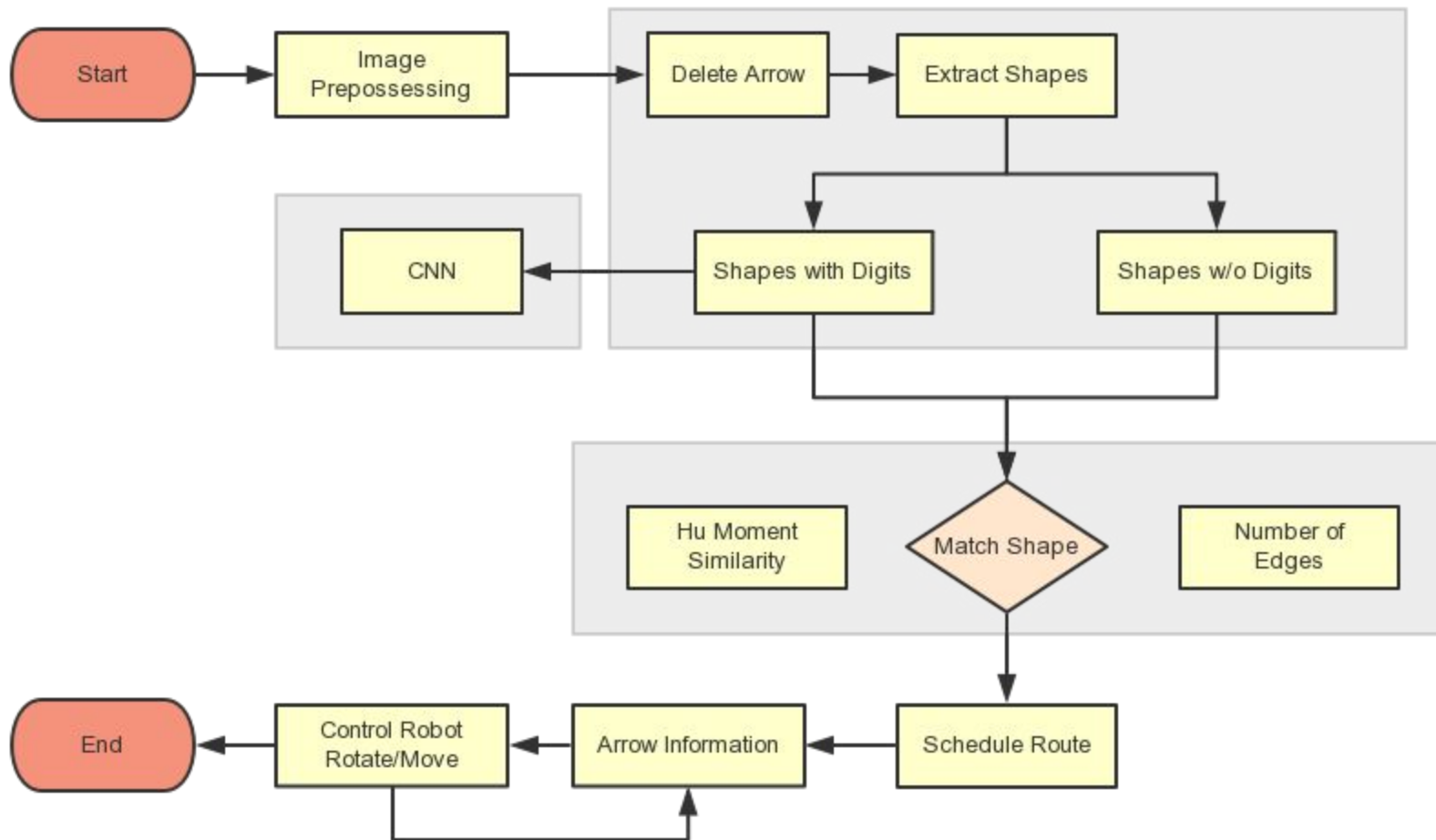
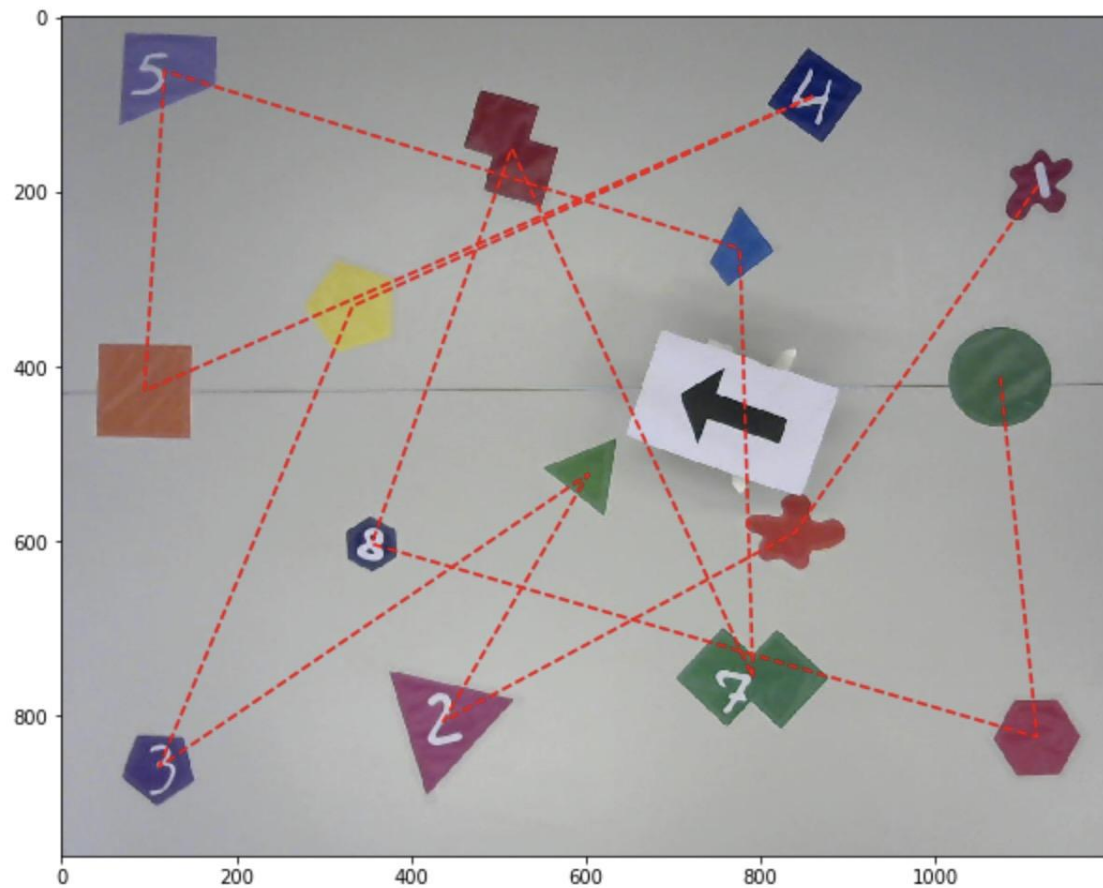

iapr-2018

Robot Project

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Robot Route



How to do preprocessing?

- Adjust the lightness
 - Subtract white background → Get the objects
 - Remove black arrow
 - Label connected regions and remove small ones → Remove noise
 - Opening operation → Smooth contour → Improve matching accuracy
-

How to detect **Arrow** angle?

Idea: Fit a **Ellipse** -> Get the angle

Problem: May return a wrong angle (+- **180** degree)

Solution:

- Rotate Arrow
 - Detect the **tip of rotated Arrow** (Up/Down)
 - Check if need adjusting the angle
-

How to **match** shapes?

- First, match with **Hu Moment** Similarity
 - Second, match with the **numebr of edges**
 - Use **compacity** to detect circle
-