Institute of Biomedical Engineering

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HiWi Team Project

Video annotation for DLNN supported gait analysis

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Wanted:	3-4 digital natives, teams welcome.
Conditions:	preferably 2 weeks nonterm en bloc (total 40h)
Start:	a.s.a.p.

Language is English or German. Depending on aptitude and interests this project can be continued on HiWi basis or transferred to a Bachelor / Master Thesis in the field of algorithm development.

Project Description:

Our aim is to develop a tool for marker-free video-based gait analysis under real-world condition. Gait analysis is important for the assessment of clinical endpoints for the therapy of e.g. Morbus Parkinson or Multiple Sclerosis (MS). Therefore, we strive to employ modern techniques of Computer Vision, namely Deep Learning, to extract the clinically relevant gait parameters.

In order to get a sufficient set of training and validation data, a broad database of ground truth data needs to be reliably annotated. For this project we use a self-developed video annotation tool to annotate frames with relevant event-related information like the moments of the heel strike, the loading response or the toe-off.

As the output of this annotation project will be used as the ground truth for close-to-application research a trustworthy and responsible way of working will be key.
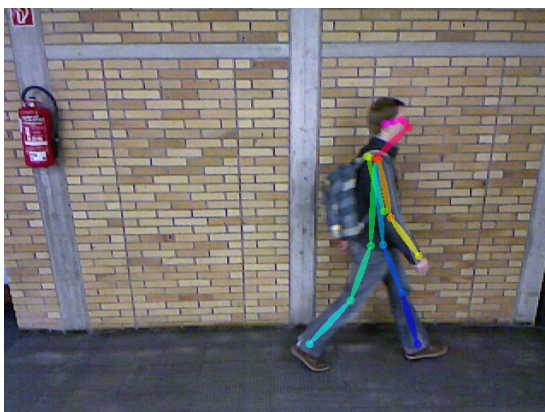

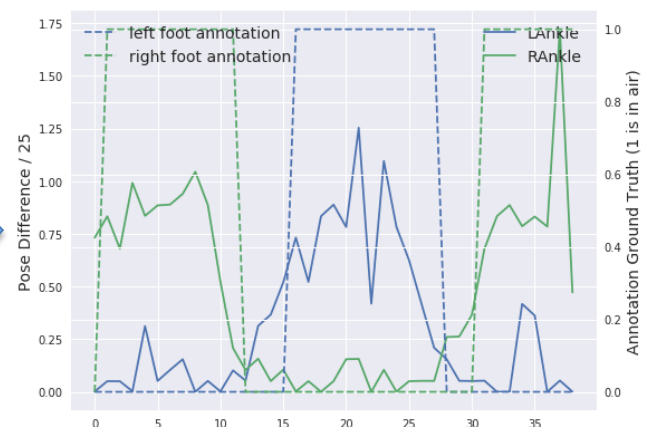*Figure 2 Example of a TUMgait dataset processed with OpenPose*

Figure 1: Example of video annotation data used as a refence for analyzing pose differences