**Project Proposal - Artificial Intelligence**

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Chess Engine with Deep Learning

**1. Introduction**

This project aims to create a chess-playing program using deep learning techniques. Unlike traditional chess programs that rely on predefined rules, this project will enable the program to learn and improve by playing games against itself.

**2. Objectives**

* Develop a chess program that learns from its own games.
* Use deep learning to predict the best moves.
* Implement a system where the program continually improves by playing against previous versions of itself.

**3. Methodology**

* **Neural Network Design**: Create a neural network that takes the current chessboard state as input and outputs the best possible move.
* **Self-Play Training**: Allow the program to play numerous games against itself, collecting data on move choices and game outcomes.
* **Learning Process**: Use the collected data to train the neural network, adjusting its internal settings to improve move predictions.
* **Evaluation**: After training, test the updated program by having it play against earlier versions to assess improvement.

**4. Tools and Technologies**

* **Programming Language**: Python.
* **Libraries**: TensorFlow or PyTorch for building and training the neural network.
* **Chess Library**: python-chess for handling chess rules and game states.

**5. Expected Outcomes**

* A chess program capable of learning and improving its gameplay over time.
* Insights into the effectiveness of deep learning for developing game-playing programs.

**6. Conclusion**

This project will explore the use of deep learning in creating a chess program that learns from experience, offering a modern approach to game AI development.