

# Slovodel: words detection

Maria Lysyuk, Natalia Shmigelskaya

Moscow, Russia

December 21, 2021

# Outline

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# Rules and Motivation

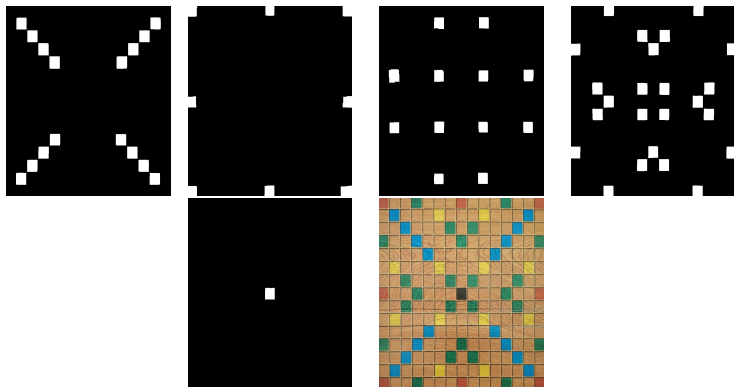


- Fun game aka the well-known Scrabble one
- There do exist world championships in this kind of game
- Motivation: you want to increase your score and beat your boyfriend/girlfriend

# Part 1

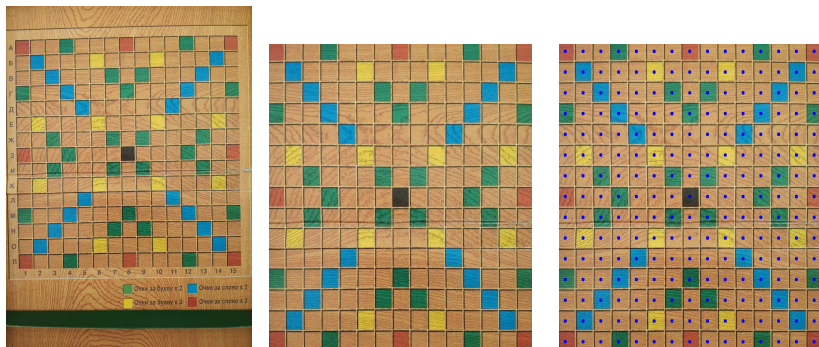
- Part1: detect the color of board cells to calculate the score
  - 1 Detect four points to transform the picture
  - 2 Warp the picture
  - 3 Detect center of board cells
  - 4 Define masks and center of contours
  - 5 Combine masks centers and cells centers to define the colour of each cell

# Masks



Blue, red, yellow, green, black

# Grid detection steps



Initial picture, warped one, coordinates detection

# Part 2

- Part2: detect letters and form words
  - 1 Warp the picture
  - 2 Detect letters with OpenCV function minAreaRect
  - 3 Predict letters with the pretrained Cyrillic Alphabet Classifier
  - 4 Combine cells coordinates with the predicted letters
  - 5 Iterate over the horizontal and vertical rows to detect the whole word not just letters
  - 6 Intersect colour grid and letters in cells to predict the final score

# Letters detection



First and second steps of letters detection



# Results of the detection



Initial picture, words prediction

Thank you for your attention!