

TITLE Machine Learning TicTacToe Program

DESCRIPTION TicTacToe programs are usually algorithmic and how they play doesn't change over time, but this program uses a simple heuristic approach with a feedback mechanism to start playing as a raw beginner and eventually learns to play the game as well as an expert.

ABSTRACT Starting with knowing only that three in-a-row wins the game, this program learns through gameplay which of its moves result in the best outcomes. The program continually improves its play and eventually becomes unbeatable.

The presentation will include demos of the program playing as both a beginner and as an expert. And we will discuss the following features of the system:

- Mechanism of how the system learns
- Feedback and backtracking
- Source code of key routines is explained
- Improving learning speed by symmetry
- Random/systematic move selection
- Reasons for negative vs positive corrections

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