Figure 2.4: Supervised Machine Learning (ML) training and goals, ending up with a combination of 5 different strategies. The references are colored indicating the user interaction: semi-automatic (light-green), auto-guided(light-Blue), and fully automatic(dark-blue).

Database Trained Detection and Image Trained Segmentation:
detection and segmentation are performed in a daisy chain manner like the models from a training dataset facilitate the detection of lesions within a target image. Once the suspicious areas are detected, they are used to train another ML procedure within the target image to drive the final segmentation. Although the errors in the detection step are propagated, this approach has the advantage that the statistical model driving the final segmentation has been specially built for every target image. The main drawback is that building this statistical model involves a training stage which is computationally very expensive [76], [77].

Integrated Methodology: trying to take advantage of the detection without building a specific model for the target image. Since there is no need to make the final detection decision weather there is a lesion or not, the posterior probability of the decision process can be used as another feature like a filter response of the image and integrated with the ML procedure [84].

2.2.3 Others

Here are listed other methods or parts of methods that are neither explicitly ACM nor ML procedures, nor are they basic image processing or image analysis techniques such as thresholding or region growing. In this sense, three main groups can be identified: