Idea

Chess, a classic two-player strategy board game has been a source of challenge to ML community. The idea of capturing a live Chess game using Computer Vision has been around for a long time as well [1]. It is time that there is a solid open source mobile implementation for the same. Android is the right platform for bringing this to life and on-device ML can give it the rigor and accuracy it requires.

Details

Google as the anchor developer and publisher of Android mobile platform has the necessary expertise to contribute to ambitious open source projects.

Problem Area

1. Use mobile device to capture a live chess game
2. Professional games are captured using specialized chess boards which are very expensive and not accessible for all tournaments. Hence a vast majority of human games played over the board are never captured and made available for analysis.
3. Chess as a game will rise in popularity with sophisticated tools available to players

Solution

1. Mobile Computer Vision - To capture the moves of a live game. Camera at a slight angle to the game
2. It will also be useful for time-keeping. There are several mobile apps which function as manual chess clocks.

Existing Implementations

1. OSU CSE Course has this as their sample problem set - Github Link

Steps

1. Board Detection (template matching)
2. Tracking Piece movements
3. Logging the game as a PGN for archive and analysis
4. Utilize existing chess engines for move validation

Timeline

1. Jan 2020 - Functional piece tracking mobile application, using on device Computer Vision
2. March 2020 - Improve accuracy and optimization by training on recorded games (test cases)
3. May 2020 - Real-time live game tracking

Project code to be tracked on Github in open source.

About Me

I am an amateur chess player who loves to play on lichess.org. I am also a professional developer with over fourteen years of experience of writing software for embedded systems. Practical Computer vision is an area in which I work for my side projects.

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