ARTICLE TYPE

AI-driven Player for Game Balancing

The Problem

The client has a highly complex action–based game operating in turns. Between each two turns, the game makes multiple random decisions that influencing the right strategy of the player. When introducing new items/levels to the game, the client had a hard time balancing these without giving a lot of players to repetitively try each new item or level. This caused for a lot of players to churn due to playing versions of the unbalanced game.

The Solution

Using deep reinforcement learning, we developed an AI player that automatically learns the client's game after setting the possible input and actions the AI player would know about (like a human player but without the graphics). The AI player simulates a good player's behavior and its output is used to evaluate if a new item or level is balanced or not. In addition, we developed an inherent mechanism to control the performance of the AI player, allowing to test for good, medium, and bad players.

The Outcome

Following the usage of the AI player to balance new items/levels, the client reported $\tilde{2}0\%$ decrease in the time it takes to release a new item and $\tilde{1}0\%$ decrease in the time it takes to release a new level. In addition, avoiding testing these on real players resulted in decrease in the game's overall churn however this is not measured by the client so far.