# Machine Learning for Industrial Athletes
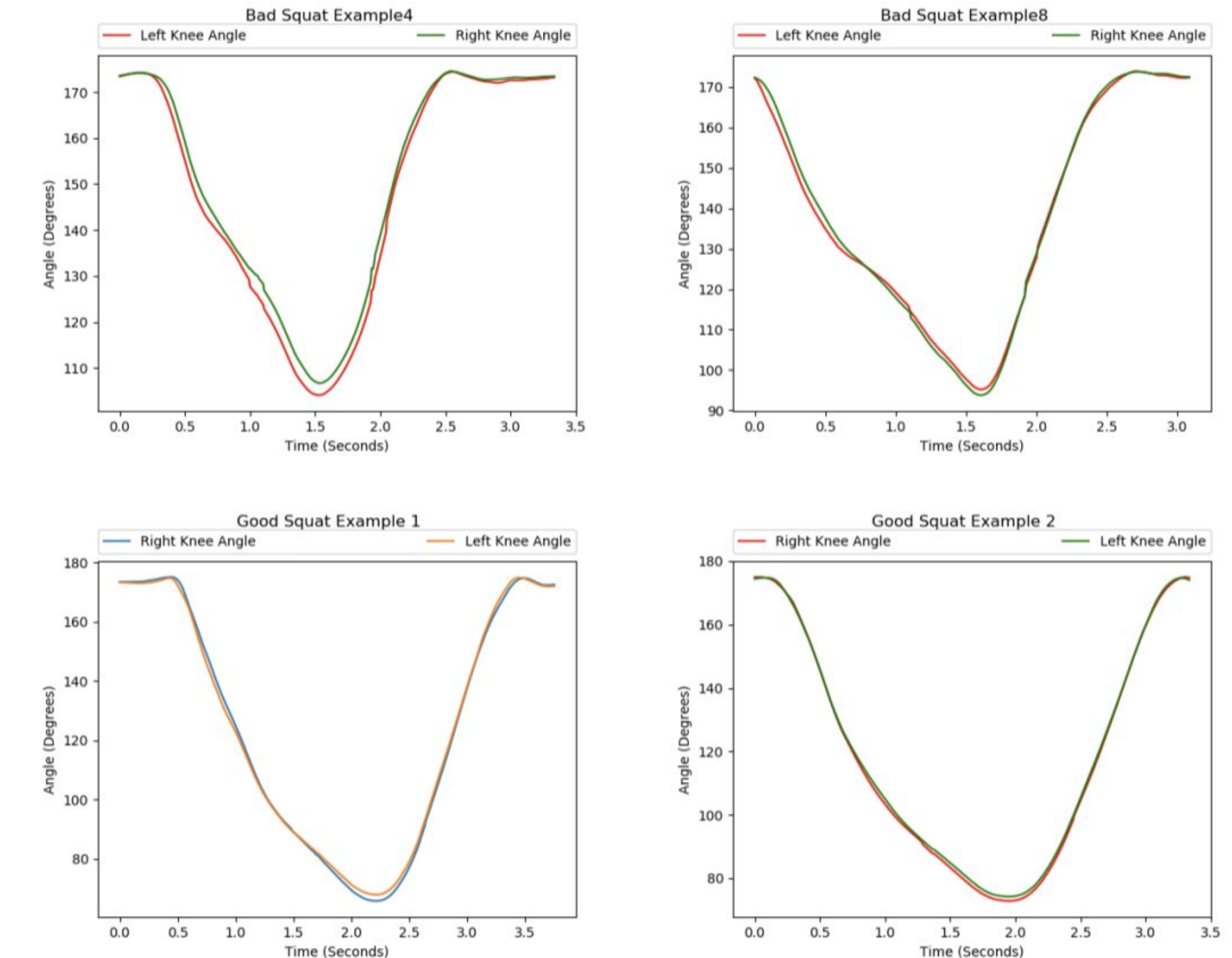
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Motivation

Proper execution of rehabilitation exercises is crucial for recovery. Unfortunately, research suggests many patients are not compliant with Physical Therapy due to a lack of positive feedback. Furthermore, the time and availability of Physical Therapists is very scarce. Because of this, we offer a computational tool to discern whether an exercise is executed properly.
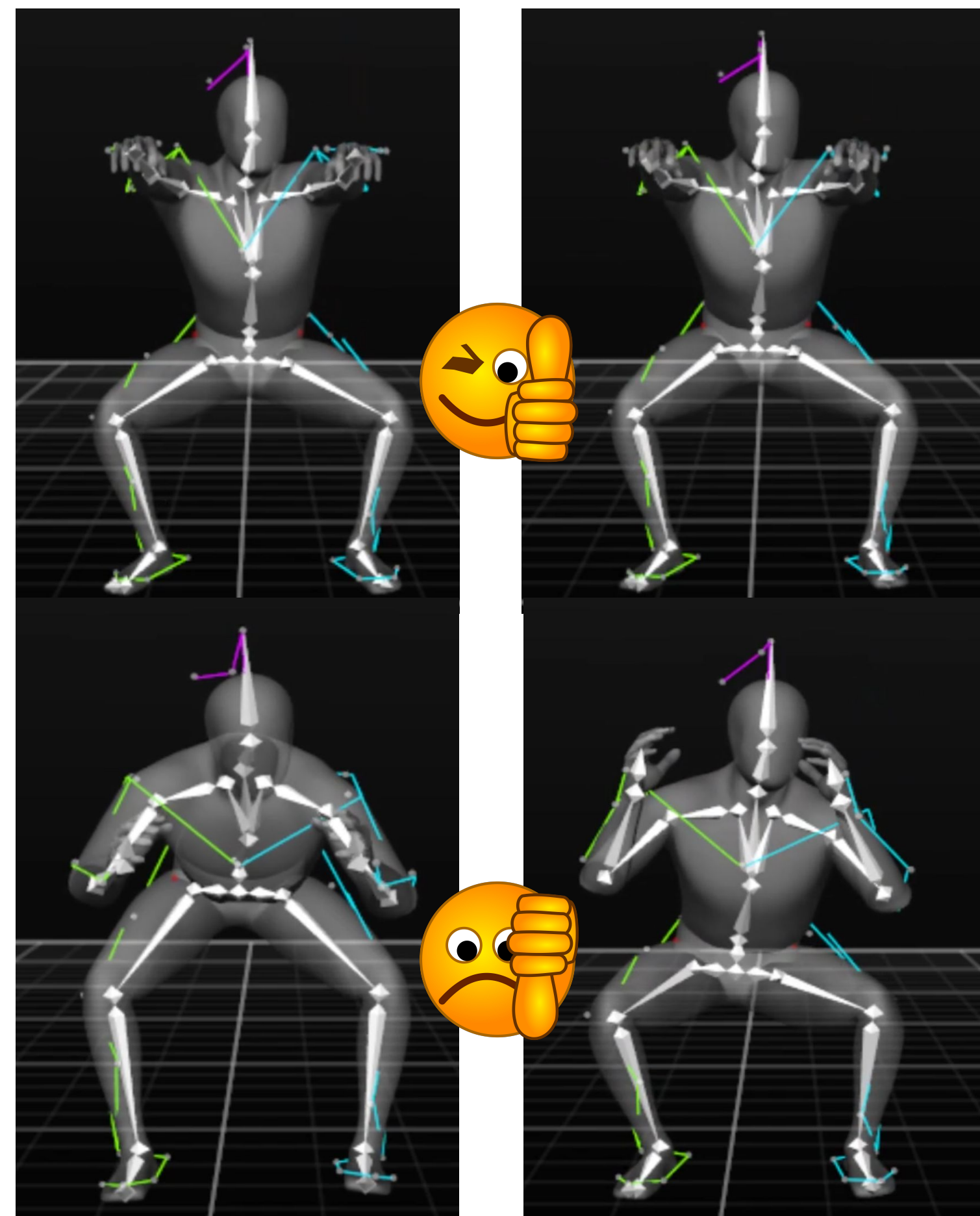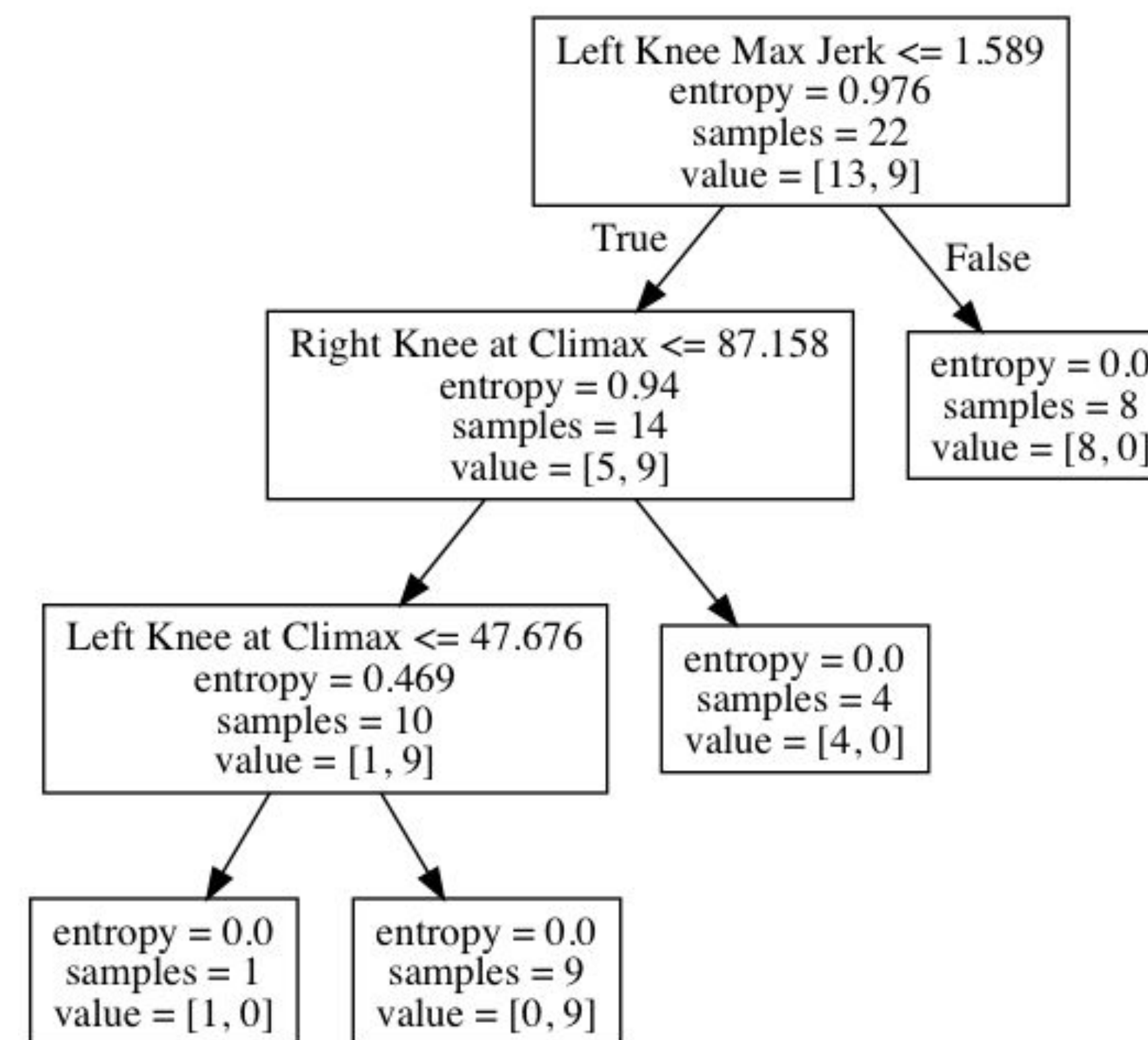

Algorithm Design

In order to create this tool and design the algorithm, we:

- Collected squat Motion Capture data.
- Extracted the skeletal features.
- Extracted temporal features.
- Applied Machine Learning to these features.
- Achieved 80% accuracy.

Example Decision Tree result

Extracted feature: Knee Angle over time

Conclusions

Overall, this study demonstrates the potential to evaluate and help movement performance. Whether a patient of Physical Therapy, or an Industrial Athlete in the wireless industry laying out phone infrastructure, it is possible to use Machine Learning to assist in the safe and proper execution of physical tasks.

Walkthrough and reproduce the code here!