Global_dynamics_of_bipedal_macaques – Data deposit

Information on kinematic and dynamic data on a track at the Suo Monkey Performance Association (Kumamoto, Japan), Japan.

More details on setup and evaluation methods can be found in

> Blickhan, R., Andrada, E., Hirasaki, E. Ogihara, N. (under review). Global dynamics of bipedal macaques during grounded and aerial running.

Kinematic data:
Folders:

- Kinematics_txt_GR_II\Fukunosuke, Kunimatsu, and Pon
- Kinematics_txt_R_II\Fukunosuke, Kunimatsu, and Pon

The tab separated *.txt data for kinematics were exported after the experiments based on automatic digitization using qualisys. Filename (e.g. Kunimatsu_2_0003): Animal_000#.txt with animal being the macaques name (in the example the 2 indicates trials from the same animal at the second day newly numbered) and 0### the sequential trial number for each animal.

The sequences of 2000 frames were captured at 200 frames/s. Besides of frame number and time (column 1 and 2) each marker data consist of a triple of spatial co-ordinates (x, y, z). This is ignored in the header.
The marker names include markers on the corners of the force plates (FP*; not always the full set of 8 markers). The sequence of the markers may change and pelvic and/or thoracic markers (R_ASIS, L_ASIS, PSIS, STAR, T10) may be missing. The markers available as well as their sequence are listed in the header (first line).
Columns:
frame number, time [s] thereafter
MARKER_NAMES (not a column), e.g.:
FP1_FRONT_RIGHT, FP1_FRONT_LEFT, FP1_REAR_RIGHT, FP1_REAR_LEFT, FP2_FRONT_RIGHT, FP2_FRONT_LEFT, FP2_REAR_RIGHT, FP2_REAR_LEFT, R_SHOULD, L_SHOULD, STAR, T10, R_GT, R_KNEE_LAT, R_ANK_LAT, R_META5, L_GT, L_KNEE_LAT, L_ANK_LAT, L_META5, R_ASIS, L_ASIS, PSIS.

Kinematic data are given in [mm]. The size of the force-plates is x: 400 mm; y: 600 mm. Runs in both directions (to and re) were captured.

Dynamic data
Folders:
- Dynamics_txt_GR_II\Fukunosuke, Kurimatsu, and Pon
- Dynamics_txt_R_II\Fukunosuke, Kurimatsu, and Pon

The names of the *.txt comma separated text files e.g. pon_0005_data.txt entail the name of the animal or its abbreviation (pon_) and the trial number (000#).

Sample rate 200 samples/s. The header gives the sequence of the stored columns including the force readings of the plates FP1 and FP2 and the co-ordinates of the center of pressure (COP).
Columns: #time, FP1_x, FP1_y, FP1_z, FP2_x, FP2_y, FP2_z, FP1_x_COP, FP1_y_COP, FP2_x_COP, FP2_y_COP. Units: Force [N]; COP: [mm].

Information

For the investigation in each useful trial the steps on the two force plates were selected from touch down to touchdown of the contralateral leg. The data were cut and processed. This selection resulted in 1020 steps. Further processing is on the way. The table Global_dynamics_macaques.xlsx lists for grounded running (sheet GR) and for running (sheet R) further information on the selected trials.

Columns:

nr	object number	1 <= nr <= 1020
		om: 1 = Kurimatu; 2 = Kurimatu2;
animal	animals	3 = Fuku; 4 = Pon
trial	trial number	as listed in the *.tsv and *.csv files
tore	to or return (direction of the run)	1: to; 2: re
fplate	first plate (plate 1 for to; plate 2 for re)	1: first plate; 2: second plate
foot	left or right foot	2: left; 1: right
		from thoracic markers average
		between TD fp1 and TO fp2 data
vel	speed [m/s]	smoothed and filtered

Software

Preprocessing (selection and cutting) was carried out trial by trial with visual and manual interaction. For the investigation processed data were stored in different Matlab structures and arrays. More information and processing code can be made available on demand: reinhard.blickhan@uni-jena.de.

Participants