

Data set – Towards a gecko-inspired, climbing soft robot

November 28, 2019

This file is the description for the data set. The data set is supplementary material of the related publication *Towards a gecko-inspired, climbing soft robot*. This data set consists of three parts:

- Experiments on the inclined plane: Measurement data and evaluation scripts
- Experiments on the horizontal plane: Measurement data and evaluation scripts
- Python library containing functions used in both evaluations

The following list gives an overview. Here the icons mean:

- 📁 directory
- 🖼️ directories contain *.jpg-type images
- 📄 directories contain mostly *.pdf-type images
- 📄 directories contain *.csv-type measurement data
- 📺 directories contain *.h264 or *.mp4-type videos
- 📄 </> file or directory is/contains *.py-type script

- 📁 exp_slow_track
 - 📁 tikz
 - 📄 contains most plots of the evaluation as tikz-pictures.
 - 📁 v40
 - 📄 contains raw measurements from the large robot version
 - 📁 vS11
 - 📄 contains raw measurements from the small robot version
 - 📄 </> eval_main.py
 - script for evaluation of the track of both versions
- 📁 Src
 - 📄 </> library of functions used in the evaluation of both experiments
- 📁 exp_incl_plane

■ images

📁 contains images from the two different robot versions, with different running patterns, on different inclinations. Folder architecture has the following structure:
`version / pattern / inclination / images`

■ tikz

📁 contains most plots of the evaluation as tikz-pictures. Folder architecture has the following structure:
`version / pattern / inclination / images`
There are some additional plots. Source can be found in the corresponding python-scripts.

■ v40

📁 contains raw measurements from the large robot version, with different running patterns, on different inclinations. Folder architecture has the following structure:
`pattern / inclination / images`

■ videos

📁 contains videos from the two different robot versions, with different running patterns, on different inclinations. The filenames have the following structure:
`version_pattern_inclination.h264/mp4`

■ vS11

📁 contains raw measurements from the small robot version. Folder architecture has the following structure:
`pattern / inclination / images`

</> eval_incl_pressure.py

script for evaluation of required pressure on different inclinations for both versions

</> eval_v40_adj_ptrn.py

script for evaluation of the track of the large version with adjusted patterns for all inclinations

</> eval_v40_std_ptrn.py

script for evaluation of the track of the large version without adjusted patterns for all inclinations

</> eval_vS11_adj_ptrn.py

script for evaluation of the track of the small version with adjusted patterns for all inclinations

</> eval_vS11_std_ptrn.py

script for evaluation of the track of the small version without adjusted patterns for all inclinations

</> ptrn_refs.py

script for generating references according to a pre-defined pattern