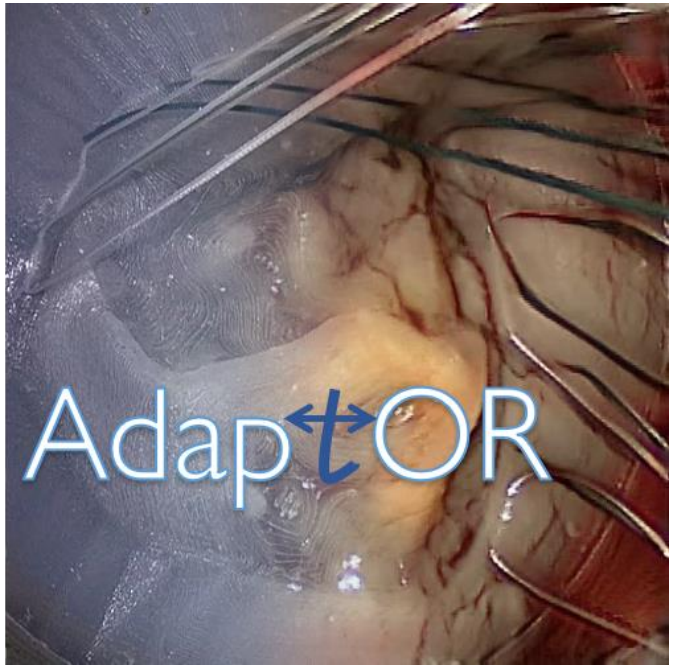
HEIDELBERG UNIVERSITY HOSPITAL

TECHNISCHE UNIVERSITÄT DARMSTADT



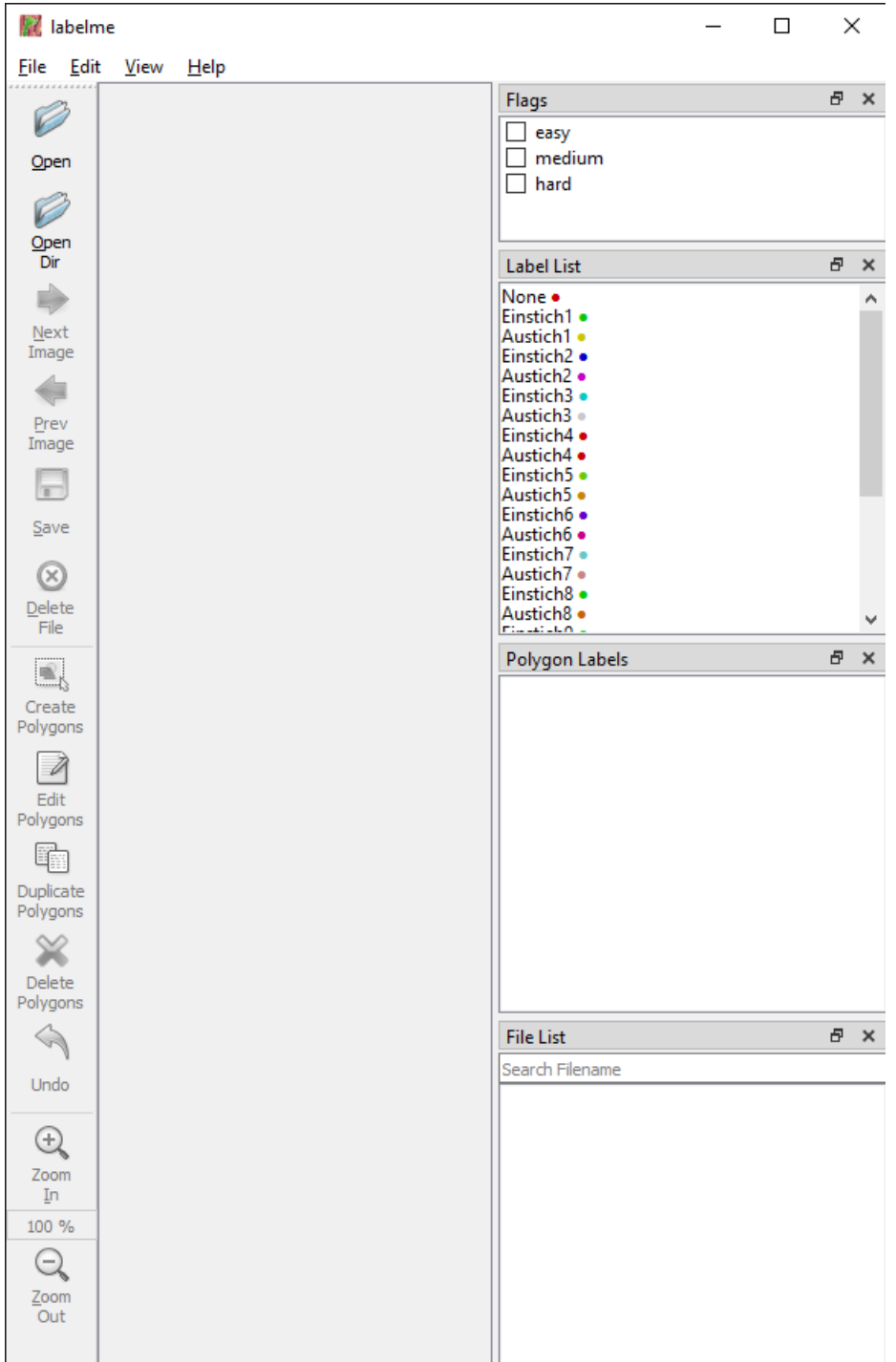
Labeling Strategy

Deep Generative Models for Domain Adaptation in Surgery

Document v. 1.0
Dec 9, 2020

Start Labelme

- https://github.com/wkentaro/labelme
- Start the application:
  - `conda activate labelme`
  - `cd /d PATH_TO_TEXTFILES`
  - `labelme --labels Labels.txt --flags difficultyFlags.txt`
- `PATH_TO_TEXTFILE` Path to Labels.txt and difficultyFlags.txt (self-configured files)
- Program should look like this →



Settings

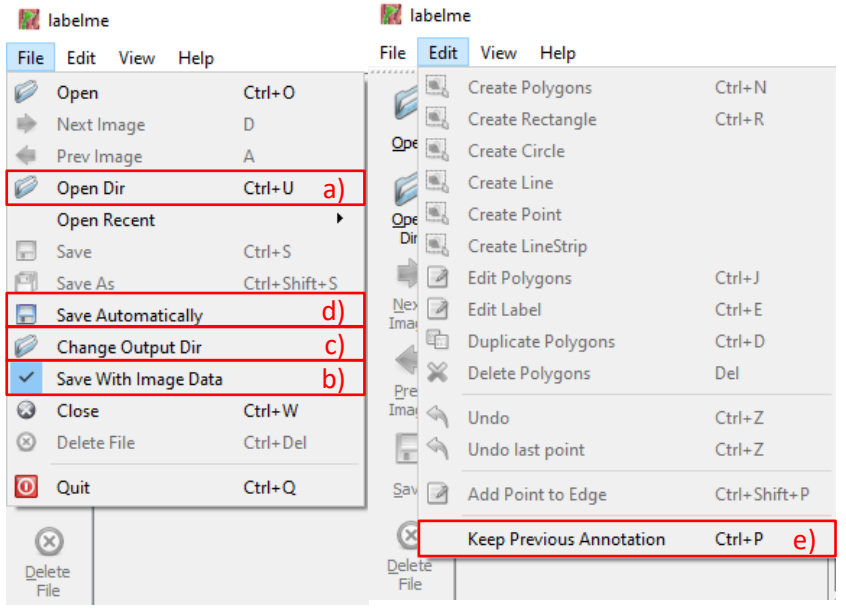
a) File > Open Dir (Location where to save images)

b) File > Save With Image Data (disable)

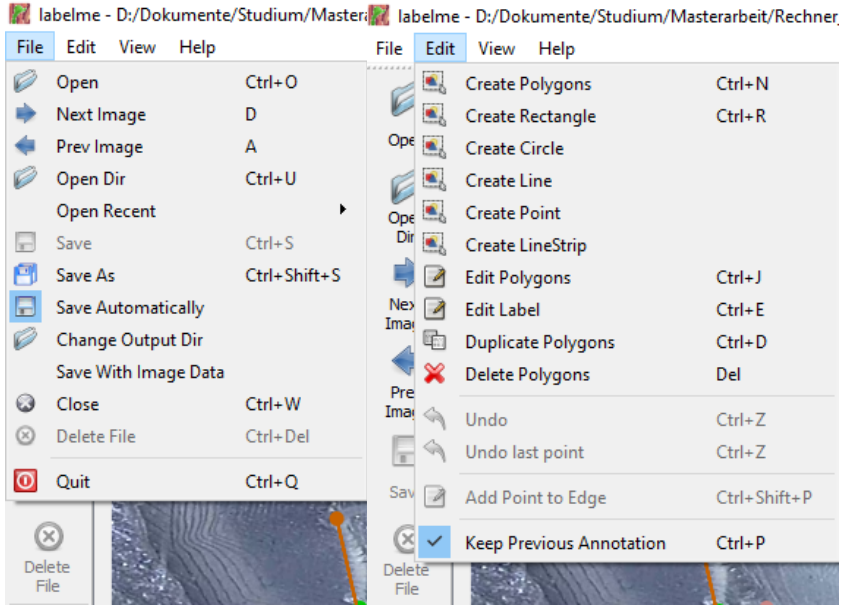
c) File > Change Output Dir (Location where to save JSON files)

d) File > Save Automatically (enable)

e) Edit > Keep Previous Annotations (enable)



Oben: falsch, unten: richtig



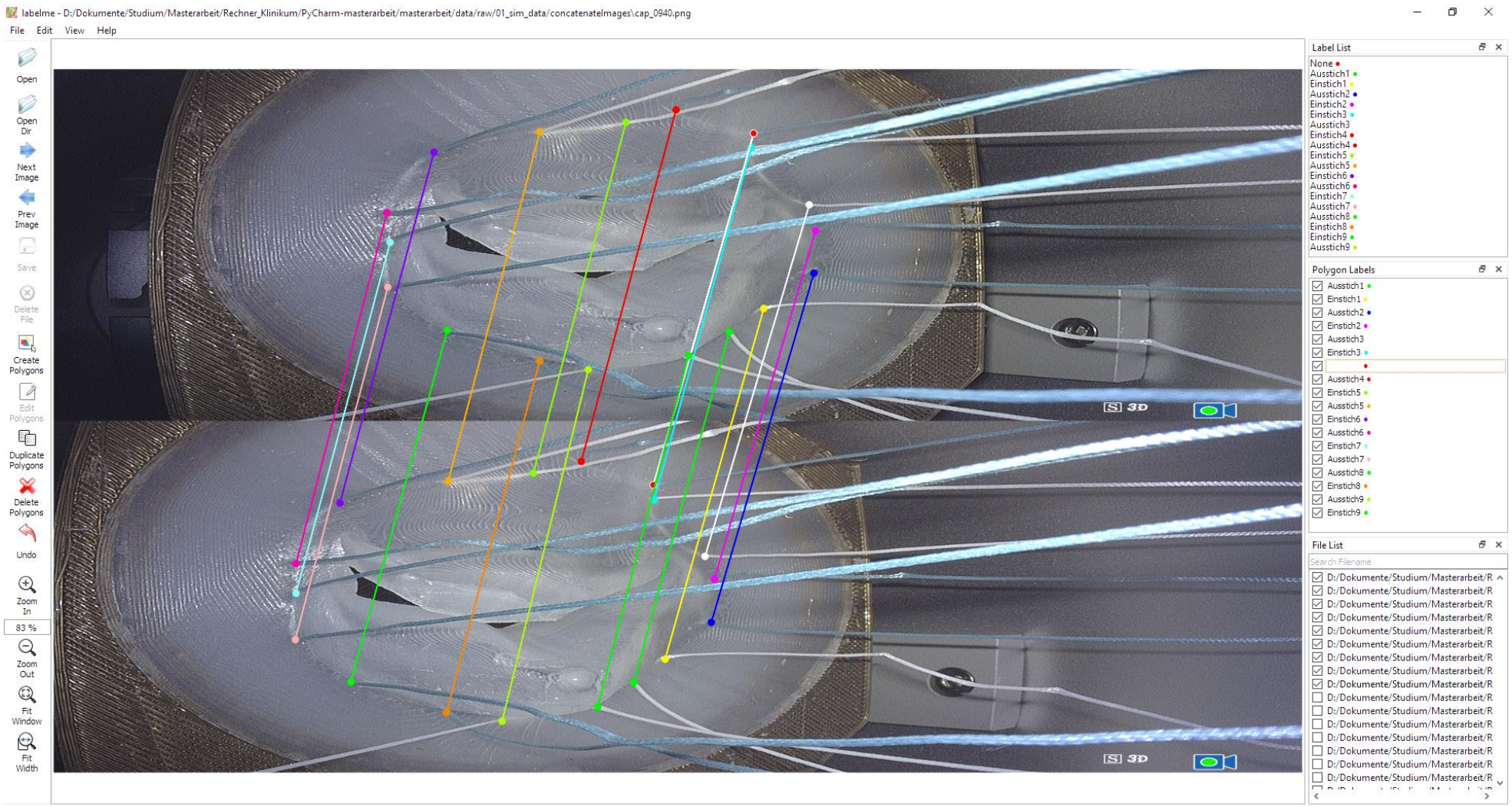
Label Strategy (1/2)

- Edit > Create Point, Create Line
- Mark Entry- and Exitpoints of sutures into the „tissue“
  - We marked corresponding points in upper and lower image by a line
  - if the point of interest was only visible in one image of the stereo-pair, we marked it with a point; the other point was not annotated
  - **Please note that the point correspondences are not considered in this challenge. We treat the stereo-images completely independent**.
- The point was only annotated if the need was completely through the „tissue“
- The flags easy/medium/hard are set per image, which indicate whether the current image is difficult to annotate or not.
  - This relects the subjective impression by the annotator and mainly refers to occlusions and brigthness

Label Strategy (2/2)

- Frames were labeled in temporal order, which allowed to use the option „Keep Previous Annotations“, such that only minor adjustments had to be made by the annotator

Example: Annotated File



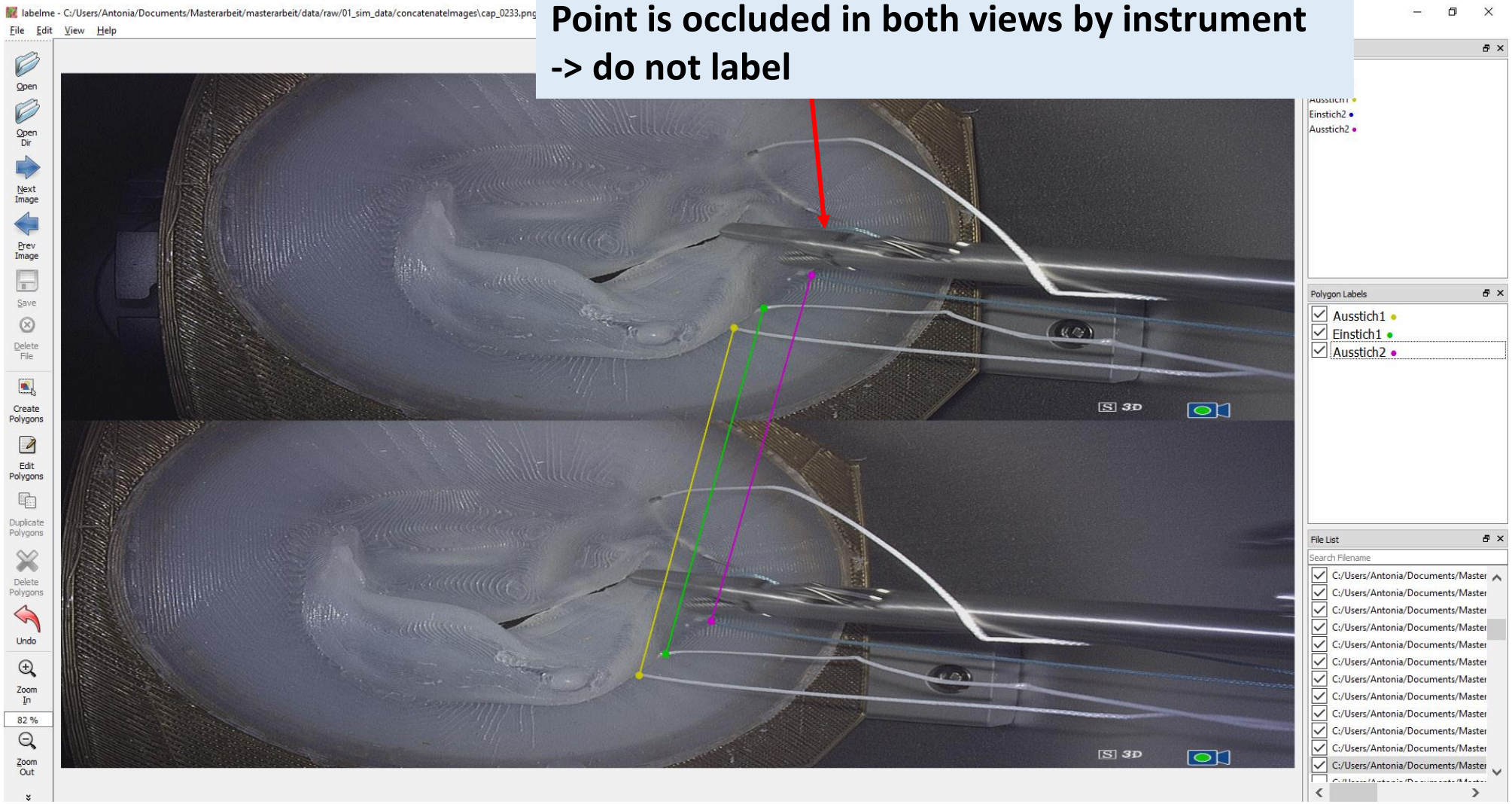
Example: Needle

Needle only half-way trough tissue
-> do not label

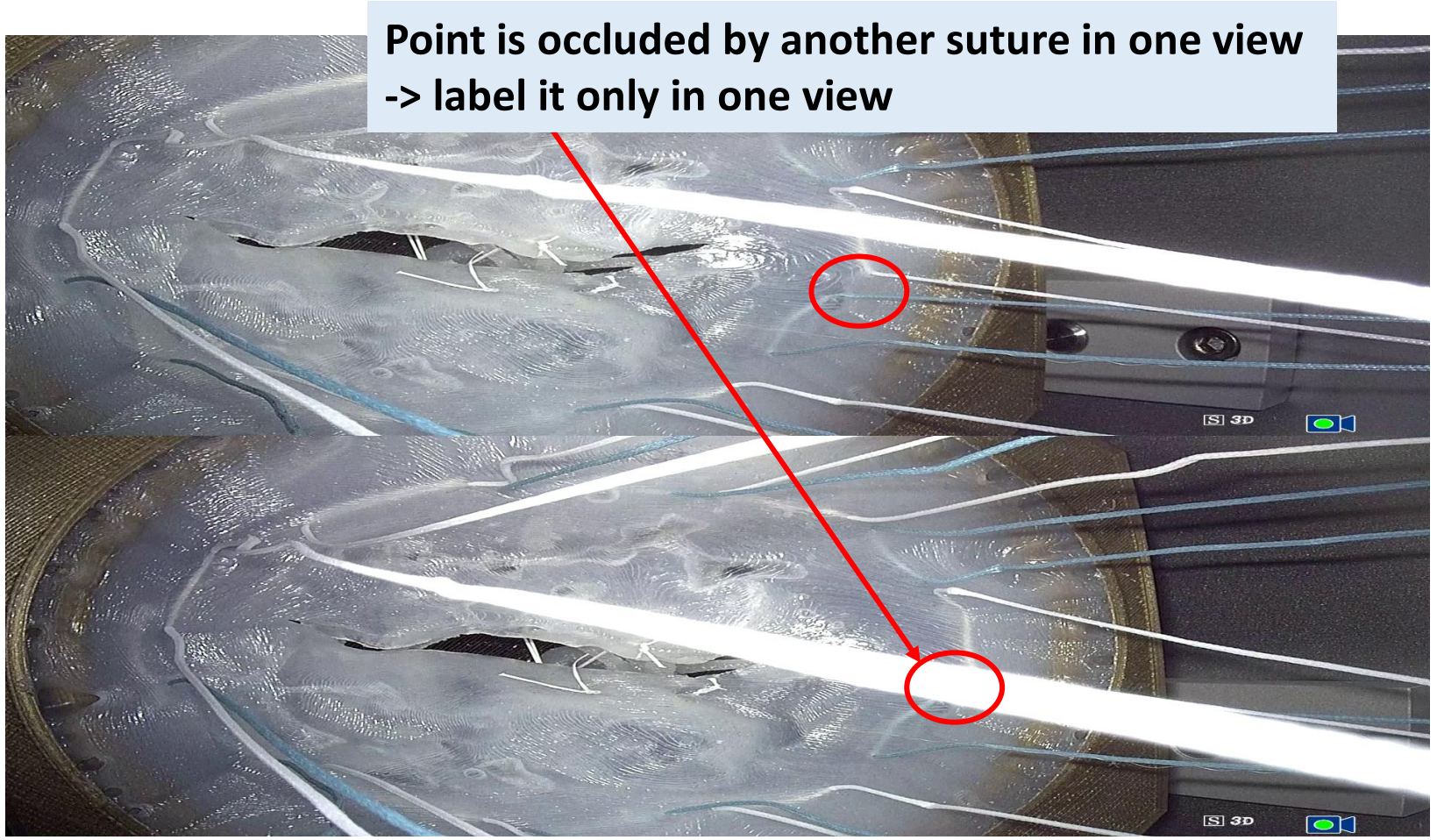
Example: Needle

Example: Occlusion by instrument

Point is occluded in both views by instrument
-> do not label



Example: Occlusion by suture



Example: Overexposure (Flag: medium/hard)