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The Strategies for Players to Win in Pursuit-Evasion Differential Games with Various Constraints

Pursuit-evasion differential games have garnered substantial scholarly attention, exemplified by significant contributions such as Leon A. Petrosyan's seminal work, "Differential Pursuit Games" (1977).

This study delves into a pursuit-evasion differential game involving an infinite number of pursuers and a lone evader. Notably, the control functions employed by all participants must conform to either geometric or integral constraints. By formulating winning strategies, the pursuers can effectively apprehend the evader by ensuring that at least one pursuer achieves an identical geometric position.

The study presents a comprehensive strategy enabling pursuers to capture the evader successfully. Moreover, the research findings have practical implications across diverse domains, particularly robotics and mobile gaming. The insights from this investigation contribute to the advancement of sophisticated robotic systems and foster the enhancement of interactive experiences within mobile gaming applications.