AI-Based Gaming Teammates

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Gamers often end up frustrated with unreliable teammates, especially in fast-paced action titles like COD, Fortnite, or Valorant. A potential solution could be the introduction of an AI-driven NPC (Non-Playable Character) teammate that assists players directly in the game.

Imagine a scenario where your character's health is critically low and no recovery kit is in sight. Instead of relying on chance or random drops, the AI teammate could actively search for resources within the environment or respond to manual commands to perform specific in-game actions. This would enhance strategy, immersion, and tactical depth.

Implementing such a system would require server-side integration, since most modern games are server-based. The advantage is that these AI models could also be trained on game environments even when players are offline, ensuring consistent reliability once they're online.

> *An AI teammate doesn't rage-quit, doesn't miss the callouts—it learns, adapts, and always has your back.*

NVIDIA's Project G-assist

Nvidia is working on a similar concept "G-assist". At Computex 2024, they showcased Project G-Assist — a tech demo that offered a glimpse of how AI assistants could elevate the PC experience for gamers, creators, and more. Later, they are releasing an experimental version of the Project G-Assist System Assistant feature for GeForce RTX desktop users, via NVIDIA app, with GeForce RTX laptop support coming in a future update.

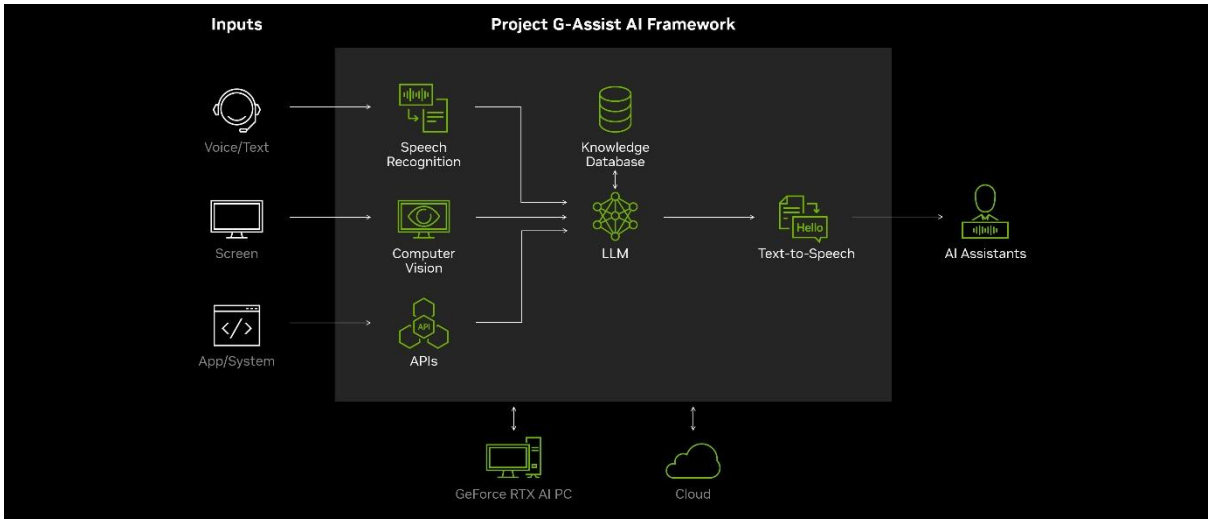

Figure 1: Block diagram of NVIDIA's G-assist

HOW IT WORKS

Project G-Assist takes voice or text inputs from the player, along with a snapshot of what's in the game window. The snapshot is fed into AI vision models that provide context awareness and app-specific understanding for the Large Language Model (LLM), which is connected to a database of game knowledge such as a wiki. The output of the LLM is an insightful and personalized response—either text, or speech from the AI —based on what's happening in-game.

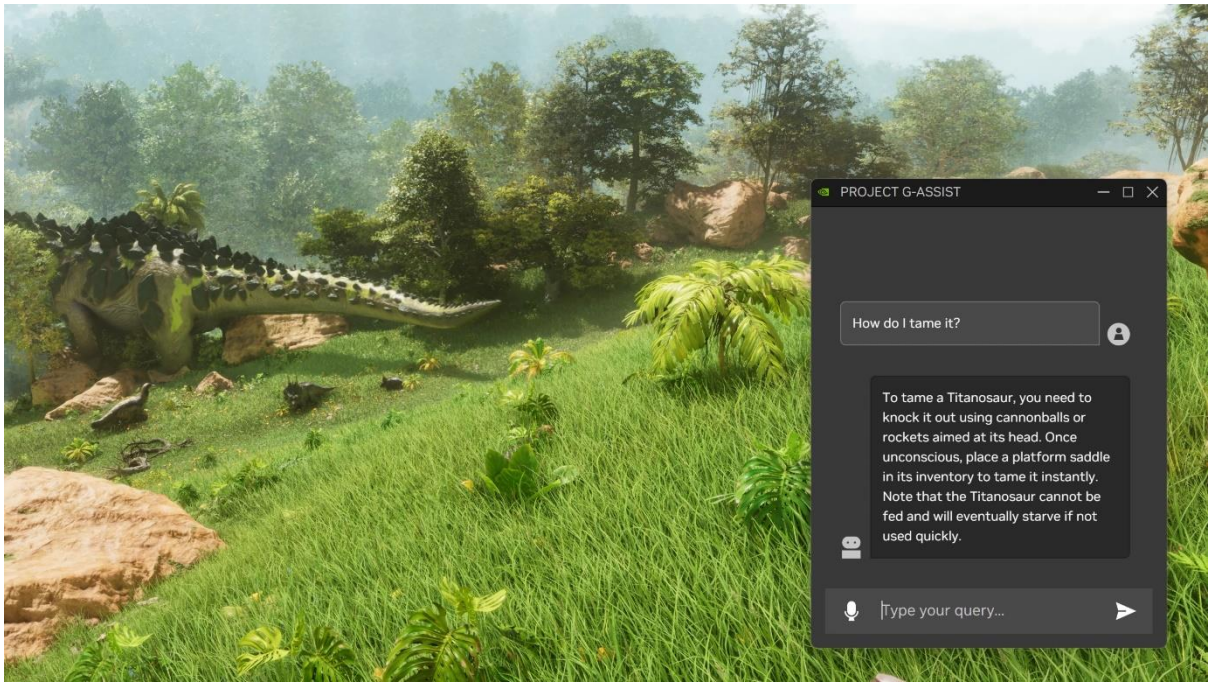

Figure 2: G-assist in action

The most efficient concept here is not something that we give prompt in return for a sentence; it's about the real time action by understanding the user needs and actually returning the action-based output. You have low health points?

Gaming Example: A Case Study in Action

Figure 3: Fortnite snaptshot with bot

Figure 4: Snapshot from Valorant

Fortnite: AI Bots in the Wild

Fortnite deploys bots across general gameplay to help maintain match flow and ease new players into the experience. In modes like Solo, Duos, and Squads, bots are mixed into lobbies based on skill levels, less experienced players face more bots, while better players encounter fewer. Competitive playlists are usually bot-

free. Insiders reveal an eyebrow-raising stat: some "OG" match lobbies can consist of **up to 90% bots**, especially in less competitive or social playlists. This isn't always disclosed, and players often notice exaggerated bot presence especially in older, nostalgic modes.

Players both appreciate and complain:
"We ended up in a lobby that was EASILY over 50% AI." *[source: Reddit]*
"32 real players and 68 AI bots in a public match. …why does Epic keep stuffing them with bots?" *[source: Reddit]*

In summary, Fortnite uses bots as matchmaking filler and tutorial aids, but lack of clarity around their prevalence has stirred player frustration.

Valorant: Practice Bots and Developer-Investigated AI

Valorant uses bots primarily in non-competitive environments—like custom games or the practice range—not active matchmaking. Developers are already exploring smarter, more humanlike bots for practice scenarios, though technical challenges remain. There's no current public implementation of bots in ranked or normal matches. External AI research shows promising work: using ray-cast data and imitation learning, bot behaviour was trained on real player actions for realistic movement and decision-making, paving the way for future intelligent AI teammates.

Players also suggest more dynamic practice bots:
"AI bots should be added in custom games… bots can be made more challenging by setting different difficulty levels." *[source: Reddit]*
"They react to utility, map control like a real player would… dynamic." *[source: Reddit]*

Valorant's AI footprint today is minimal—but the foundations for richer AI integration are actively being laid.

Already in Play

The groundwork has been around for years. Fortnite quietly drops bots into casual lobbies to keep the action moving, while PUBG Mobile leans on them to ease in new players. Valorant and Counter-Strike use simple AI in practice ranges to warm up reflexes or test utility. Even FIFA's single-player modes are powered by AI routines that handle movement, positioning, and decision-making in ways that mimic real opponents. Racing games took a different route — "ghost" opponents, essentially recorded runs you can race against, have been a staple for decades. More recently, Gran Turismo has pushed advanced AI drivers, while Forza introduced "Drivatars" that learn directly from human player behavior, creating bots that race with realistic tendencies and even bad habits.

Figure 5: Ghost mode in action

All of these examples show how AI has always been present in the background, either filling gaps, creating challenges, or replaying data. What's changing now is the ambition — instead of being an opponent or a stand-in, AI is beginning to step into the role of an actual partner.

Technical Implementation: Server-Side Architecture

The most critical aspect of implementing AI teammates is ensuring they don't become an unfair advantage. The solution lies in server-side processing where AI operates under the same constraints as human players. Consider how this would work in practice. The AI teammate sees only what appears on screen, just like any human player. It can't access hidden enemy positions or predict loot spawns any better than you can. When the AI aims at an enemy, it experiences the same weapon recoil, bullet spread, and movement penalties that affect human players. The AI processes all decisions through the game's central servers, making it impossible for players to modify or enhance their AI teammate's capabilities locally.

The system scales AI performance to match the skill level of the lobby. In a Bronze-ranked Valorant match, the AI makes Bronze-level decisions and exhibits Bronze-level aim. It won't suddenly start hitting impossible shots or making perfect strategic calls that exceed the skill ceiling of that rank. This dynamic scaling prevents AI teammates from dominating lower-skill matches while remaining useful in higher-tier gameplay.

The Balance Problem: A Deeper Dive

Balancing AI teammates presents a unique challenge that goes beyond simple power levels. The goal isn't just preventing the AI from being overpowered, but making it feel authentically human while remaining consistently helpful.

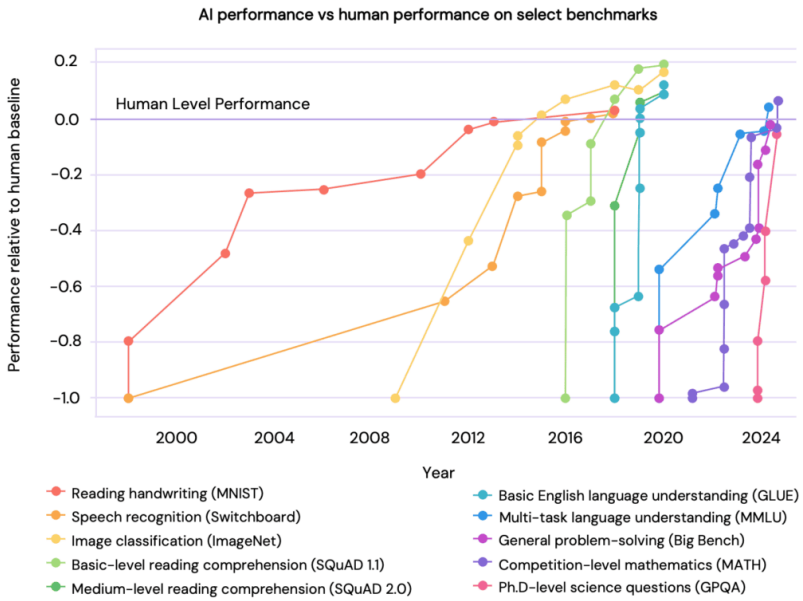

Figure 6: AI performance on various skills over time compared to human performance.
Source: International AI safety report (2025, p. 49)

The most effective approach involves intentional imperfection. The AI occasionally misses shots it should have hit, makes questionable positioning decisions, and sometimes fails to communicate critical information at the perfect moment. These aren't bugs but features designed to mirror human inconsistency. A perfect AI that never makes mistakes would fundamentally break the competitive integrity of any game. Resource management becomes another balancing factor. AI teammates consume ammunition, health items, and equipment just like human players. They can't generate infinite supplies or carry unrealistic amounts of gear. When your AI teammate uses a health kit, that's one less health kit available to the team. This constraint forces the same strategic decisions that teams with human players must make. The system also needs robust protection against exploitation. Players shouldn't be able to farm their AI teammate for easy eliminations or use predictable AI behavior patterns to gain

unfair advantages. This requires constant monitoring and updates to AI decision-making algorithms, similar to how games already patch exploits and balance issues.

Computational Costs and Latency Considerations

Running AI teammates isn't computationally free. Each AI instance requires significant server processing power, roughly equivalent to 15-30% of what a human player demands from the server infrastructure. The AI needs to process visual information, make strategic decisions, and calculate movement paths in real-time, all while maintaining the illusion of human-like thinking speed. Memory usage becomes a substantial concern. Each AI teammate requires 200-400MB of additional server memory to store decision trees, environmental mapping data, and behavioral patterns. For a game like Fortnite with 100-player lobbies, adding AI teammates to even a fraction of those matches represents a massive infrastructure investment.

Latency presents perhaps the biggest technical hurdle. AI decision-making naturally introduces delay as the system processes visual information and determines appropriate responses. Current technology adds roughly 50-150 milliseconds to AI actions, which can feel noticeable in fast-paced competitive scenarios. Game developers would need to implement predictive algorithms that pre-calculate likely scenarios to minimize this delay. The financial impact is substantial. Server operational costs could increase by 25-40% per match when AI teammates are active. However, this investment might pay off through reduced matchmaking times and improved player retention. Games could potentially offset these costs through premium AI teammate subscriptions or integration with existing monetization systems like battle passes.

Implementation Timeline and Challenges

Implementing AI teammates would happen in phases over several years. The initial phase would focus on basic functionality like following commands, sharing resources, and providing simple combat assistance. This would likely debut in PvE modes where balancing concerns are less critical and bugs have lower stakes.

Advanced AI capabilities including strategic decision-making and complex communication would follow in the second phase. This is where the technology would expand to PvP modes with comprehensive balancing systems. Cross-platform compatibility and optimization would be crucial at this stage.

The final phase would introduce personalization, where AI teammates adapt to individual player styles through machine learning. An AI might learn that you prefer aggressive pushes and position itself to support that playstyle, or recognize that you favor long-range combat and prioritize scouting and sniper rifle acquisition.

The biggest question isn't whether this technology is possible, but whether the gaming community will embrace it. Some players view any AI assistance as diminishing the purely human competitive experience. Others see AI teammates as the solution to toxic behavior and unreliable human partners. The success of AI teammates will ultimately depend on implementation quality and community acceptance rather than technical feasibility.

What Could Come Next

Looking ahead, AI teammates could move far beyond survival. They might evolve into coaches that adapt in real-time, offering subtle nudges when a player falls into predictable patterns. Or they could act as cross-game partners, carrying over between titles and learning your personal tendencies — rushing when you hold back, holding ground when you get aggressive. The goal isn't to erase the human element, but to ensure that one disconnect, one bad play, or one unlucky break doesn't derail the entire experience.

The Catch

Still, challenges are unavoidable. Balance remains the biggest one — if an AI is too strong, it risks tipping matches unfairly. There's also the danger of misuse: players could try to exploit AI support as a hidden advantage. And of course, not every gamer will welcome the idea. For some, the unpredictability of human teammates — good or bad — is part of the fun.

No AI can replace what a gamer does, munching a snack, swearing, having fun... that's the whole point, that's the gem of gaming. GG.

-Velan

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