Research Review

I chose to review the research article *Game Tree Searching by Min / Max Approximation* by Ron Rivest. The goal of this article was to define a new approach for searching in game trees. Ron's technique used the idea of approximating the min and max operators with generalized mean-value operators as a form of searching. The motivation behind this article was to achieve a method which will always expand the node that is expected to have the largest effect on the value.

The article goes on into technical detail about their approach to calculating generalized mean values, an iterative search heuristic, exploring penalty based iterative search methods, searching by min/max approximation, and their implementation. This is a very technical paper and definitely takes some time to comprehend the technical details involved in these approaches.

This article also goes onto explain their results of their new approach to searching a game tree. The game of choice for this study was Connect-Four due to its commercial availability, simplicity to describe, and implementation. Their experiment for evaluation consisted of five possible time bounds and five possible move bounds. Based on the time bound experiment Alpha Beta pruning performed better than the min / max approximation approach of the author. However, based on move bounds the opposite was true. Overall the author found these experimental results encouraging and concluded their description of their initial experiments. In conclusion, the author has presented a new approach to game searching. Based on the results this new approach performs better than alpha beta with iterative deepening.