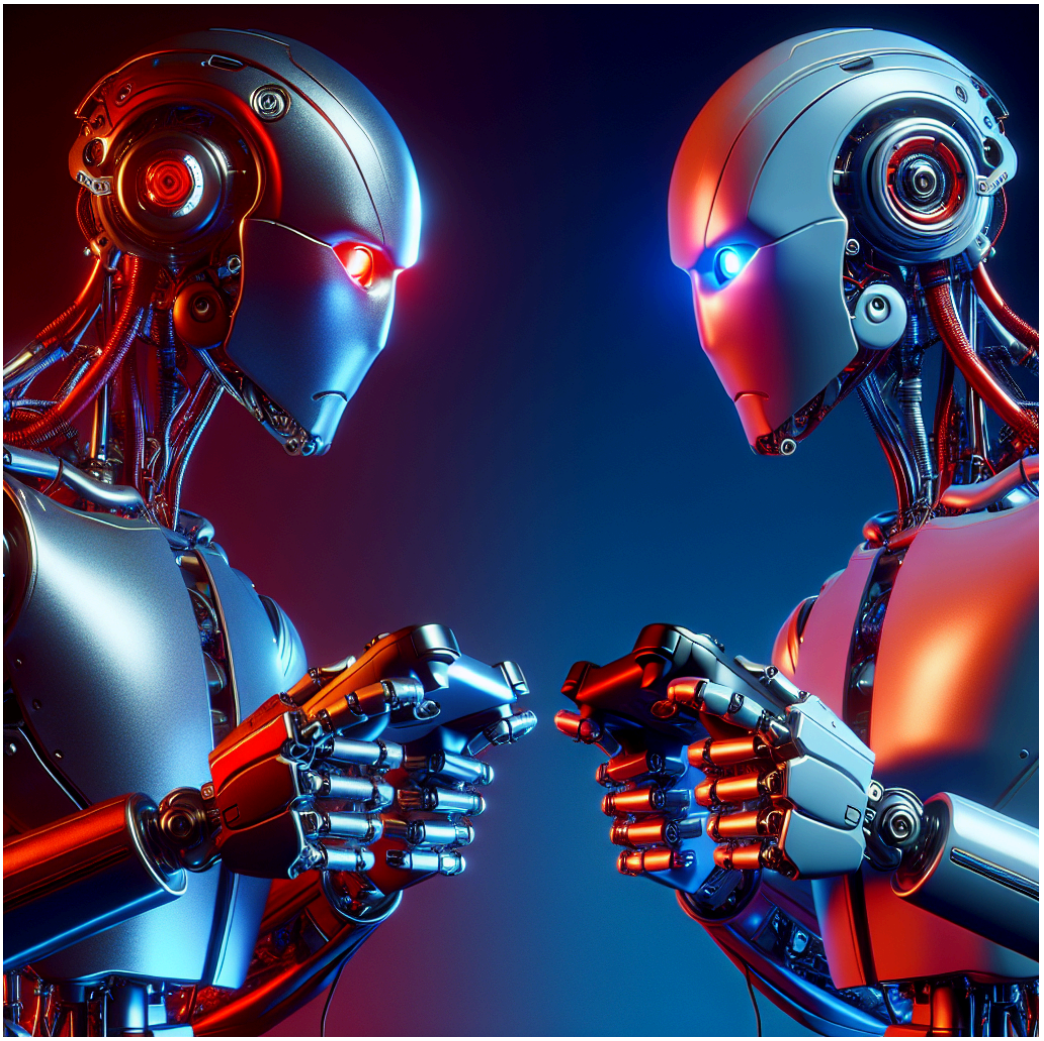
AI Undercover

AI Bots in the world of AI Cheat Detection



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GitHub: https://github.com/adilgulu/EECS4461

Phenomena of Interest

We will investigate the interactions between AI gaming bots and AI cheat detectors in digital games (for example, we investigated slither.io) where bots manipulate gameplay for unfair advantages. Our simulations will examine how these AI entities adapt and counteract each other under various conditions such as resource limitation, speed throttling, and pattern recognition.

We intend to use the examples from the Python MESA LIbrary to examine and perform these simulations. The Schelling Segregation Model can be used to see how AI entities in gaming environments self-organize into clusters of cheat-dominated versus fair-play areas, Virus on a Network could help simulate the spread of advanced cheating tactics across gaming networks, Boid Flocking could lead to simulations on how clusters of bots might work together to overcome game constraints and how detectors might similarly collaborate to counteract these strategies effectively, and Epstein Civil Violence Model could provide insights into the risk-taking behavior of bots under different levels of surveillance and enforcement intensity, which mirrors the dynamics between rebellious citizens and law enforcement in the Epstein model.

By adapting these models, we aim to explore the strategic interactions between AI gaming bots and cheat detectors, providing insights into AI behavior in adversarial environments.

Relevant Works

Chen, M. (2024). AI cheating versus AI anti-cheating: A technological battle in game. Applied and Computational Engineering, 73(1), 222-227. https://doi.org/10.54254/2755-2721/73/20240402

Skinner, G., & Walmsley, T. (2019). Artificial Intelligence and Deep Learning in Video Games: A Brief Review. In 2019 IEEE 4th International Conference on Computer and Communication Systems (ICCCS) (pp. 404-408). IEEE. https://doi.org/10.1109/CCOMS.2019.8821783