This week we have focused on finding the natural frequency of locomotion for the up-right gait. The method of non-regular sampling by Stoica has been used. The frequency has been found to be about 3 Hz depending on speed, surface and PID regulation. The frequencies due to shakings is then in the interval 15-25 Hz.

We have started to implement a loop that decides what PID values to use and when to use them, i.e. at what joint angles. We call a method that gives us the actual reference value from the gait, i.e. the angle of a particular joint. We use this value as a condition in the loop, e.g. if the condition is met, lower the P parameter. We have only been experimenting with the P parameter and will soon start to analyze the data.

The task of today has also been to find a good windowing of the non-regular sampling methods. Without a window the data will be difficult to compare. The Welch Periodogram method for regular sampling has also been used as a reference to compare different P regulations until a suitable window for non-regular sampling is found.