Deep Learning & Computer Chess
An MCTS Chess Engine with Heuristic Enhancements

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Project Objectives:
Monte Carlo Tree Search (MCTS) is a probabilistic algorithm that has gained traction in recent years. MCTS uses lightweight random simulations to selectively grow a game tree and has experienced a lot of success in domains with vast search spaces, such as chess, which historically, have challenged deterministic algorithms.

This project aims to explore the usage of the MCTS algorithm in chess engines and also the various ways MCTS can be improved beyond the base algorithm through the use of a static board state evaluation function along with various existing enhancement methods as well as newly suggested novel enhancement methods.

Features:
- Dashboard built to deliver data in a clearer and more visually appealing way.
- Adjust and tune parameters of MCTS engines.
- Generate and view move statistics for any board state.
- Perform playouts against own MCTS engines, minimax engines and various commercial engines.

Results & Conclusion:
With the various enhancements, the improved engine manages to easily defeat the basic MCTS engine and is able to hold its own against conventional minimax engines. With further development and improvement of the engine in the future, it could potentially outperform commercial chess engines.