

Attribute Learning System

[Applying Genetic Algorithms to Improve RPG Combat Mechanics]

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ABSTRACT

Having a good set of moves for players to choose from in role-playing games (RPG) is essential for the game to succeed. Often times in an RPG, the players have various attributes which these moves can effect and coming up with good formulas for this is not easy. The process of creating an effective set of moves can take time and can be a difficult challenge to overcome in the design process. This paper proposes an implementation to effectively create these moves using a genetic algorithm implementation. Two separate implementation styles of genetic algorithms are used, a tree style and a vector style. The results show that the vector styled approach for the genetic algorithm shows promising results in move set creation.

Categories and Subject Descriptors

1.2.1 [ARTIFICIAL INTELLIGENCE]: Applications and Expert Systems — *games*

General Terms

Genetic Programming

Keywords

Genetic, Programming, Game, Development

1. PROBLEM

2. APPROACH

2.1 Prior Work

2.2 Target Audience

3. IMPLEMENTATION

3.1 Genetic Algorithm

3.2 Function Tree

3.2.1 Mutation Algorithm

3.2.2 Cross-over Algorithm

Weighted-delay cross-over variant - Potentially novel Mixed-children weighted-delay cross-over

3.3 Function Vector

3.3.1 Mutation Algorithm

3.3.2 Cross-over Algorithm

3.4 Simulation

describe the algorithm

3.5 Fitness Function

Tried several approaches:

- Move usage**
- Battle victory**
- Battle length
- Linearity

3.6 Players

3.6.1 Minimax Player

3.6.2 Greedy Player

3.6.3 Random Player

3.6.4 Utility calculation

Primaries vs. Primaries + Secondaries

4. VALIDATION

4.1 Function Tree

4.1.1 Levenshtein Edit Distance

Mutation. Original attempt was to simply randomly change nodes in the tree.

Cross-over

4.1.2 Numerical Analysis

Mutation

Cross-over

5. RESULTS

5.1 Parameters

6. CONCLUSION

We need to do work!

7. FUTURE WORK

7.1 Genetic Operators

8. REFERENCES

9. REFERENCES