

baseball_pitch	baseball_swing	bench_press
bowling	clean_and_jerk	golf_swing
jumping_jacks	jump_rope	pull_ups
push_ups	sit_ups	squats
strumming_guitar	tennis_forehand	tennis_serve

Table 1: The original 15 action-types in the Penn Action dataset.

1 Dataset

1.1 The BRACE Dataset

The second dataset we will be using is the *BRACE* dataset [1]. We chose to use this dataset, as breakdancers tend to be in acrobatic poses, similar to the ones that climbers tend to be in, making the poses relevant for our experiments in Section ??.

This dataset consists of 1,352 video sequences and a total of 334,538 frames with keypoints annotations of breakdancers. The frames of the video sequences are in RGB and have a resolution of 1920×1080 [1].

The frames of the video sequences have been annotated by initially using state-of-the-art human pose estimators to extract automatic poses. This was then followed by manually annotating bad keypoints, corresponding to difficult poses, as well as pose outliers. Finally, the automatic and manual annotations were merged, interpolating the keypoint sequence with Bézier curves. The keypoints is a list of 17-elements, following the COCO-format [1].

1.2 The Penn Action Dataset

One of the dataset we will be using is the *Penn Action* dataset [2]. This dataset consists of 2326 video sequences of 15 different action-types. Table 1 lists these 15 action-types [2].

Each sequence has been manually annotated with human joint annotation, consisting of 13 joints as well as a corresponding binary visibility-flag for each joint. The frames of each sequence are in RGB and has a resolution within the size of 640×480 [2].

Unlike the *BRACE* dataset, most of the poses in the *Penn Action* dataset are not very acrobatic and thus are not very relevant for the poses of climbers. For that reason, we have decided to focus on the action-types that may contain more acrobatic poses. Thus, we only keep the sequences that have `baseball_pitch`, `bench_press` or `sit_ups` as their corresponding action-type [2].

1.3 The ClimbAlong Dataset