

A Multi-tiered Level of Detail System for Game AI

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This dissertation explores the idea of using simulation Level of Detail (LOD) to reduce CPU and memory use associated with persistently simulating NPCs (Non-player Characters). Current games are often CPU bound so developers have severe limits on how many AI characters can be simulated concurrently. The aim is to design, implement and evaluate a system that alleviates these computational stresses by simulating characters and events at varying levels of detail. Using Machine Learning, a model is trained that can predict the outcome of events so that they do not have to be simulated fully, allowing more agents to exist in the simulation. The system aims to attain an accurate model of the full detail simulation. This makes the simulation feel consistent to the player, increasing immersion.