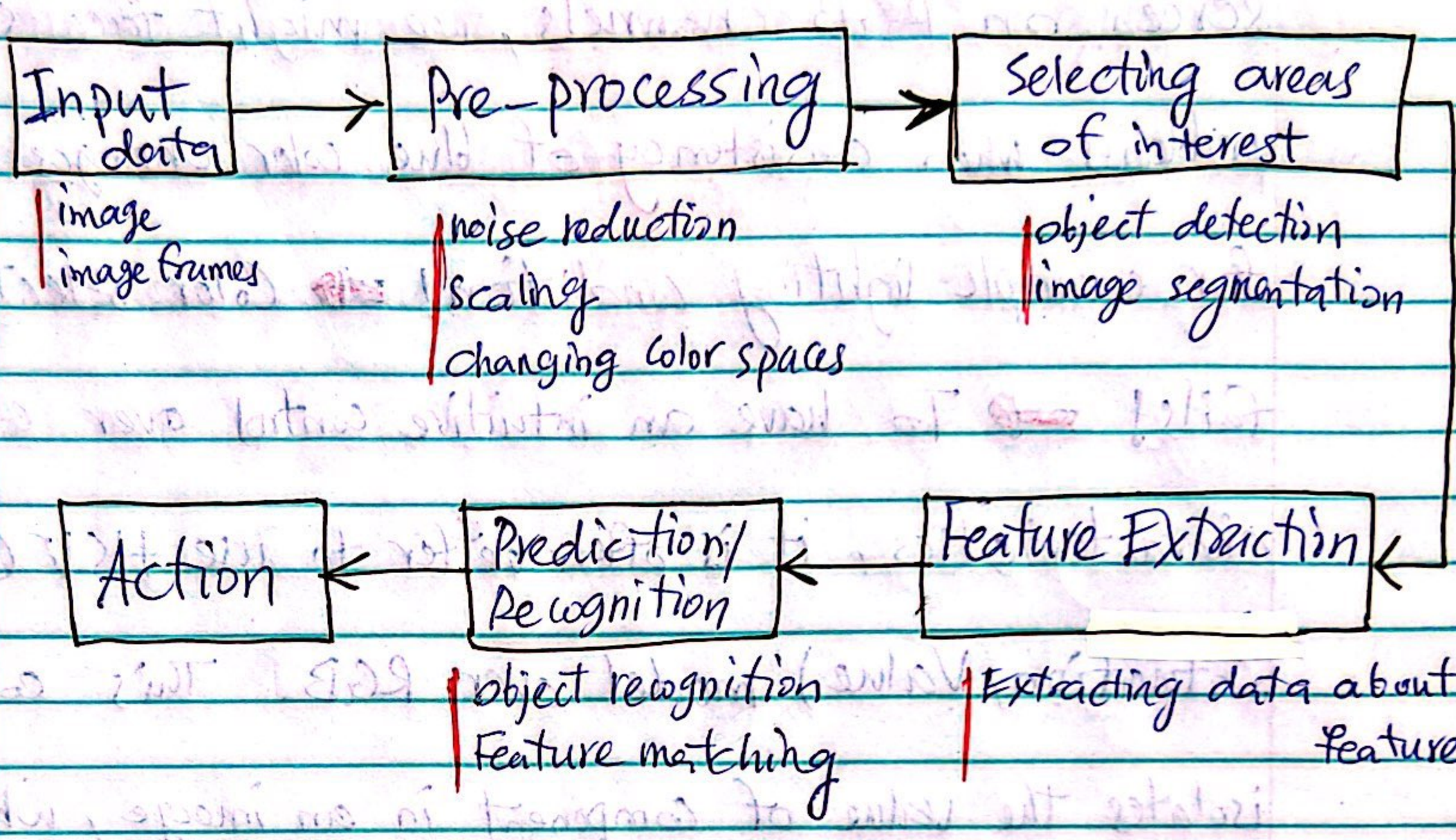
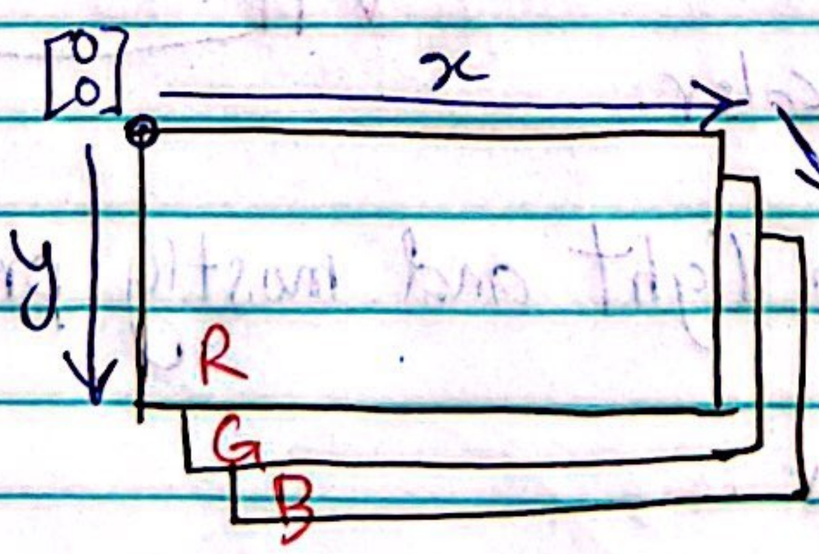
«Computer Vision»



☑ An image is a 2D version of a 3D object. It contains details such as color shape, lighting conditions, and size based on the distance.

The value of each pixel ranges from zero (black) to 255. (white)

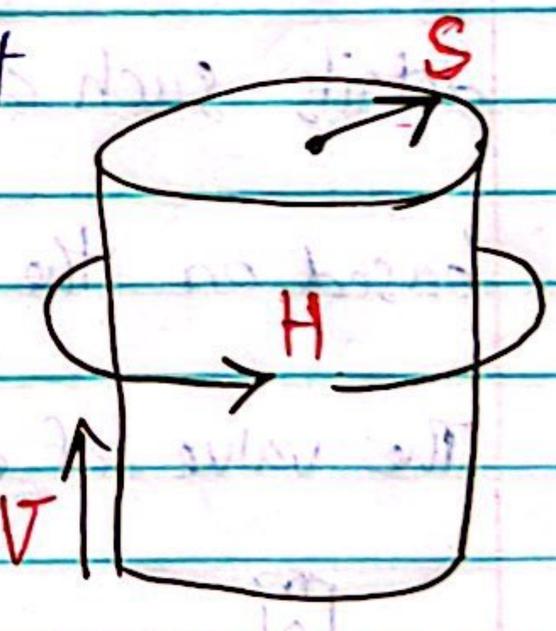


Ⓐ Color channels can add extra unnecessary info to our pipeline → but they are crutial for some applications: e.g., distiguishing white and yellow lines in the street!

(*) for segmenting an image based on removing blue screen on RGB channels, we might face some problems when consistency of blue color changes due to for example lighting condition! → Color selection fails! → To have an intuitive control over color characteristics, it is often better to use HSV (Hue, Saturation, Value) model over RGB. This color space isolates the value of component in an image, which varies the most under different lighting conditions.

→ H channel stays fairly consistent in shadow or excessive brightness

→ We rely on this channel for object detection based on its color.



☑ H is less sensitive to light and mostly preserves the nature of the color.

☑ On the other hand, V is the most sensitive to lighting variations → Good for day-night detection.

as a good pre-processing step.

④ The saturation channel represents the amount of grayness present in a color. → A high saturation represents a vivid, pure color, while a low saturation indicates a more muted or desaturated color.