Developement of an NVIDIA Isaac Simulation for the Humanoid Robot LOLA

Master's Thesis

To keep pace with the fast advances in humanoid robotics, it is necessary to rapidly prototype novel hardware and software solutions. Simulators that replicate the robot in its environment with high fidelity, while allowing quick hardware adaptation or testing of novel control and planning approaches, are an essential tool. In this thesis a simulation framework based on NVIDIA IsaacSim will be built in Python for our humanoid robot LOLA. It will be integrated into our current C++ software framework and compared with our current simulation as well as with experimental data. In the next step, a first optimization or machine learning based motion planning pipeline will be explored.

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