

# DIGITALIZATION AND VISUALIZATION OF CHESS GAMES FROM VIDEO

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## OBJECTIVE

- Design a system that detects chess moves from video using computer vision techniques, enabling users to analyze, share, visualize, and archive chess games without manual transcription.
- Manual recording of games is insufficient, and using an electronic chessboard is expensive and difficult to manipulate.

## KEY TECHNIQUES

### Pieces and Board Detection



Figure 1

### Hand detection

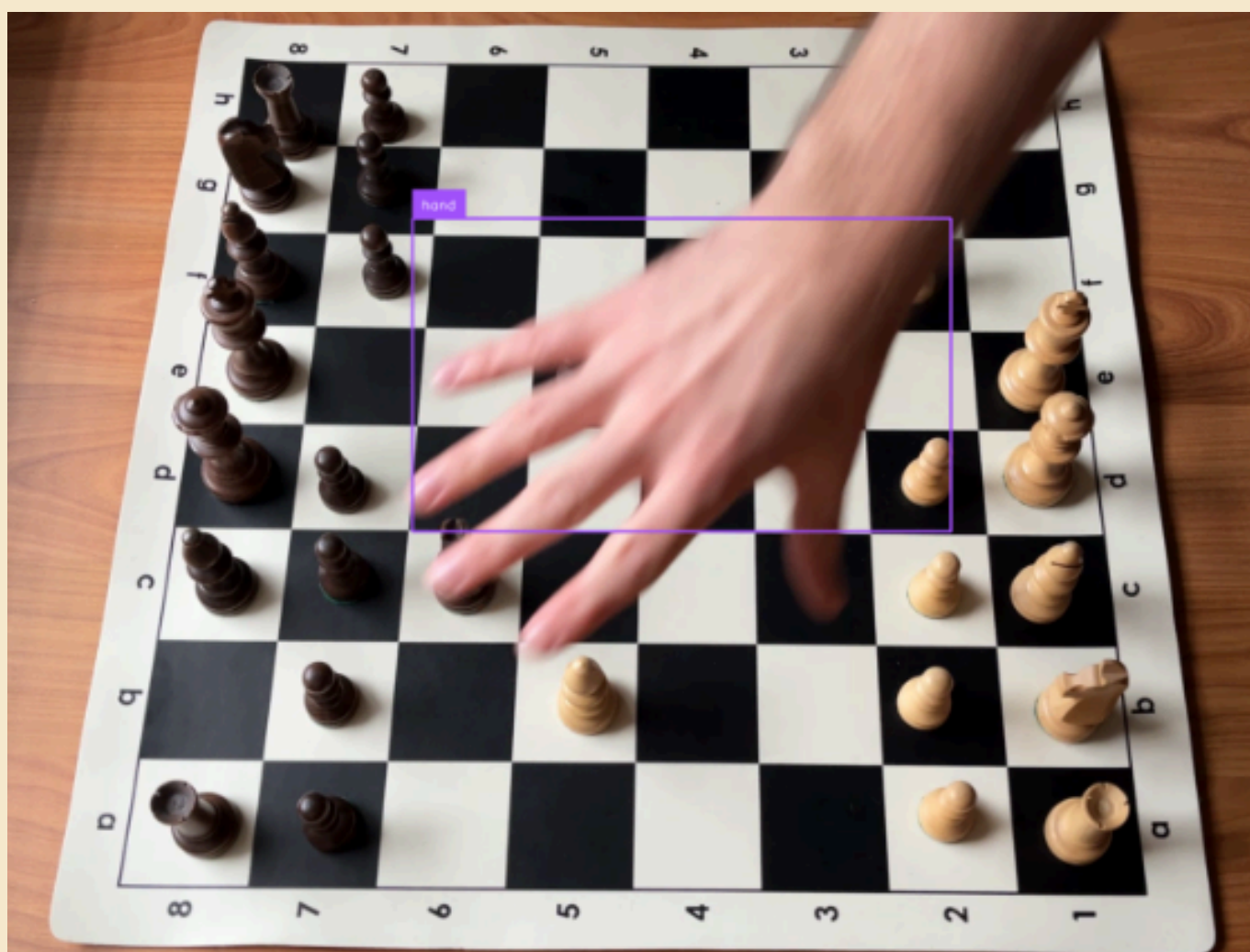


Figure 2

### Board State Visualization

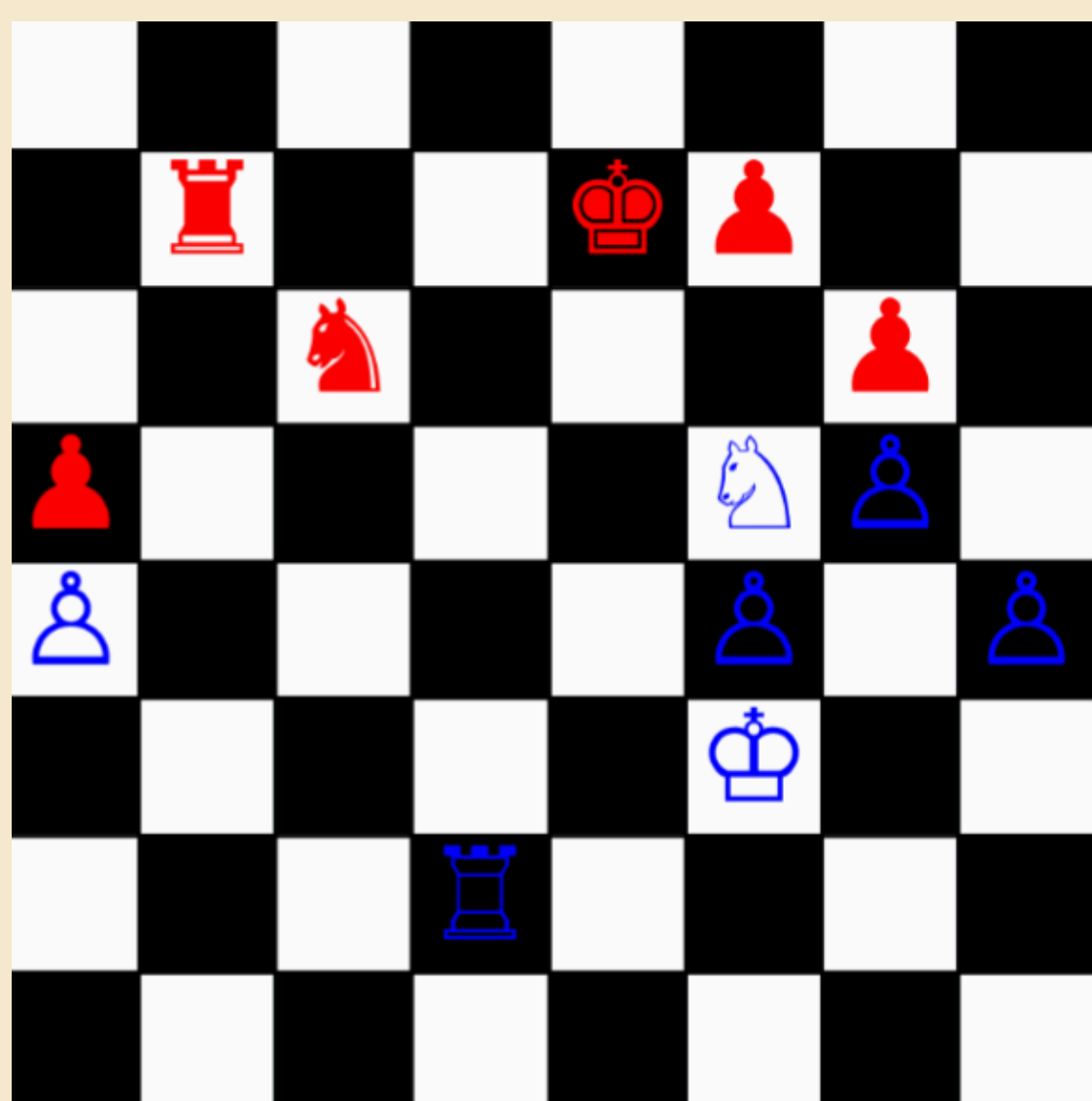
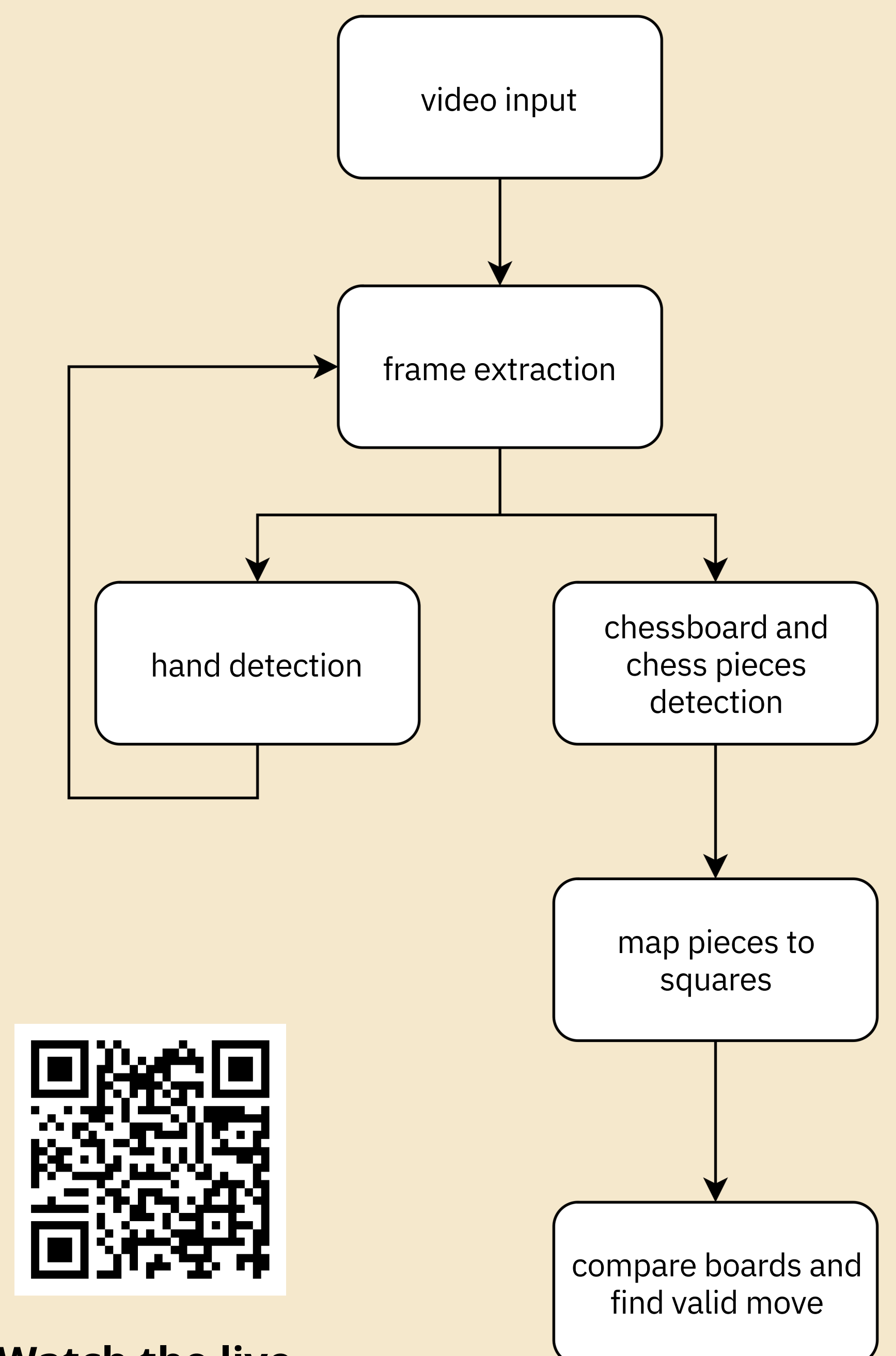


Figure 3

FEN:

8/1r2kp2/2n3p1/p4NP1/P4P1P/5K2/3R4/8 w - - 0 1

## METHODOLOGY



Watch the live system demonstration!

Figure 4

## RESULTS

- The system outputs moves in standard PGN format, ready for analysis, visualization, and archiving.
- A YOLOv8 model trained on 9,800 images achieves 92.6% mAP@0.5 across 12 chess piece classes.
- Combining detection, localization, hand recognition, and move validation enables robust and accurate move reconstruction.