

Master Thesis Defence Script

André Oskar Andersen

0.1 Introduction

Introduction

- Video analysis in sports have become more and more common, as we by using machine learning can for instance help a referee make the correct calls or help the people improve their techniques.
- This often requires the system to know the position of the players. Models for extracting such positions have already been developed for the more popular sports such as soccer, however, have not been developed for less popular sports such as bouldering.
- Further, performing such pose estimations often requires a lot of data, which does not align with the less popular sports, where annotated data does not come in large quantities.
- ClimbAlong at NorthTech ApS has aimed at tackling this problem, by estimated the pose of boulders. Their model processes the frames of an input video independtly of each other, leading to suboptimal results.
- Instead, we theorize, that by incorporating the temporal information of the video we can improve the performance.
- Thus, the aim of this thesis is to implement various methods for extending an already developed keypoints detector for bouldering, such that it makes use of temporal smoothing for infering the position of the keypoints.
- This will be done by developing and testing various machine learning methods through multiple different experiments, such that we end up with the most optimal results.