

ARP Poisoning Detection Through Deep learning

AI Applications



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Executive Summary:

This comprehensive report explores the groundbreaking advancements in the Tactical Artificial Intelligence (TAI) system implemented in Pro Evolution Soccer (PES). The evolution of TAI in PES has not only transformed digital sports gaming but has set new standards in realism and strategic depth. This report delves into the intricacies of the algorithms, machine learning, and cutting-edge technologies that drive the dynamic nature of the virtual battlefield in PES.

Introduction:

The integration of TAI in PES has redefined the landscape of sports gaming, providing players with a dynamic and immersive experience. The following sections elucidate the sophisticated algorithms and state-of-the-art technologies underpinning PES's TAI system.

1. Pathfinding Algorithms and Positional Awareness:

PES's TAI system has transcended conventional limitations with pathfinding algorithms and positional awareness that allow virtual players to adapt seamlessly to the dynamic pitch. The result is a calculated and strategic gameplay resembling a chess match, where every move is meticulously considered based on ball location, teammate positioning, and individual playing styles.

2. Machine Learning and Adaptive Gameplay:

Machine learning serves as the backbone of PES's adaptive gameplay. Virtual opponents analyze player tactics, identify patterns, and adjust strategies in real-time. This constant evolution creates a challenging environment, requiring players to adapt and evolve their own game to stay competitive.

3. Finite State Machines and Markov Decision Processes:

TAI in PES goes beyond scripted routines by utilizing Finite State Machines and Markov Decision Processes to model player behavior. These advanced algorithms assess situations, weigh options, and choose the most effective action, replicating the decision-making process of real footballers.

4. Neural Networks and Deep Learning:

The latest iterations of PES leverage neural networks and deep learning to analyze past successes and failures, refining decision-making and developing unique playing styles. This innovation allows players to face opponents trained on the tactics of their favorite real-life players, enhancing the realism of the gaming experience.

5. Team Dynamics and Strategic Depth:

TAI algorithms in PES analyze team composition, score, and time to dynamically adjust formations and tactics. This introduces strategic depth, akin to having a virtual coach, constantly evolving the team's approach to secure victory.

6. Immersive Realism:

The immersion factor in PES is unparalleled, with virtual players reacting with genuine nuance, reading the game, and responding intelligently. This heightened realism draws players deeper into the experience, making every match a captivating battle for supremacy.

Conclusion and Future Prospects:

In conclusion, PES's TAI system presents a genuine test of tactical prowess, where opponents learn, grow, and adapt, demanding players to do the same. Looking ahead, the future promises even greater advancements in AI, envisioning virtual players with near-human intelligence. PES could become a breeding ground for tactical innovation, seamlessly intertwining virtual and real football for an unprecedented gaming experience.

As players step onto the digital pitch in PES, they face not mere pixels but a living, evolving opponent shaped by complex algorithms and cutting-edge AI. Embracing the challenge, adapting tactics, and conquering the virtual battlefield are crucial in this ever-evolving world of PES, where the convergence of virtual and real football reaches new heights of innovation and excitement.