

Method to Display the Method of a Climbing Boulder as a Simplified View

This document presents a method for displaying the method of a climbing boulder by overlaying a simplified view of the different positions of a climber on the photo of the boulder.

The simplified view can be, for example, a skeleton (a set of points connected by straight lines, the points can correspond to the main joints of the climber) or a binary mask or any other approach to universalize and compress the movement of the climber's body from the original video (approaches based on NERFS, neural networks, etc.). Gaussian splatting, etc.). This simplified view allows you to:

- improve the readability of the boulder method performed by a climber
- Save the memory used to download or store the method
- to anonymize the climber if necessary
- Statistically analyze methods from multiple videos

To achieve this result, the method consists of 3 steps:

- 1) Extract a set of images from the video of a method made by a climber, with a beginning and an end. The selection of these images can be a regular subsampling of all the frames in the video or a selection of so-called key frames, each corresponding to a notable or relevant change in the climber's position, in order to limit redundant images in terms of climber position information.
- 2) extract the skeleton (or sometimes called pose) of the climber for each of these images. If more than one person is visible, the user must indicate the skeleton of the climber to be considered.
- 3) Calculate the geometric link between the frames of the video and the photo of the boulder, for each of the pixels, and thus adapt the coordinates of the points of the skeleton in the reference frame of the video of the method to the reference frame of the photo of the boulder. If the camera's point of view does not move, only the geometric link of the first frame of the video is needed.