

# MORF

## Modular Robot Framework

Current solutions to adaptive locomotion for legged robots are promising, but often look miserable and are far from able to compete with the behaviours of real animals. This is presumably due to the fact that the many benefits of using legs most often are overshadowed by their high design complexity.

We, therefore, present MORF, a MODular Robot Framework which can be used in a wide range of studies. The primary aim of MORF is for it to be easy and convenient to use, such that researchers can focus more on the actual controller of the robot and not the hardware. Its design makes use of state-of-the-art components for high performance as well as kinematics inspired by nature. This enables some of the complexity to be moved from the controller to the mechanics of the system.

MORF is modular as it defines standards that can be used for re-configuring, extending, and/or replacing parts of the robot, e.g. body shape. This is illustrated in Fig. 1 where MORF is configured as an insect and a mammal. MORF furthermore includes a software suite with a full simulation of the robot and hardware interface methods based on the Robot Operating System (ROS). This makes it easy for the user to quickly test his code and to interface with the physical system using any language compatible with ROS.

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**Fig. 1** MORF when configured as an insect and a mammal. When configured as an insect MORF is 38cm wide, 40cm long, and 17cm tall.

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