NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Computer Science and Engineering
College of Engineering

# Deep Learning for Computer Chess

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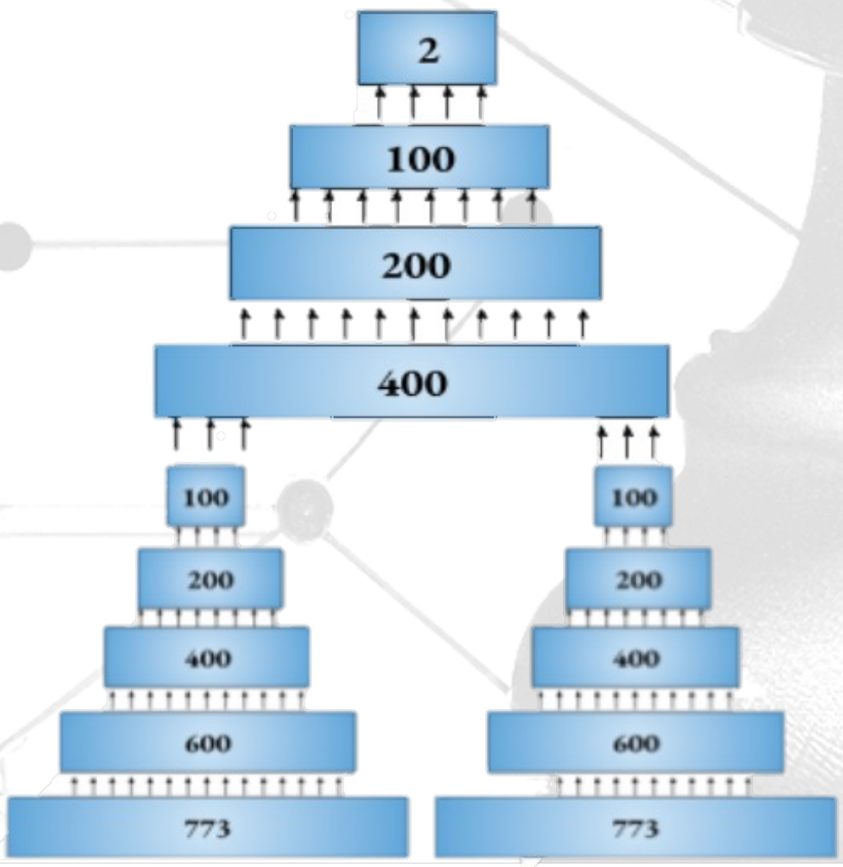
We aim to optimize the performance of the models for evaluating chess positions and to create a more competitive engine through implementing MCTS and testing it against a traditional engine. Additionally, we seek to explore the potential of using the model prediction as an evaluation function to improve the early playout termination of MCTS.

## PROJECT OBJECTIVES

- Train and compare the Giraffe and DeepChess Deep Learning models for evaluating chess positions
- Implement Monte Carlo Tree Search to improve the gameplay of the in-house engine.
- Construct a new engine to explore the effects of using the model prediction as an evaluation function for the early playout termination of MCTS.
- Design an engine that uses the better-performing model and evaluate its gameplay against a traditional non-DL-based engine in a 100-game chess match.

## DeepChess Architecture




## DeepChess vs OliveChess