

Neurorobotics on the intersection of biological and robotic simulations

BACKGROUND

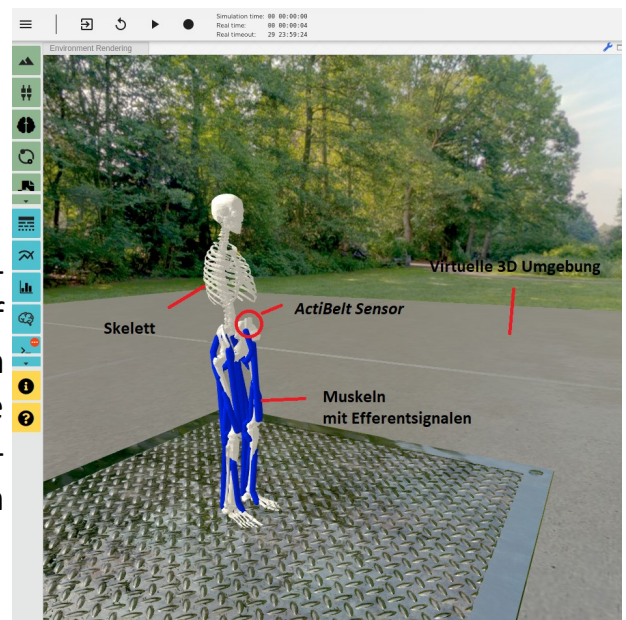
The Human Brain Project is a highly interdisciplinary EU research project to unify the understanding of the Human Brain. For this purpose the Neurorobotics subgroup (www.neurorobotics.net) develops a comprehensive simulation framework, the Neurorobotics Platform (NRP), to emulate biological and biomimetic body models. Following the concept of Embodiment simulated biologically realistic neural networks and modalities can be tested on virtual models

YOUR TASK

The neurorobotics subproject offers several interesting internship opportunities at the intersection of informatics, robotics and neuroscience. Working in the project you can extend your knowledge e.g. in the Robot Operating System (ROS), Software Development, work with latest simulation software and much more.

Currently Open Projects (*requirements*):

- Implementation of design tools to simulate musculoskeletal models for Neurorobotic experiments (3D modelling + Python)
- Human Motion Data Analysis and its visualization on simulated musculoskeletal models (Data processing + Python)
- Evaluation of biomimetic muscles in comparison with biological muscles in simulation + implementation of characteristics of friction models (basic C++ + System Behavior Modeling)
- Simulation of Frequency and Amplitude modulated signals in Matlab (Matlab Simulink + Signal processing)
- Evolutionary development of musculoskeletal models in simulation (evolutionary algorithms + Python + 3D Modeling)
- Research analysis of (psychological) tests for human motion learning and possible implementations in biomimetic robotics learning scenarios (research analysis)



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