MACHINE LEARNING & DATA ANALYTICS

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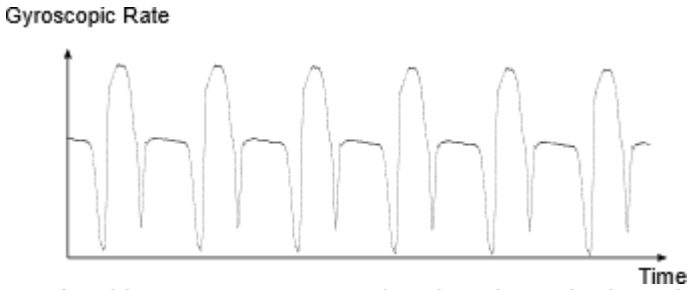
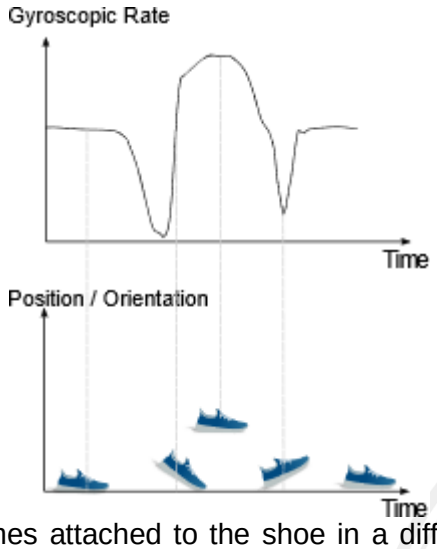
# Automatic detection and correction of sensor orientation in wearable gait analysis

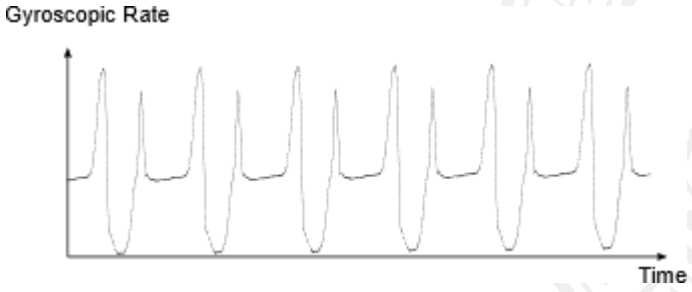
Gait analysis is used in many domains as for example sports or healthcare. The “Digital Health – Gait Analytics” group of the Machine Learning and Data Analytics Lab is involved in several projects where gait data is recorded at hospitals or at patients’ homes. Usually we obtain signals like these:




Using machine learning algorithms, we segment the data into single strides and subsequently reconstruct the foot’s movement:




However, sensors are sometimes attached to the shoe in a different orientation, resulting in a signal that cannot be processed by our algorithms:




Of course, we could simply flip the signal in all possible ways to find the right orientation for every sensor recording – this is not very efficient. We are looking for an efficient solution.

- Would you like to gain experience in gait analysis?
- Do you want to gain or extend your experience in software development?
- Are you interested in solving this task, potentially applying machine learning algorithms?

If so, let us know **via the form on our webpage**! We are looking forward to reading from you.