Machine Learning for Adaptive Game Design

Cierra O'Grady

***Abstract*—This paper explores the use of deep learning models in game design to create adaptive experiences for players.**

I. GitHub Repository

https://github.com/CierraO/DS_ML_Project_colab-integration

II. Introduction

Effective game design creates gameplay that is just difficult enough to keep players engaged, but not so difficult that it makes them frustrated. Traditional methods rely on common difficulty curves that assume all players start from the same skill level.

III. Research Questions

Is adaptive game design effective? What models are best for adapting to player skill level?

IV. Methodology

The research involved comparing different models using training data from XYZ.

V. Key Findings

Multiple studies found that Model X performed best. Model Y performs well for Use Case A, while Model Z performs well for Use Case B.

Research Gaps

The training data was biased and focused on XYZ, not accounting for many members of the target population.

References

[1] J. Dornig and C. Li, "Exploring the Use of Machine Learning as Game Mechanic – Demonstrative Learning Multiplayer Game Prototype," 2020 IEEE Conference on Multimedia Information Processing and Retrieval (MIPR), Shenzhen, China, 2020, pp. 396-399, doi: 10.1109/MIPR49039.2020.00087. keywords: Games;Training;Machine learning;Brain modeling;Real-time systems;Learning (artificial intelligence);Game Design;Machine Learning, Demonstrative Learning, Artificial Intelligence