AR Chess

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Original Objectives

- Extract 3D data from a chessboard on a table (possibly with a Kinect or other sensor)
- Project virtual objects into the scene
- Create a server to send each player’s board state to the other

Process

- Calculate homography between your board and the other player’s board
- For each frame in your video take a frame of the other player’s video and mask off their pieces
- Warp the frame with the other places pieces into the same homography as your board
- Combine the two images to create a composite of the board

Challenges

- Extracting meaningful info about the pieces
  - issues distinguishing pieces clearly
  - had to settle for a more simple approach - use hue to find pieces of a bright color
- Sending the video data across a server
  - originally tried to use GAE
  - switched to sockets for streaming video
- Displaying game state
  - Wanted to project 3D virtual objects
  - Tried a standard chess web interface
  - Ended up sending video

Possible Extensions

- Be able to recognize game pieces of arbitrary size or color
- Be able to recognize any type of game board

Demo

Results

- Extract 3D data from a chessboard on a table (possibly with a Kinect or other sensor)
  - SUCCESS
- Project virtual objects into the scene
  - NOT ATTAINED/MODIFIED
- Create a server to send each player’s board state to the other
  - SUCCESS