

# A Multi-algorithm Game Playing Agent

## Summary

## Background

### Scenario

### Previous Work

Algorithmic

Neural Networks

Finally, an interesting piece of previous work is found within the code of Pokemon Red itself.

## Design

### Input Layer

The role of the input layer is to capture the current visual output of the game emulator and translate it into pieces which can be used by the image recognition layer.

### Image Recognition Layer

### Decision Tree Layer

### Minimax Layer

What is it

This algorithm layer is not strictly necessary. It would be possible to make a capable game playing algorithm with only a decision tree. This is actually the approach taken by certain enemy AI algorithms (for trainers) within Pokemon Red. However, a decision tree would lead to limitations where the algorithm will not be able to find the same optimal move that a player could. This is because the decision tree is inherently limited in the number of moves ahead that can be considered.

Heuristic Function

Example Tree

### Output Layer

## Implementation

### Unit Testing

### Further Interface Improvements

### Lessons in Autonomous Agent Design

## Conclusion

## References

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