# Practical Course AI
# Status Sprint 8

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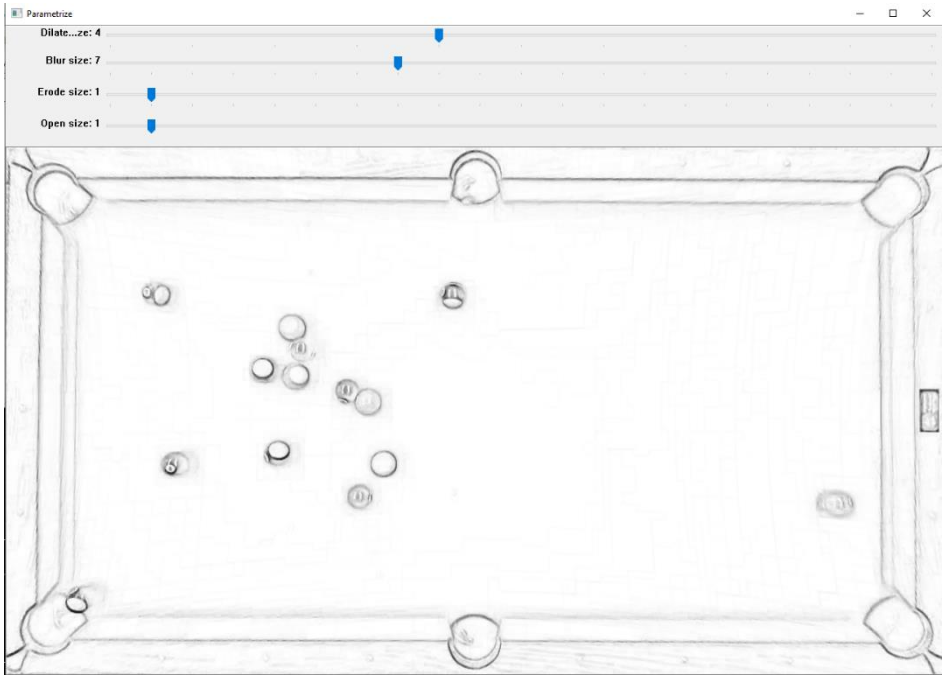
# Ball detection (TM)

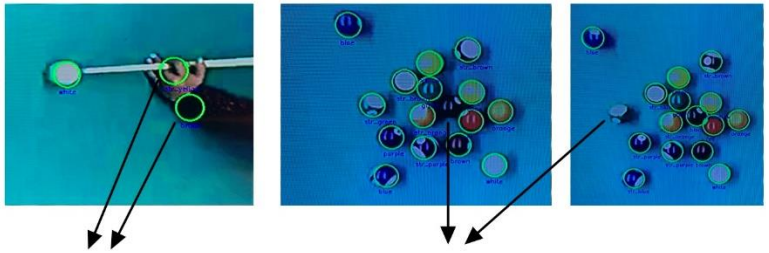
- Shadow removal to get sharp edges
- Aggregate gradients of different techniques
- Tune vision algorithms with slider GUI



# Filtering (AN)

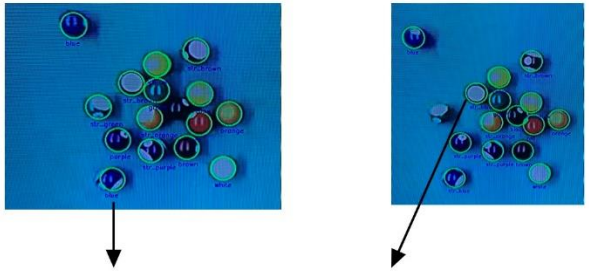
- Improve robustness of color detection
- Incorporate CSRT-based multi-object tracking to deal with detection artefacts
- Added support for generating CSV dataset in format required by modeling

## PROBLEMS:



Extra circles

Missing circles

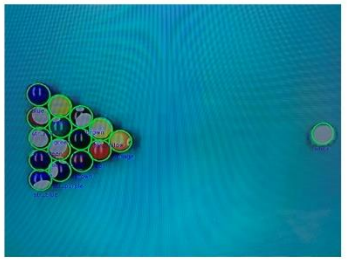


Striped blue detected as blue

Striped red detected as striped blue

## POSSIBLE SOLUTION:

1. Detect a frame with all balls getting detected perfectly
2. Trigger the tracking algorithm (CSRT multi object tracking)

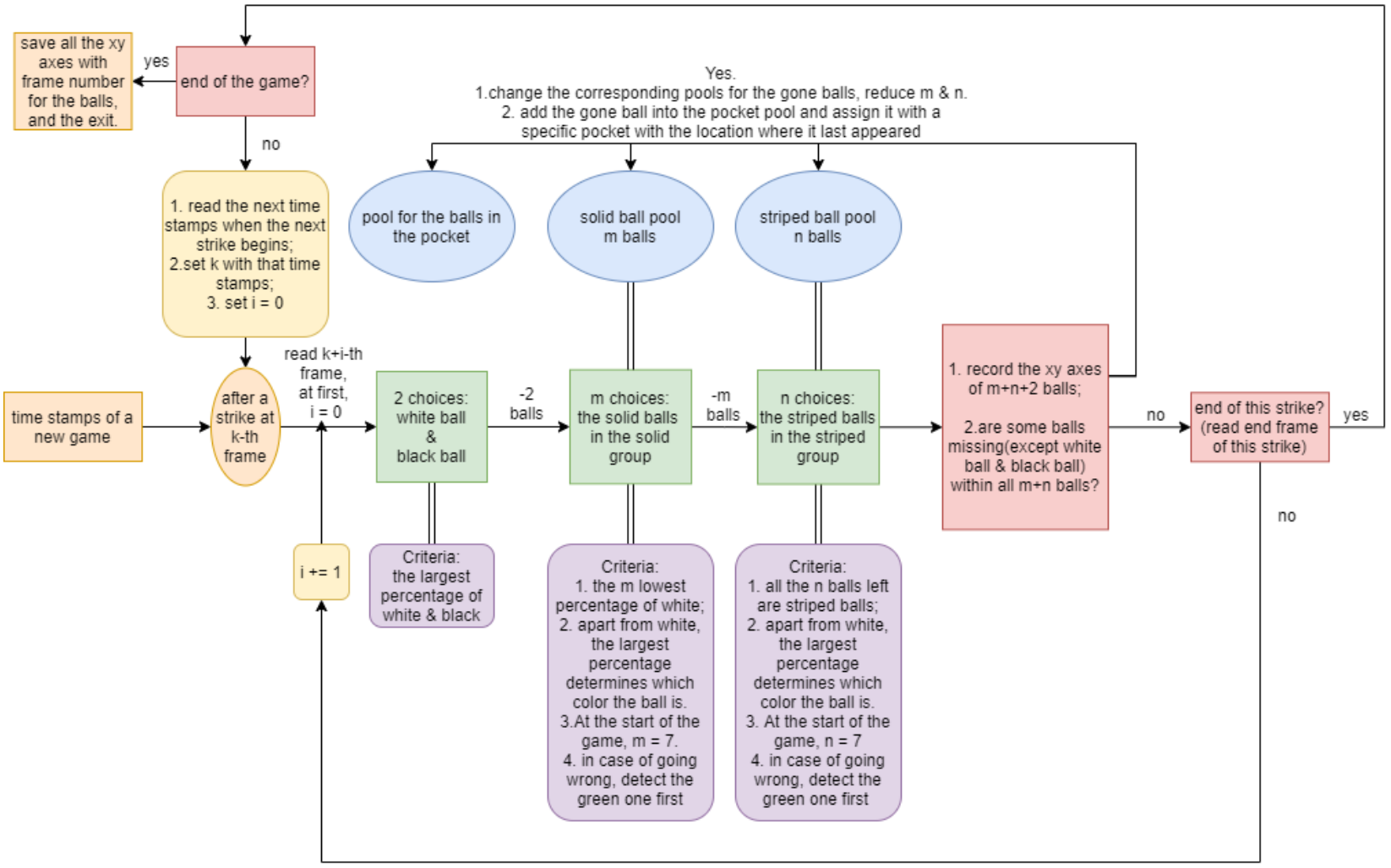


Perfectly detected frame

Tracking triggered

Tracking continues in subsequent frames

# Flow chart of color detection (ZC)



# ML Model (SB)

- Part of hyperparameter search implemented (so far only with number/size of layers, no real test dataset yet)
- Output into CSV to compare predicted vs ground truth

# Rendering (SG)

- Implemented reading ball positions from csv file
- Tried to separate rendering class from Table and Ball classes, but still struggling due to lack of experience

# Outlook

- Sanity checks for preprocessing
- Train with first dataset
- Finish rendering for qualitative analysis