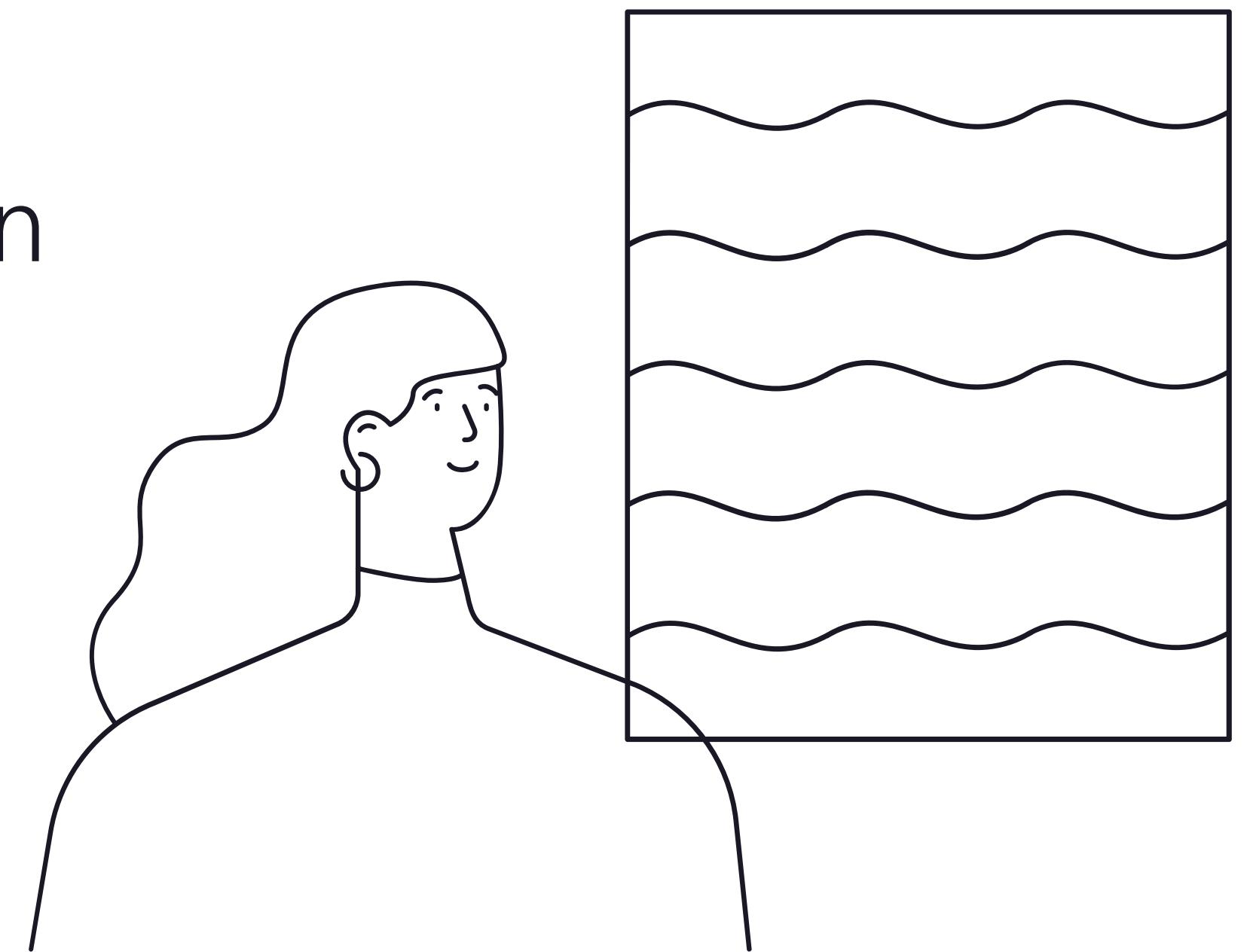


Intelligent
placer

#1. Main task

Find out if object A can be placed under (or inside) object B without any rotation
- only using parallel moving

A nesnesinin, yalnızca paralel hareket kullanarak herhangi bir döndürme olmaksızın B nesnesinin altına (veya içine) yerleştirilip yerleştirilemeyeceğini öğrenin.



03

MY OBJECTS



Typical russian bowl
(kase)
aka object A



Typical russian table
aka object B

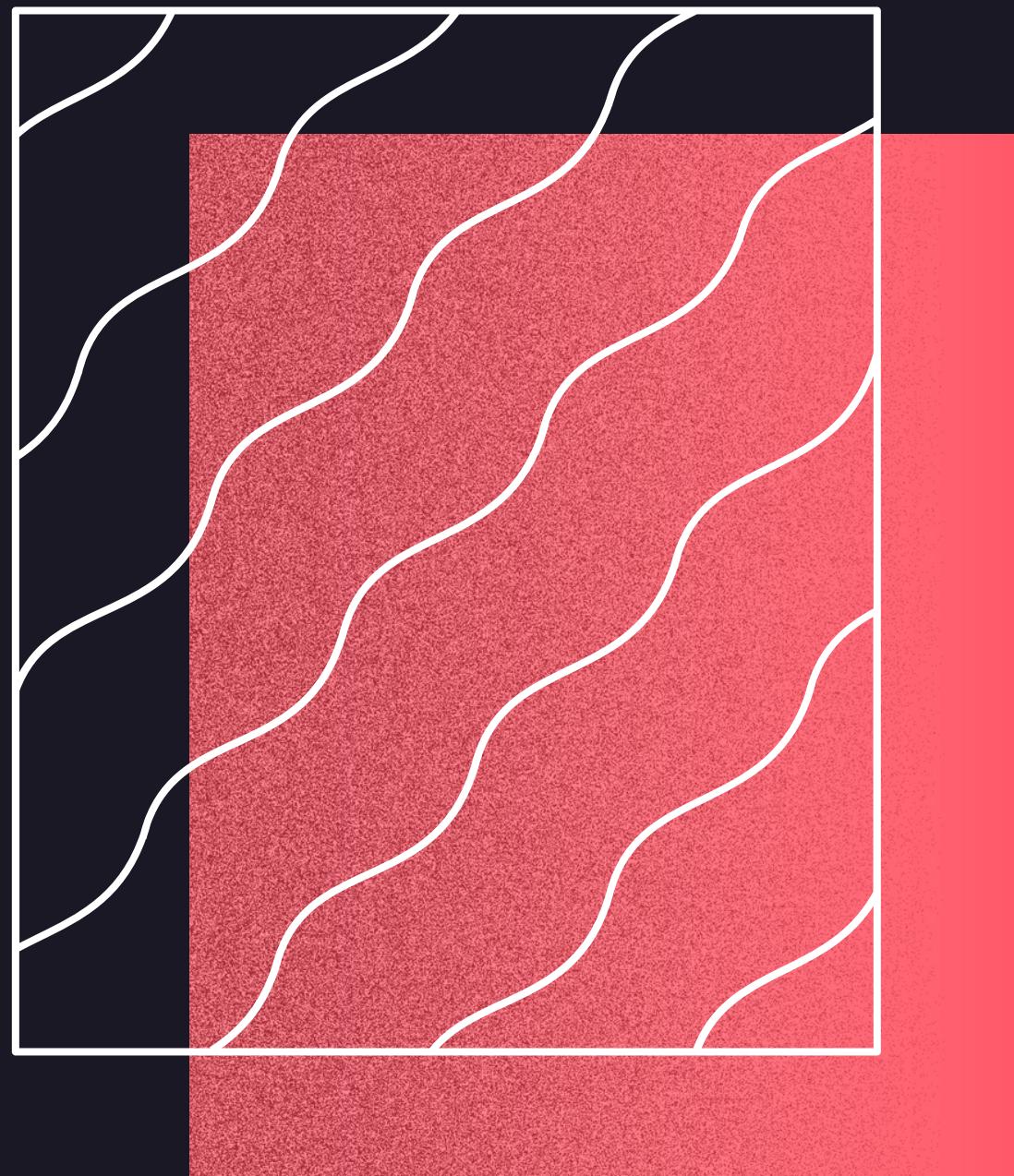
Input example

#2. Modified task

Find the position of the bowl: if it is under or above of the tabletop

Kasenin konumunu bulun:
masanın altında veya üstündeyse

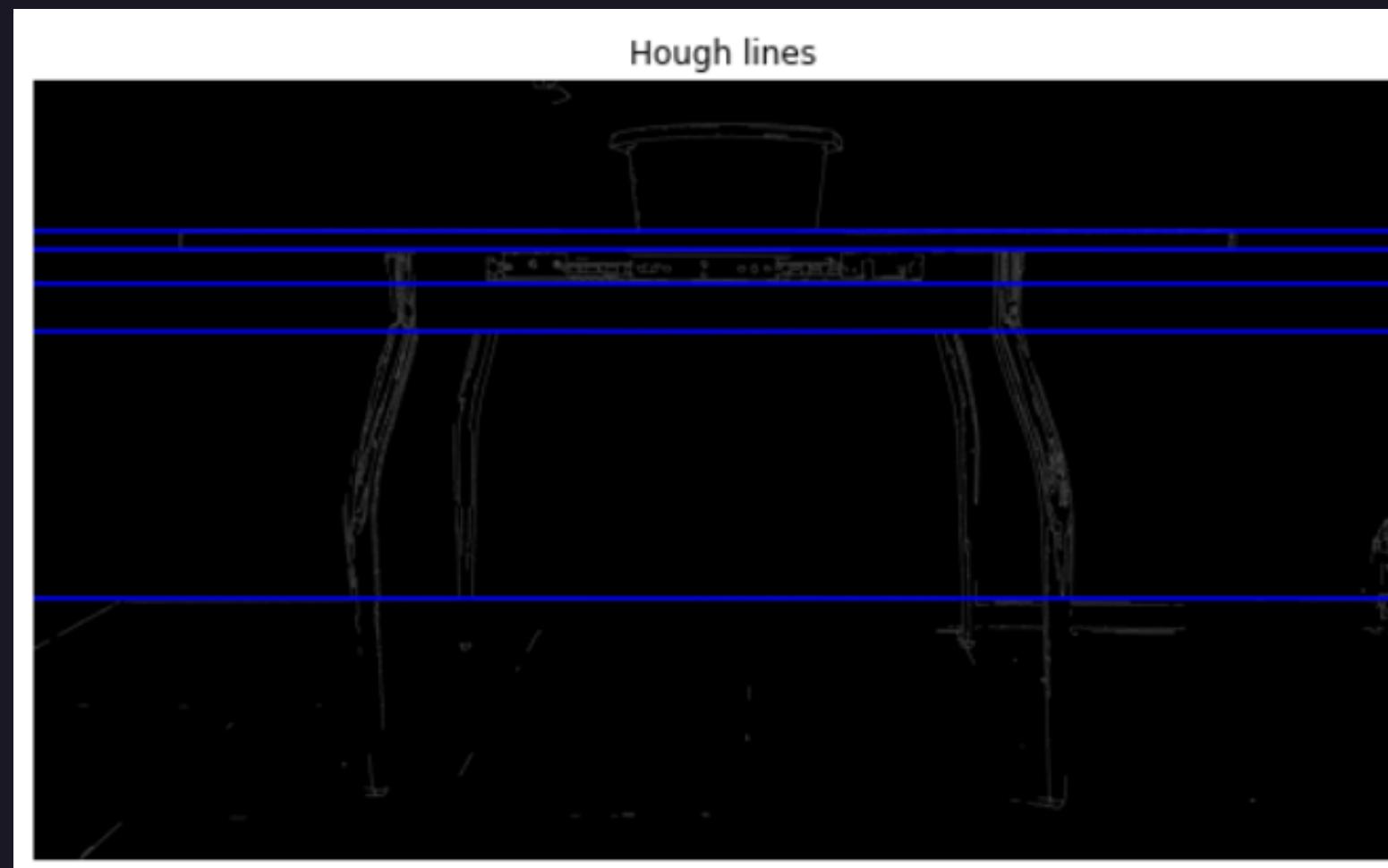




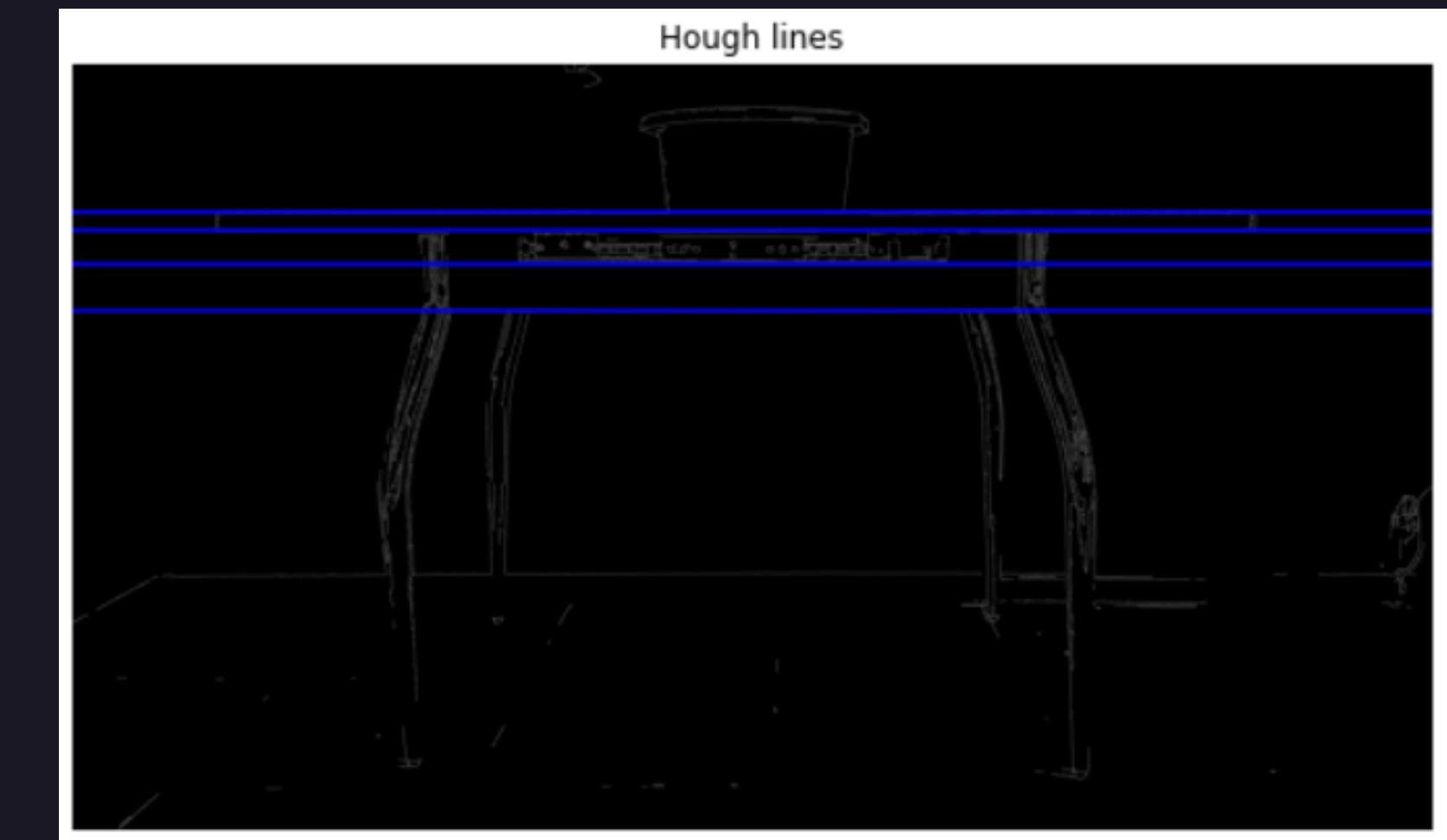
#3. Search of the tabletop

- 1) Find all the straight lines on the picture using Hough transform
- 2) Filter all the found lines
- 3) Consider that the lowest line represents the table
 - 1) Hough dönüşümünü kullanarak resimdeki tüm düz çizgileri bulun
 - 2) Bulunan tüm satırları filtrele
 - 3) En alttaki satırın tabloyu temsil ettiğini düşünün

RESULTS



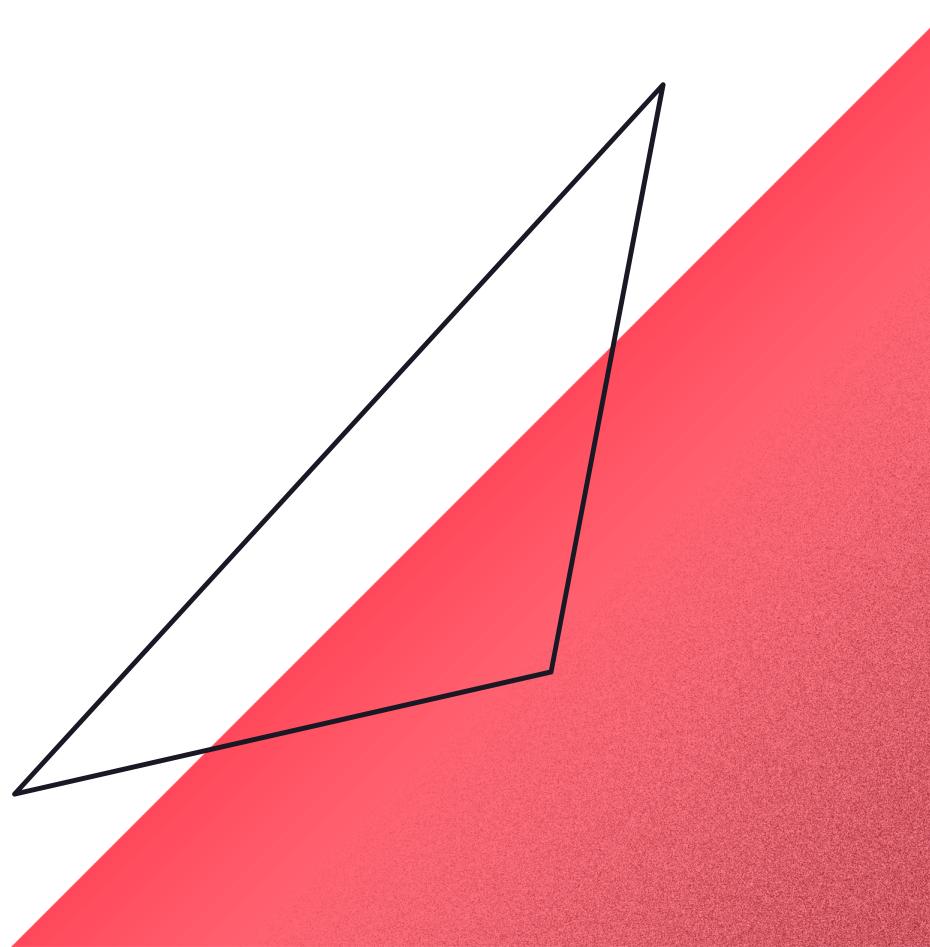
Before filtering



After filtering

Important note: sharp intersection of lines is not allowed

Önemli not: Çizgilerin keskin kesimine izin verilmez



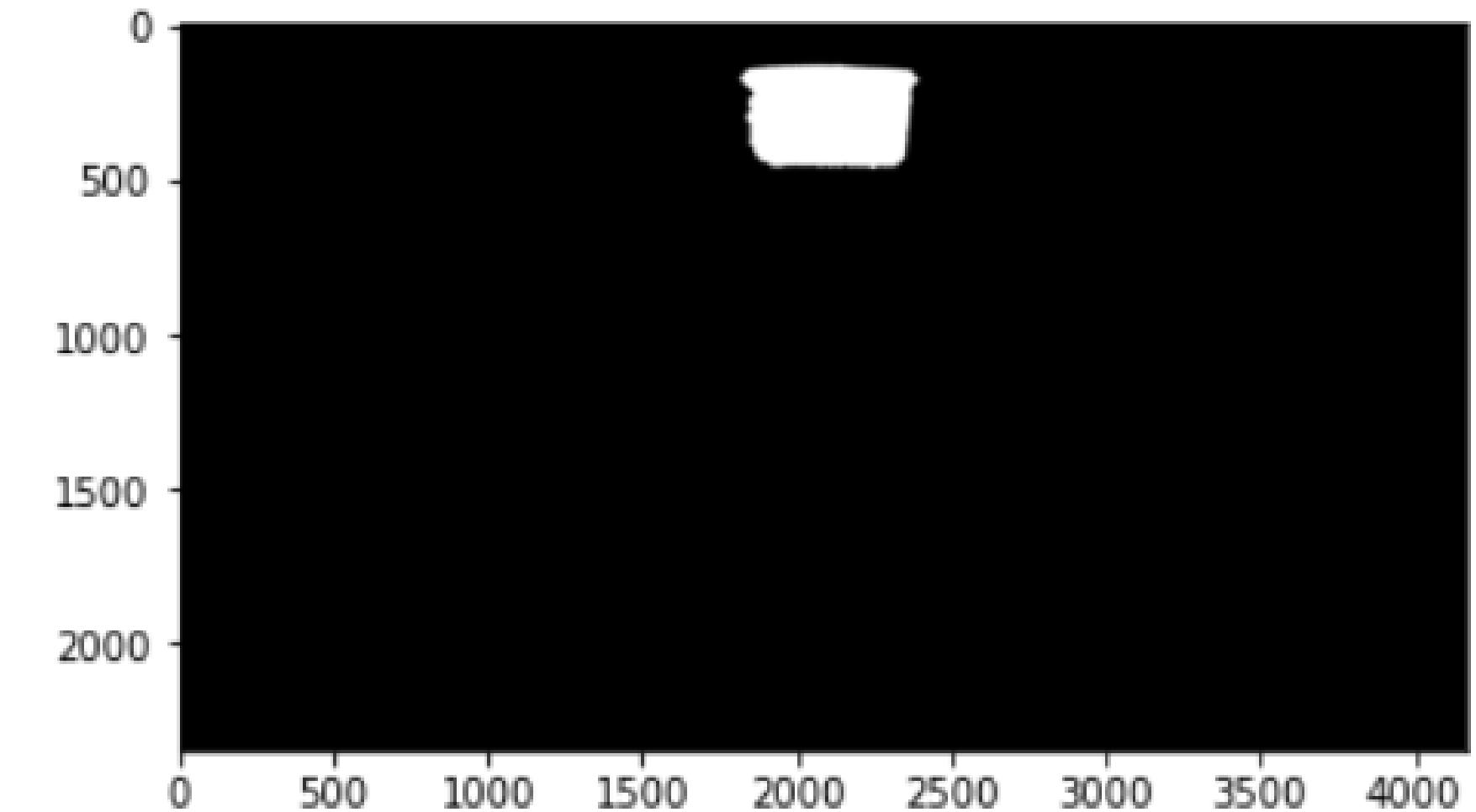
#4. SEARCH OF THE BOWL

- 1) Find the mask with binarization by lilac (HSV):
Do binary opening, fill holes and binary closing
- 2) Remove small contours
 - 1) Lila ile ikilileştirmeli maskeyi bulun
 - 2) Küçük konturları kaldırın

RESULTS



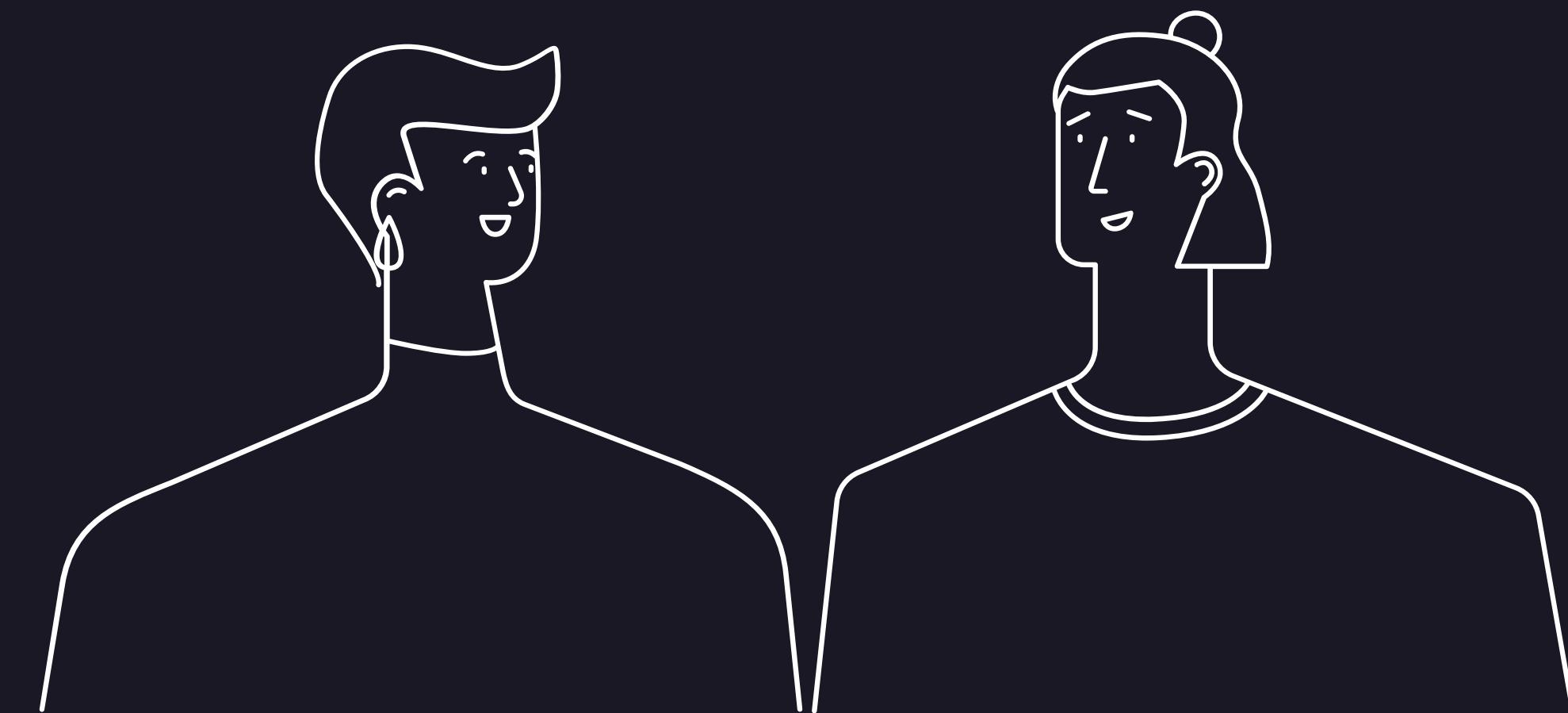
Real image



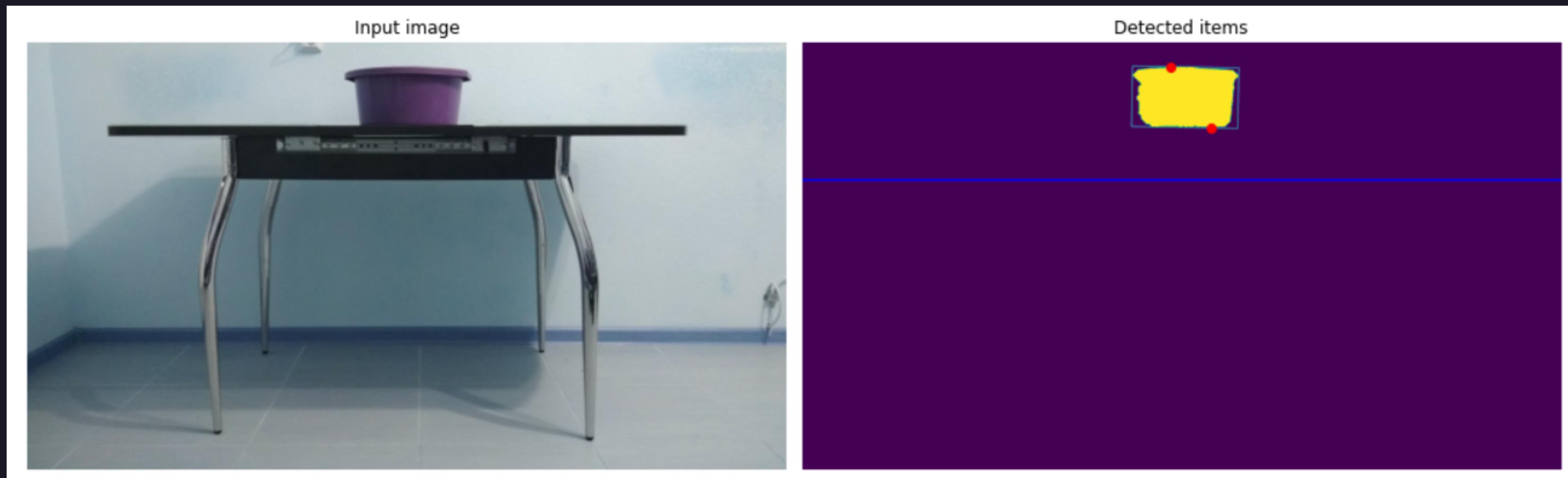
Mask image

#5.ANSWERING THE QUESTION

If more than 75% of bowl mask is above the line - answer is negative
Kasenin %75'inden fazlası çizginin üzerindeyse - cevap olumsuzdur



RESULTS



Relative position of found objects

Bulunan nesnelerin göreceli konumu

RESULTS

Checking dataset with 'no' answer:

Bowl cannot be placed under the table
Bowl cannot be placed under the table

Checking dataset with 'yes' answer:

Bowl can be placed under the table
Bowl can be placed under the table



Nice! You are gorgeous!

PROJECT SOURCES

