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Title

Applications of Netti-AI in Cognitive Game AI

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Abstract

Netti-AI introduces a novel architecture for AI systems that simulate cognition, memory, and emotion-making it particularly suited for next-generation game AI. This white paper explores how Netti-AI's memory graphs, mood vectors, and episodic recall enable characters that adapt, evolve, and behave with greater human-like nuance. We present scenarios, benefits, and integration strategies for developers seeking more intelligent and immersive AI agents.

1. Introduction

Game AI is often limited by scripted logic and reactive behaviors. Players quickly learn the boundaries of NPC intelligence, breaking immersion. Netti-AI offers an alternative: agents that learn from experience, recall previous encounters, and change behavior based on emotional state. This paper proposes that emotionally driven, memory-enabled agents are key to the future of cognitive gameplay.

2. Key Netti-AI Features for Games

- Memory Graphs: Store symbolic and emotional context across sessions.
- Mood Modulation: Adjust behavior based on fear, trust, anger, curiosity.
- Episodic Recall: Enable NPCs to reference past events and dialogue.
- Contextual Prediction: Anticipate player behavior based on token associations.
- Symbolic Reasoning: Support abstract logic, planning, or quest memory.

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3. Use Case Scenarios

- Dynamic Quest Givers: Remember player choices, trustworthiness, mood during interactions.
- Allies with Personality: Companions who get annoyed, happy, or suspicious over time.
- Evolving Enemies: Bosses that adapt tactics based on how they were previously beaten.
- Ambient NPCs: Populate towns with residents who remember rumors or past conversations.

4. Implementation Layers

Netti-AI can run as:

- Embedded System: For low-latency agents in real-time games.
- Server-Side Simulation: For persistent world memory and large-scale interaction graphs.
- Hybrid Plugin: With hooks into Unity/Unreal to offload cognition logic.

Developers interact with Netti's CLI or future API to train and export agent states.

5. Benefits Over Traditional AI

- Removes reliance on state machines
- Enables emergent behavior
- Offers persistent NPC memory across sessions
- Adds emotional depth to scripted events
- Facilitates storytelling through natural, unscripted interactions

6. Roadmap for Game Integration

- 2025 Q3: Exportable game agent profiles
- 2025 Q4: Netti-Unity integration module
- 2026: AI/NPC co-authoring toolkit with TALIA frontend

7. Conclusion

Game experiences are elevated when NPCs behave with memory, emotion, and reasoning. Netti-AI bridges that gap. With symbolic memory graphs and mood-driven logic, developers gain access to AI systems that

think, remember, and adapt-creating stories players will never forget.

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