Final Project Proposal

A Python Bot to Play Chess Using Computer Vision

Description

Build a classifier to classify images of chess pieces and use the model to predict pieces and determine the position of a chess board. Given the position, use a Python chess engine to get the best response move. Use an OS Api to make the move and wait for a new position. The goal is to play in real time against real people on Chess.com.

Algorithm Outline

Train a Bot

- Collect training images of Chess pieces
  - Screenshot of a fixed size chess board
  - Break into grid
  - Manually label pieces
- Train a model to recognize a chess piece

Play Chess

- Set up
  - Bring up Chess.com
  - Start Bot
- Make a Move
  - Take a screenshot of the chess board
  - Extract the board region and grid into squares
  - Classify pieces by square
  - Put together current position by square location and piece
  - Feed position to chess engine and get best move
  - Translate move into screen coordinates
  - Have Python click target piece and move to target position
  - Monitor clock to indicate next move and repeat