

Design of a Robot Mouse

BACKGROUND

The Neurorobotics subproject [1] of the Human Brain Project [2] is developing the tools and the theory to connect state-of-the-art simulations of highly realistic brain models to robots. A central goal of this effort is to enable meaningful interaction between the simulated brains and the environment through realistic bodies. As stated in the theory of embodiment [3], the structure and the physical properties of these bodies have a huge impact on brain development and neural information processing. For example, the specific properties of the morphology of human and animal bodies like softness and compliance simplify the control task which has to be computed by the brain. With intelligent co-design of robot bodies and brain-inspired neural control systems being a promising approach for both robotics and neuroscience, we are currently designing a low-cost biomimetic robot mouse.

YOUR TASK

The development has just started. Depending on your individual expertise and preferences, there is a wide range of different openings available. Research topics include (but are not limited to) the design of biomimetic mouse limbs, the development of the corresponding CAD models, the investigation of appropriate mechanisms for actuation etc.

REQUIRED SKILLS

- Interest in biomimetic robotics
- Good knowledge of CAD (depending on the selected task)
- Experience with rapid prototyping tools may be of advantage

FURTHER READING

- [1] <http://www.neurorobotics.net>
- [2] <http://www.humanbrainproject.eu>
- [3] Pfeifer, R. & Bongard, J. (2006). How the Body Shapes the Way We Think: A New View of Intelligence. MIT Press.



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