Comparing game tree search techniques for general videogame AI (GVGAI) Literature Review

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***Abstract*—The abstract goes here.**

I. Introduction

THIS Literature review will cover what questions I will be asking for my dissertation topic as well all the literature I have found that is related to my research questions.

II. Research Questions

- How does game tree search techniques compare for GVGAI?
- Where does GVGAI succeed best in set games?
- Where does each tree search technique do well in each game?
- What are the most challenging areas for GVGAI in the GVGAI competition?

III. Literature Review

A. What is General Video Game AI (GVGAI)?

GVGAI is an AI competition framework, in which AI controllers are designed to be able to play any game it is given, even when it has never played that game before. The controllers are given allowed upto 40ms to compute the agents action(s) [1], [2]. The framework contains a library of 2D Java based video games some of which are based of classic arcade games, there are currently as of writing this, 62 games that AI controllers can be tested on.

B. Goal Orientation

This paper [3]

C. Analyzing the Robustness of General Video Game Playing Agents

This paper [4]

D. Efficient Implementation of Breadth First Search for General Video Game Playing

This paper proposes an efficient implementation of Breath First search, however it only works well for deterministic game sets. The paper proposes a method of BFS where a node that has already been visited in other nodes will not be expanded, this is stored in a hash function. The algorithm uses hash codes to improve the efficiency and performance.

[5]

E. HyperHeuristic

Hyper Heuristic methods are [6]

IV. Conclusion

The conclusion goes here.

References

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[4] D. Pérez-Liébana, S. Samothrakis, J. Togelius, T. Schaul, and S. M. Lucas, "Analyzing the robustness of general video game playing agents," in *Computational Intelligence and Games (CIG), 2016 IEEE Conference on*. IEEE, 2016, pp. 1–8.

[5] S. Ito, Z. Guo, C. Y. Chu, T. Harada, and R. Thawonmas, "Efficient implementation of breadth first search for general video game playing," in *Consumer Electronics, 2016 IEEE 5th Global Conference on*. IEEE, 2016, pp. 1–2.

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Appendix A
First appendix

Appendices are optional. Delete or comment out this part if you do not need them.