have full control over. These scenarios can solely be accredited to the interactive nature of the medium.

Such complex actions often reveal immersion-breaking flaws in the AI.

Examples for these flaws are:

- Lack of Models of Others or Themselves
- Lack of Awareness of History
- Omniscience
- Lack of Diversity in Behaviour
- Inadequate Reaction Times
- Suicidal Actions in Escort Missions

There are of course many other aspects that take players out of the game world. NPCs that are too skilled or unskilled, for example, can have a jarring, illusion shattering effect, too.

## Creating Immersion through AI Personalities

Game developers are on a constant hunt for new practises and approaches to sell the illusion of life. Even simple tricks that may seem counterintuitive, like taking control away from the player or making companions invisible to enemies, can successfully enrich the player experience and make NPCs feel substantially more real and human. Examples that illustrate the creativeness these developers exhibit include:

- Consistently Reacting in Character
- Portrayal of Motivations
- Breaking Established Rules
- Speaking Up
- Disobedience
- Invisible and Invincible Companion

## Building Character and Personality in NPCs

The most important rule in character AI can be summarised as: if the player is not able to perceive the personality and emotion, it might as well not be in the game.

However, characters do not need to be hyper-realistic to be believable. Erik Vick claims in his book [3] that "(...) believability hinges on the appropriate levels of realism rather than high levels of realism" and establishes a fidelity hierarchy that puts modelling, animation, cognitive, and emotional fidelity in relation to each other.

Fidelity	Required Level	Success	Failure
Modelling	Appropriate to design	Looks right	Uncanny
Animation	Higher than modelling fidelity	Moves right	Zombie
Cognitive	Higher than animation fidelity	Acts right	Puppet
Emotional	Higher than cognitive fidelity	Feels right	Robot

Fidelity hierarchy as described by Erik Vick.

In order to create and sell a captivating personality, it is imperative to clearly define who that character is, where they come from, and what drives them.

For the player to care about, empathise with, and feel for the character, the developer has to care about, empathise with, and feel for them first. Clearly defining who the character is and where they come from is essential for success. The three main ways characters convey who they are is through the way they look, the way they express themselves through language, and the way they act [4]. In order to be relatable and immersive to the player, there are universal human traits one might consider trying to replicate. The traits gathered in the scope of this paper were:

- Humans do not depend on the player.
- Humans look around.
- Humans are true to their nature.
- Humans are irrationally stubborn.
- Humans communicate.



Difference in required fidelity results in more player inference.

People infer meaning and causation constantly and often subconsciously. Even when only presented with minimal clues, people infer what they believe is causing them [5]. Knowledge of player perception and human psychology are perhaps the most versatile and frankly cost-effective skills a character AI developer can have. The more that can be done in the players head, the easier the implementation.

## Conclusion

Without believability, there is no immersion and without personality, characters are easily forgotten. Developers use all kinds of techniques to fool the player into believing that their characters are more than just sets of instructions. Our characters make game worlds appear truly alive and their importance cannot be understated. Memorable machines make the audience think about them, talk about them, hate them, love them, and everything in between.

## References

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