

1. Time series data

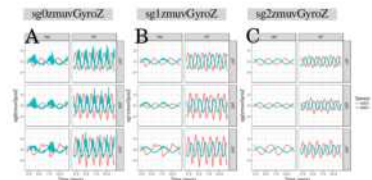


Fig. 6.1 Time series for horizontal arm movements. (A) raw-normalised (sg0rmvGyroZ), (B) normalised-smoothed 1 (sg1rmvGyroZ) and (C) normalised-smoothed 2 (sg2rmvGyroZ). Time series are only for three participants (p01, p02, and p03) for horizontal movements in normal and faster velocity (HN, HF) with the normalised GyroZ axis (rmvGyroZ) and with one sensor attached to the participant (HS01) and other sensor attached to the robot (RS01). R code to reproduce the figure is available at [\[5\]](#).

2. Embedding parameters

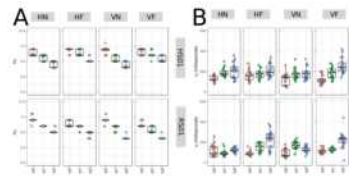


Fig. 6.3 Box plots of minimum embedding parameters. Box plots of (A) minimum embedding dimensions (m_0 and n_0) are for twenty participants (p01 to p20) with three smoothed signals (sg0rmvGyroZ (sg0), sg1rmvGyroZ (sg1) and sg2rmvGyroZ (sg2)) and window length of 10-sec (500 samples). R code to reproduce the figure is available at [\[5\]](#).

4. Recurrence Plots

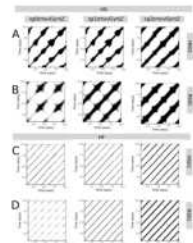


Fig. 6.4 REC for horizontal arm movements. Recurrence plots of participant p01 for horizontal movements in normal and faster velocity (HN, HF) with one sensor of raw-normalised (sg0rmvGyroZ), normalised-smoothed 1 (sg1rmvGyroZ) and normalised-smoothed 2 (sg2rmvGyroZ), and sensor attached to the participant (HS01) and to the robot (RS01). Recurrence plots were computed with embedding parameters $m_0 = 6$, $n_0 = 1$ and parameter ϵ (optimal) $\epsilon = 1$. R code to reproduce the figure is available at [\[5\]](#).

5. Recurrence Quantification Analysis

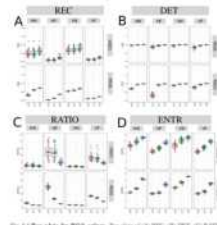


Fig. 6.5 Box plots for RQA values. Box plots of (A) REC, (B) DET, (C) RATIO and (D) ENTR values for 20 participants performing HN, HF, VN and VF movements with sensor HS01. Box plots were computed with embedding parameters $m_0 = 6$, $n_0 = 1$ and parameter ϵ (optimal) $\epsilon = 1$. R code to reproduce the figure is available at [\[5\]](#).

6. 3D surface plots of RQA

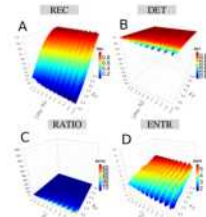


Fig. 6.6 3D surface plots for RQA values. (A) REC, (B) DET, (C) RATIO and (D) ENTR values with increasing size of embedding parameter ($m_0 = 2, 3, 4, 5, 6, 7, 8, 9, 10$ and movement threshold $\epsilon = 0.5, 1, 2$). RQA values were computed with the time series of participant p01 with HS01 sensor. R code to reproduce the figure is available at [\[5\]](#).

3. Taken's Theorem

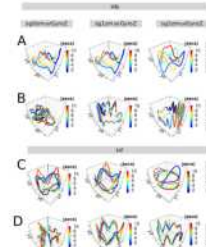
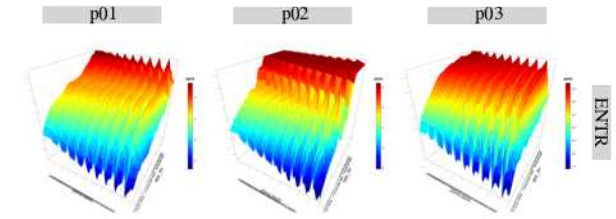
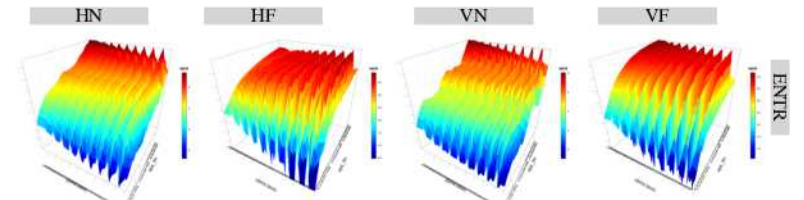


Fig. 6.7 REC for horizontal arm movements. Recurrence plots of participant p01 for horizontal movements in normal and faster velocity (HN, HF) with raw-normalised (sg0rmvGyroZ), normalised-smoothed 1 (sg1rmvGyroZ) and normalised-smoothed 2 (sg2rmvGyroZ) time series of the sensor attached to the participant (HS01) and other sensor attached to the robot (RS01). Recurrence plots were computed with embedding parameters $m_0 = 6$, $n_0 = 1$ and parameter ϵ (optimal) $\epsilon = 1$. R code to reproduce the figure is available at [\[5\]](#).

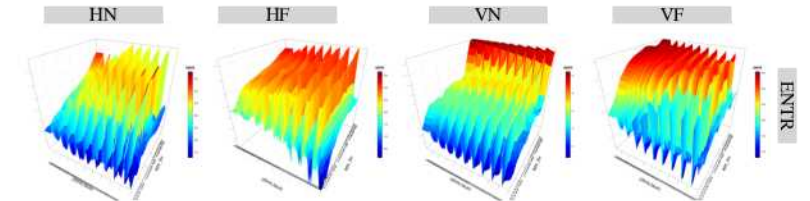
PARTICIPANTS



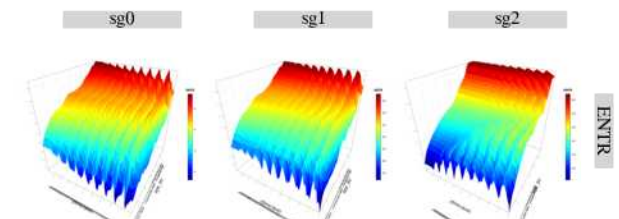
HS01



RS01



SMOOTHNESS



WINDOW SIZE

