**Title**: Assigning Valuation to Chess Pieces via ML

# OVERVIEW OF PROJECT

## Project Overview

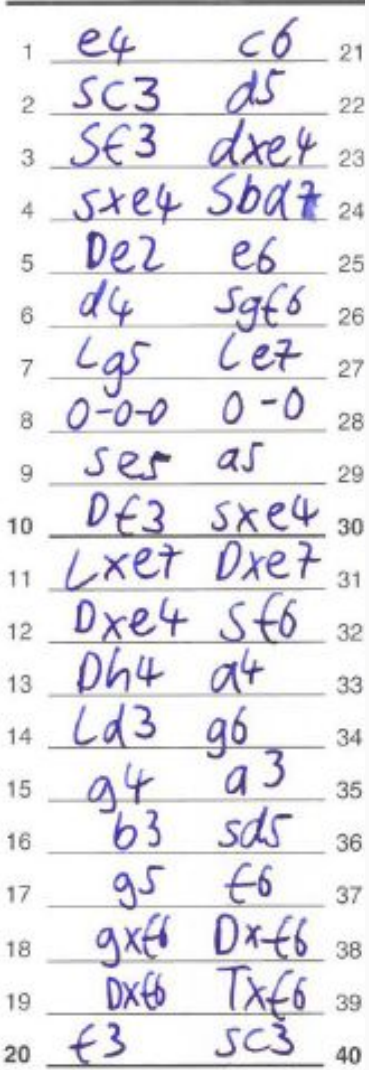
- Challenge Traditional Piece Values
- Analyze per tier of player (determined by their ratings)

## Data Overview

- Each row is a chess game
- Features: time limit of game, ratings of players, script of game (next slide)

## Model Overview

- Unsupervised Learning (log odds per piece, associations, patterns) to give unbiased values to each piece
- Supervised learning regression, starting with given piece values



| | | | |
|---|---|---|---|
| 1 | e4 | c6 | 21 |
| 2 | Sc3 | d5 | 22 |
| 3 | Se3 | dxe4 | 23 |
| 4 | sxe4 | Sbd7 | 24 |
| 5 | De2 | e6 | 25 |
| 6 | d4 | Sgf6 | 26 |
| 7 | Lg5 | Le7 | 27 |
| 8 | 0-0-0 | 0-0 | 28 |
| 9 | Ser | a5 | 29 |
| 10 | Df3 | Sxe4 | 30 |
| 11 | Lxe7 | Dxe7 | 31 |
| 12 | Dxe4 | Sf6 | 32 |
| 13 | Dh4 | a4 | 33 |
| 14 | Ld3 | g6 | 34 |
| 15 | g4 | a3 | 35 |
| 16 | b3 | Sd5 | 36 |
| 17 | g5 | f6 | 37 |
| 18 | gxf6 | Dxf6 | 38 |
| 19 | Dxf6 | Txf6 | 39 |
| 20 | f3 | Sc3 | 40 |

<- Chess Moves for a game

## MODEL IDEA

### Pull Features per Piece

- The pieces it took (indicated by the "x" in the moves)
- The amount of squares it moved
- The amount of checks it made
- If it was part of the checkmate (boolean)

### Model Conclusion

- Get values of pieces per diff chess levels
- Table / data frame that estimates the piece value for each general piece for each level of play
- Assist younger players with understanding what pieces they under or overvalued