Problems related to comparing the sensor tracking data of a rehab patient   
with those of the animated movement generated by the tools such as   
labanDancer.

Formal Specification of the problem :

If we generate a time sequence from the sensor’s data to be studied and compared to that of LabanDancer then we can make an assumption as follows:

Let Si = the sensor’s ith time interval so the time sequence would be

Si = ( ( ti,(xi,yi,zi) ( x2,y2,z2).

If we conside a particular Labanotaion L for this exercise to be conducted then when can represent this exercise as Li = ( Lta,Ltb,Ltc) which can be further decomposed into ( sita,sjta,sktb).

In the human model loc( sa) = ( xa ya,za) and loc (sc) = (xc,yc,zc)

To represent it in terms of a function of labanotation to the human model we can represent it as

F( Lj, Hj) = ( Tsdi,tsdj) = (TiCi) ( TzCz) ( T3C3) which has to match with an acceptable range M(tsd,tsd1) to the sensor’s time sequence Si as explained above.

Based on the above assumptions we can define a certain set of questions as follows :

What is the algorithm that can be designed to generate a time sequence from the gestures and movements performed by a human model?

How can you tell if the human model has performed the movement in the specific amount of time required? E.g. If the labanotaion sequence notifies a beat per second we need to have some mechanism to capture the data which will tell if the human model took a second for the movement or longer.

The data structure of the time sequence needs to be determined in a such a way that it has to match the data from the beats in the labanotation.

How to determine the starting time of the gesture/movement performed by the human model?

Based on the time sequence data how do we derive the labanotation?

Do we decompose further the time sequence data or not? If yes how do we do it.