**Vision-Based Ergonomic Cumulative Damage Assessment**

**Objectives**

1. Understand the respective risk possibility of beginner and expert using cumulative damage risk assessment.
2. Understand the reliability of vision-based pose estimation compared to marker-based pose estimation.

**Background**

1. Non-cumulative risk assessment may classify a high-risk posture as low-risk posture by mistake.
2. Marker-based technique has more complex set up, but vision-based technique based only on image features

Chart, line chart

Description automatically generatedChart, line chart

Description automatically generated

Cumulative

High Risk

Non-Cumulative

Low Risk

**A person standing next to a person in a garment

Description automatically generated with medium confidence**

Markerless

* No suit is needed

Marker-based

* Suit is required



**Methods**



Cumulative Damage for   
**Low Back** and **Shoulder**

Risk Possibility

**Data Needed**

Include repetition in the background

1st objective: Understand the working behaviour instead of risk possibility

2nd objective: add for cumulative risk assessment behind

Findings should be interesting, novel and counter intuition

1st finding, can we classify low-risk posture into high-risk posture by using cumulative?

Check if there’s dataset for 3d pose estimation

Check camera.py see what we need to do to get the data workable

Check the unit of the keypoints, see the code

Add the input in the background section, cumulative assessment have more variables(repetitions)

Create a figure with several activities with low risk, at the end will be high risk

For expected findings, emphasize the benefit for the first statement, didn’t see how cumulative damage is better

Cumulative damage or cumulative risk assessment, use consistently, it’s more like cumulative damage but not risk, because damage and risk is not linearly dependent, they are logarithmic.