Selbstfahrende humanoide Roboter fährt Go-Kart

TNG TECHNOLOGY CONSULTING

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- Hintergrund in Mechatronik, Informationstechnik und Mathematik

Selbstfahrende humanoide Roboter fährt Go-Kart?

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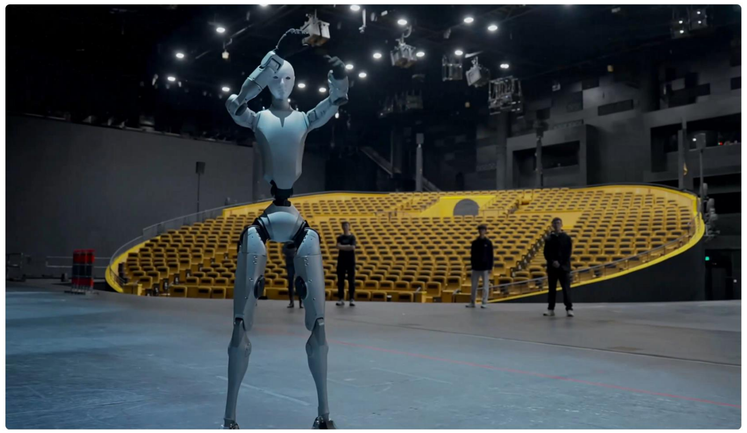
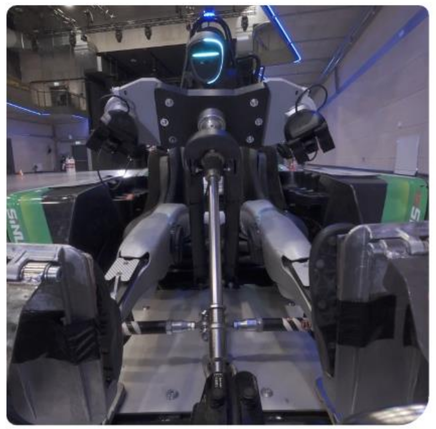
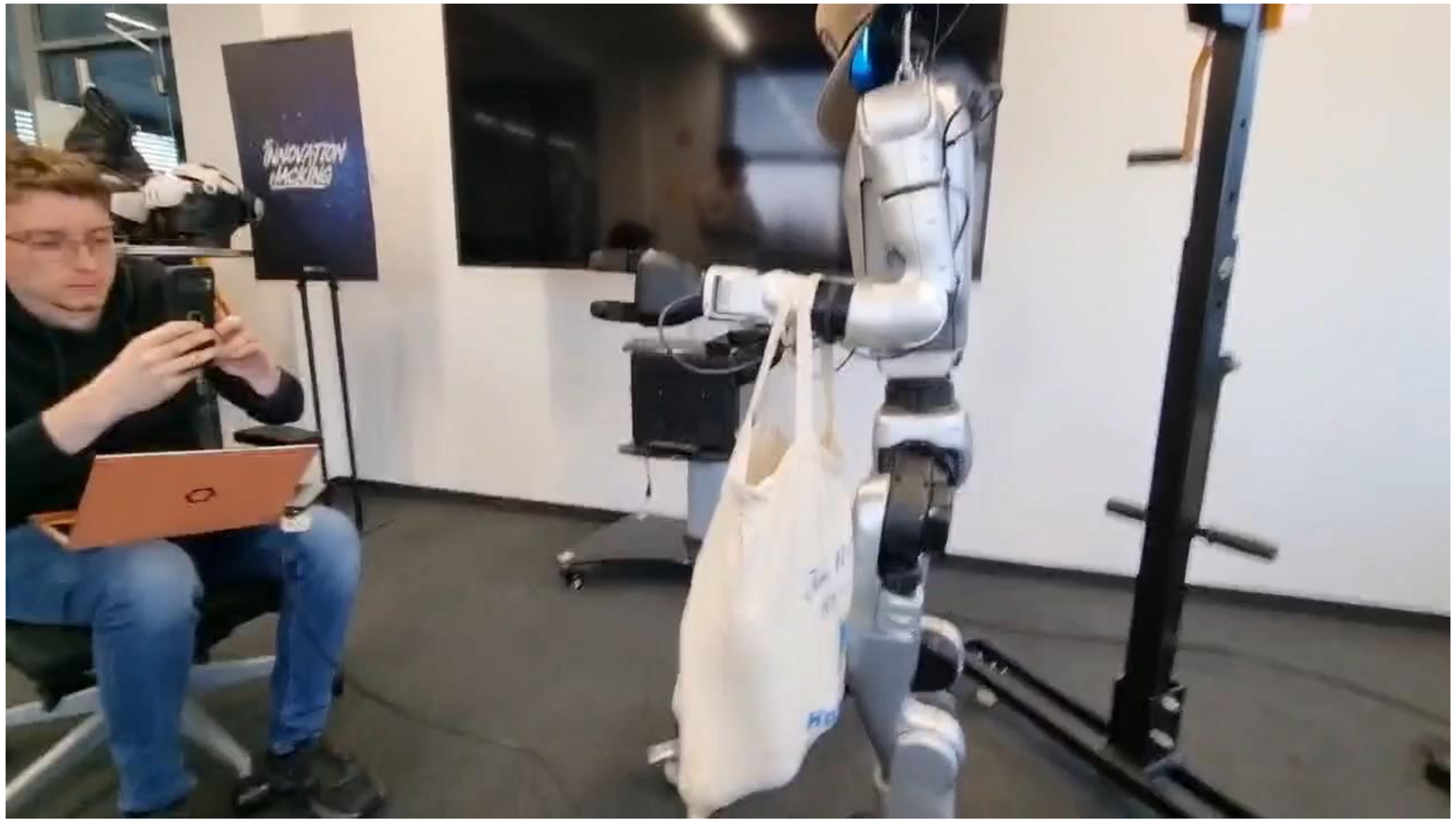


Mechanisch – Robust Sitzen

	Adult Human	G1
Height	175 cm	130 cm
Legs	85 cm	60 cm
Arms	65 cm	45 cm
Hip Width	40 cm	30 cm



Mechanisch – Das Lenkrad drehen



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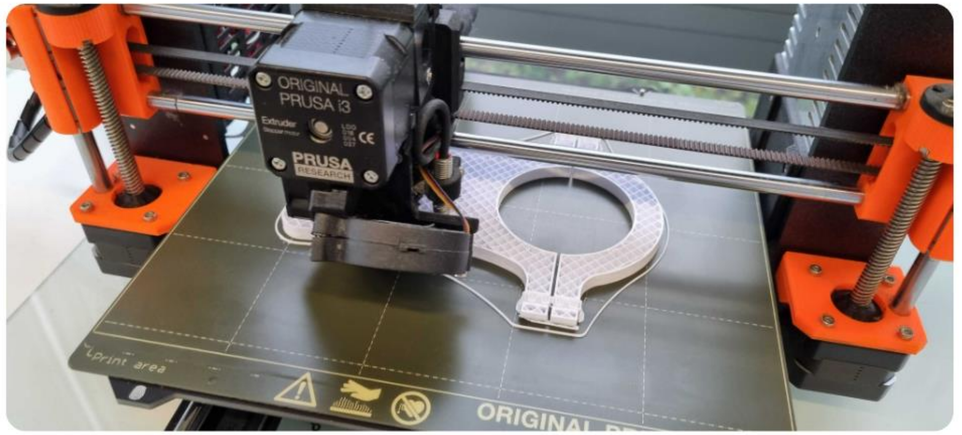

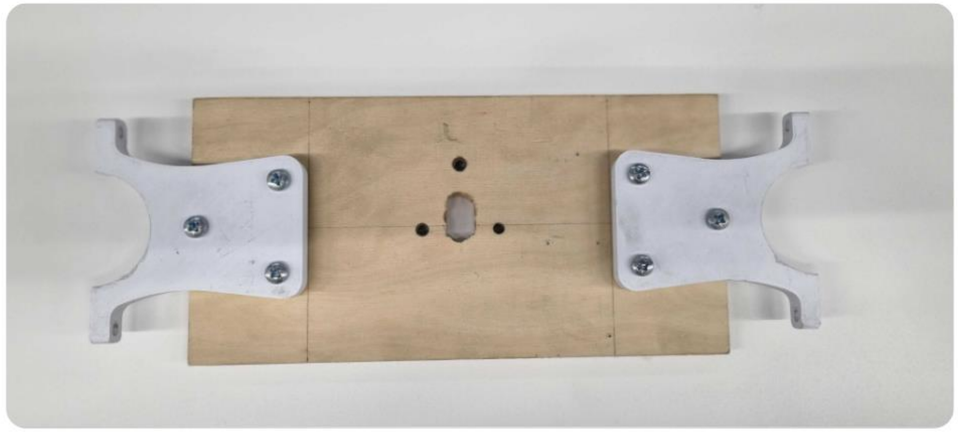

Software – Robotergelenke Steuern

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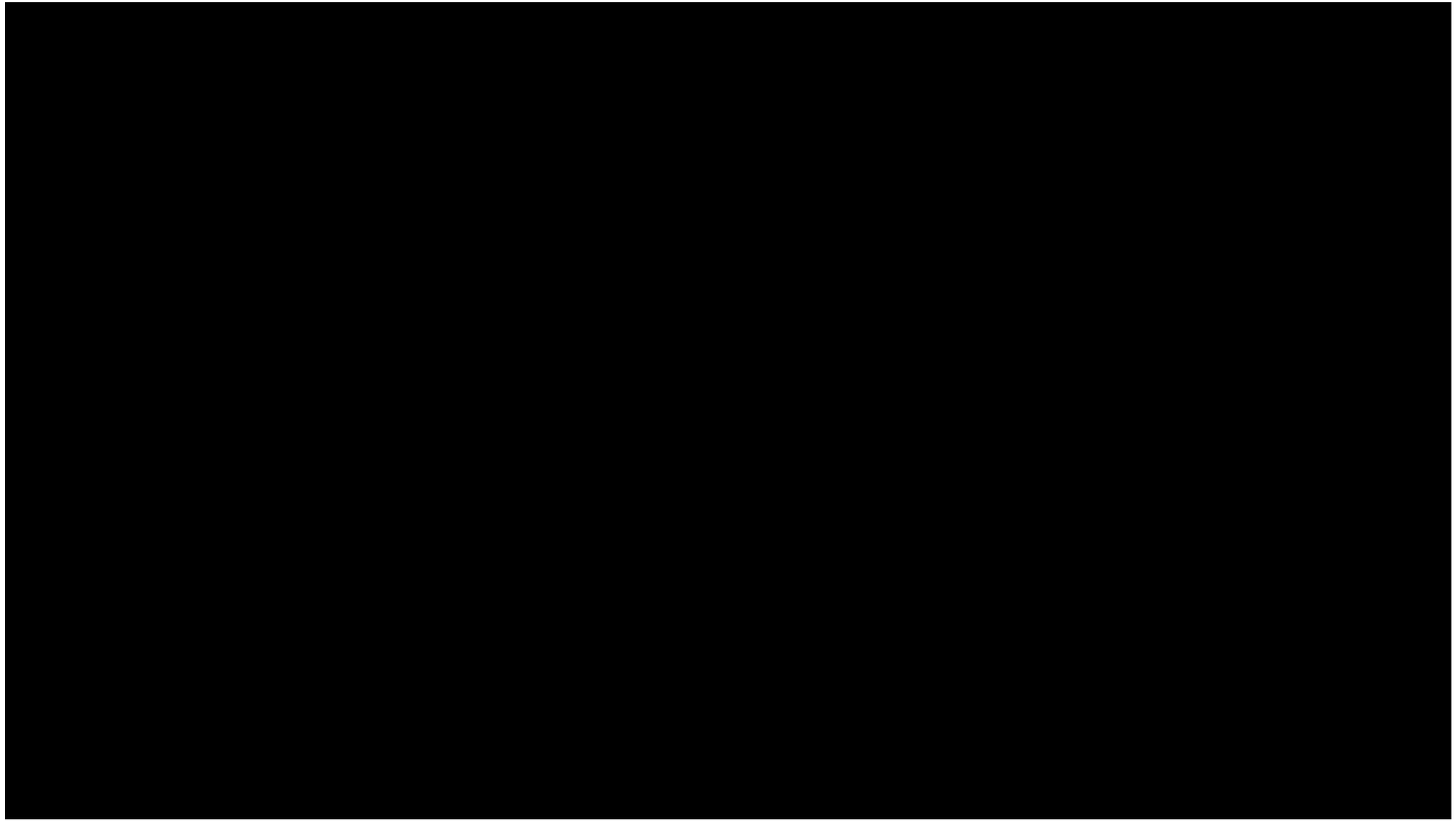
Title	Description
unitree_model	Robot 3D models for different environments. Related xacro and urdf files could be found here .
ROS1/ROS2	unitree_ros ROS simulation package. It has urdf files of all Unitree series robots, contains information such as mass, inertia, moment, limit and so on. Newly support G1.
	unitree_ros2 Develop Go2 and B2 robots in the ros2 environment. The interface types provided are consistent with unitree_sdk2.
unitree_mujoco	Use Mujoco as a simulator and has sim-to-real implementations, integrate with terrain generator. Support C++/Python interface.
unitree_rl	unitree_rl_gym An Issac simulation example for reinforcement learning, supports Go2, H1, G1.
	unitree_rl_lab Reinforcement learning implementation for Unitree robots, based on IsaacLab.
Manipulation	xr_teleoperate Use Apple Vision Pro to teleoperate Unitree G1, H1_2.
	kinect_teleoperate Use Azure Kinect DK camera to teleoperate Unitree H1.
	unitree_IL_lerobot Use G1 dual-arm dexterous hands for data collect, train and test, with modified LeRobot, an open-source training framework.
	unitree_sim_isaaclab Built on Isaac Lab to simulate Unitree robots in various tasks, facilitating data collection, playback, generation, and model validation.

ROS2– Robotergelenke Steuern

ros2_g1_interface

Mechanisch – Das Lenkrad drehen



Elektronisch - Rückwärts Fahren

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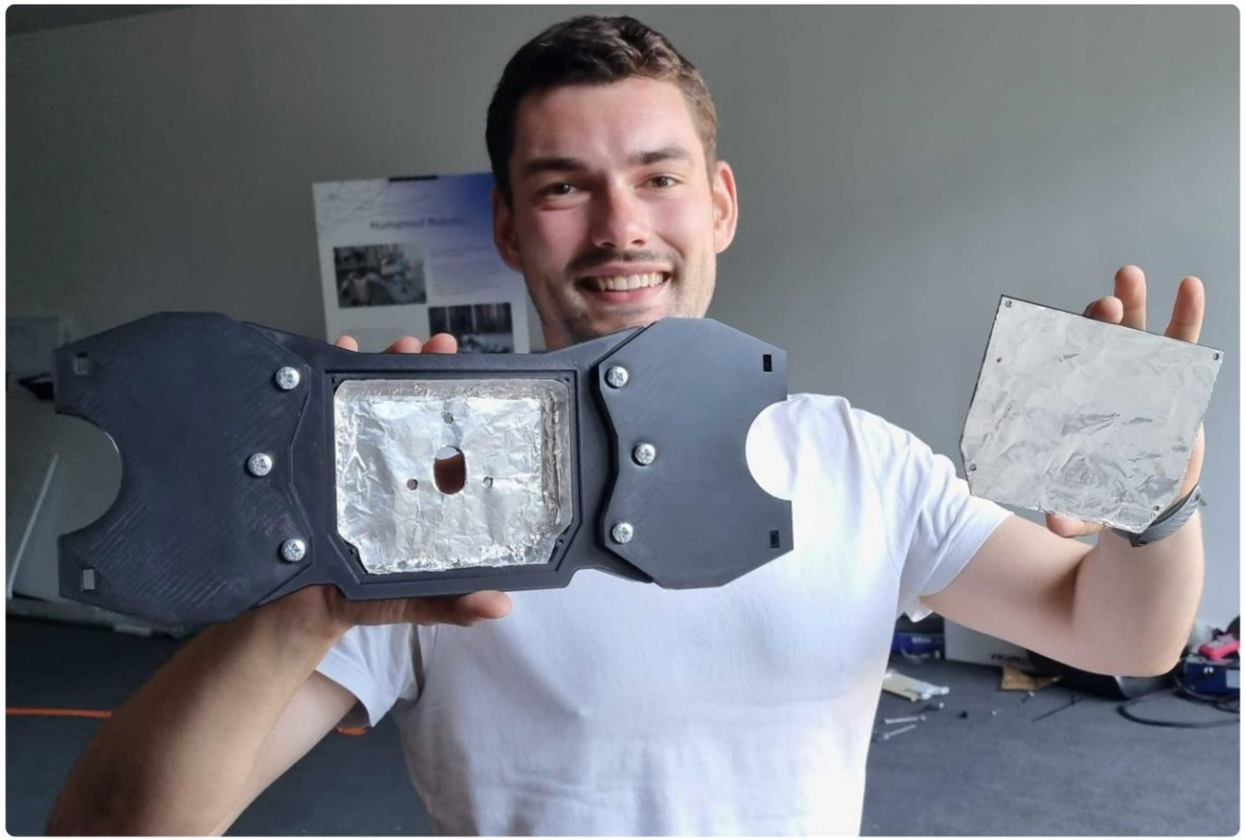
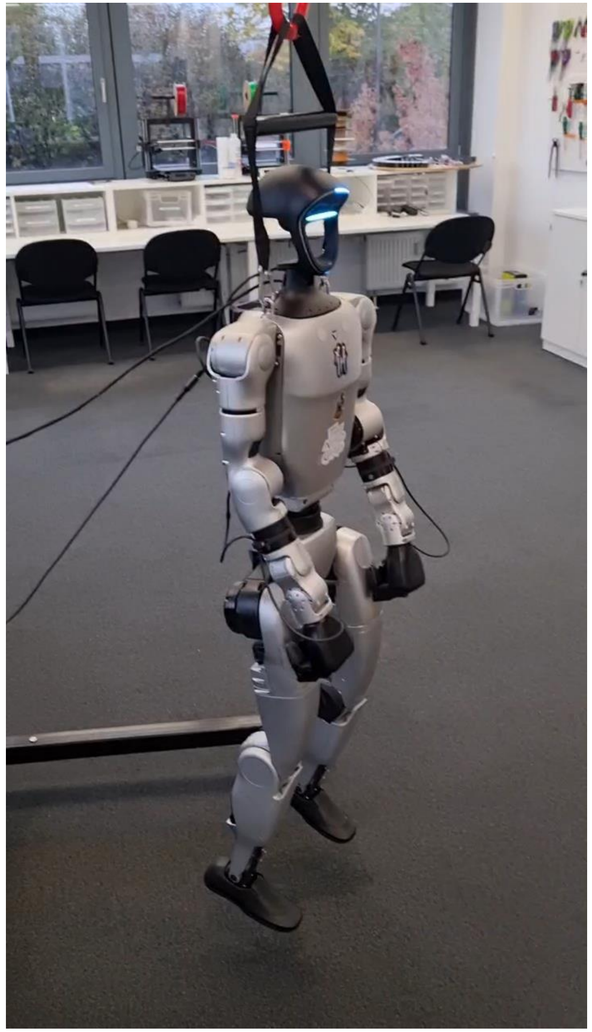


Software - Lenken



Software - Integration

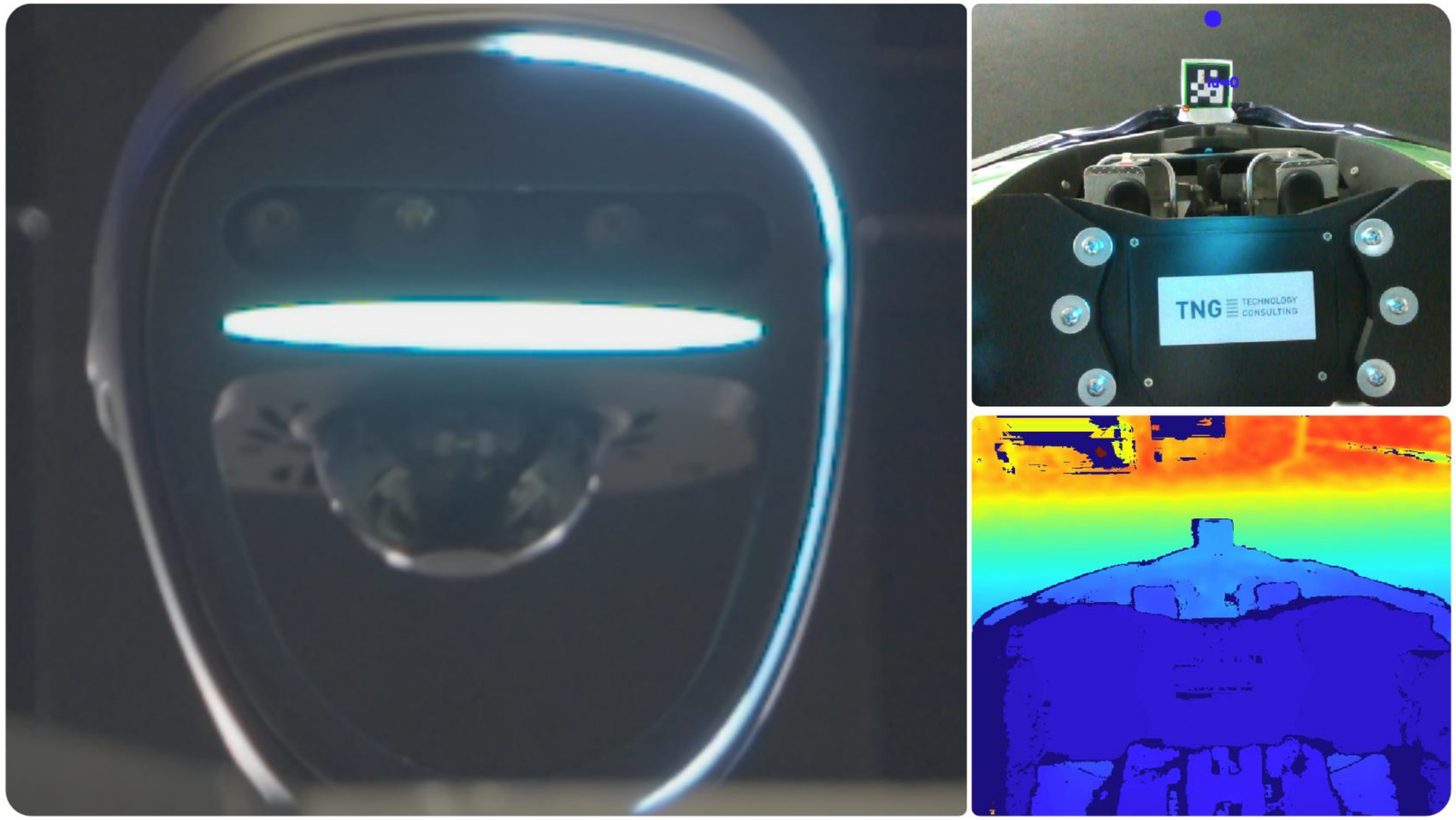
ROS2– Robotergelenke Steuern

g1_go_cart_controller

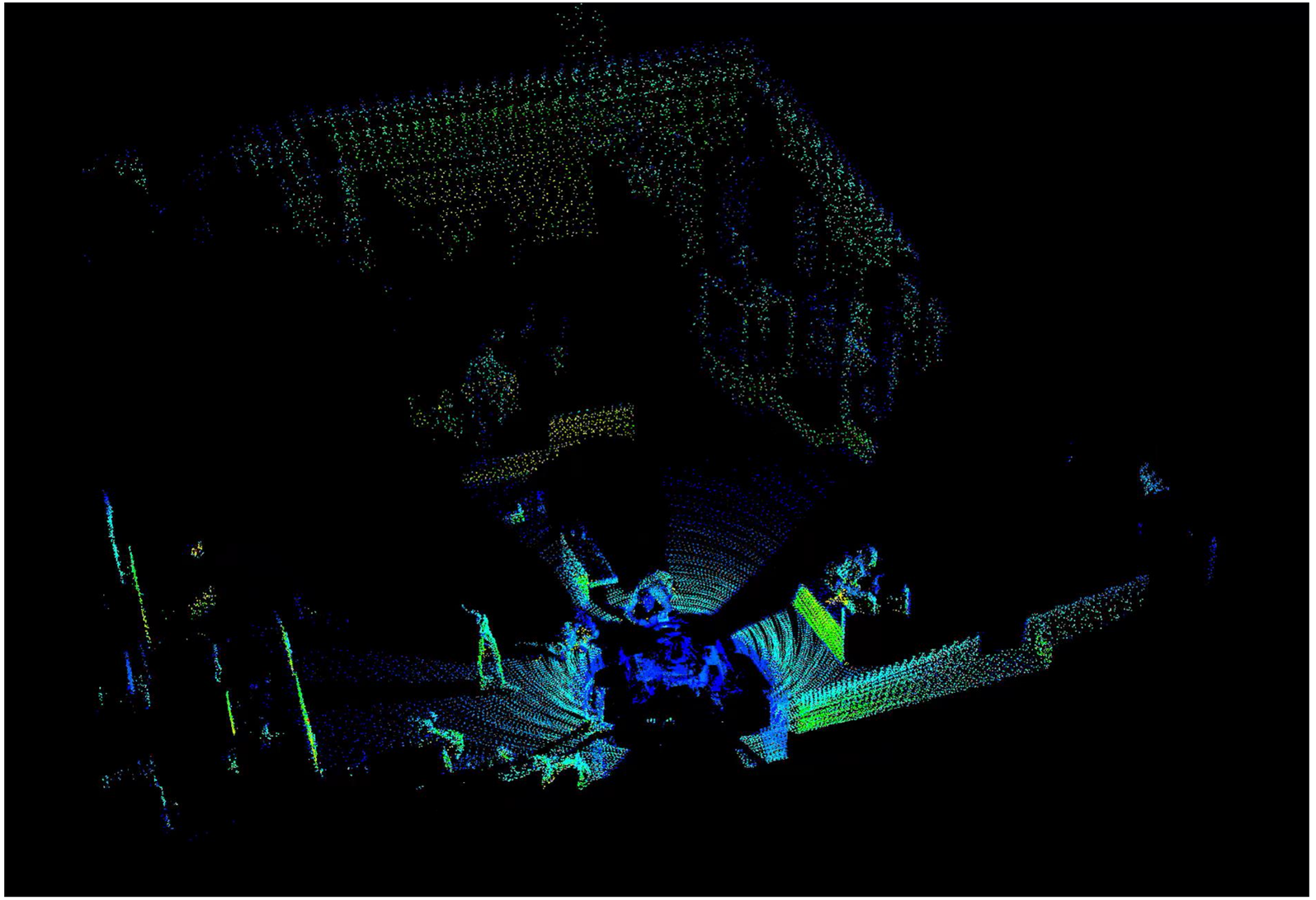
ros2_g1_interface

Fahren mit X-Box Controller

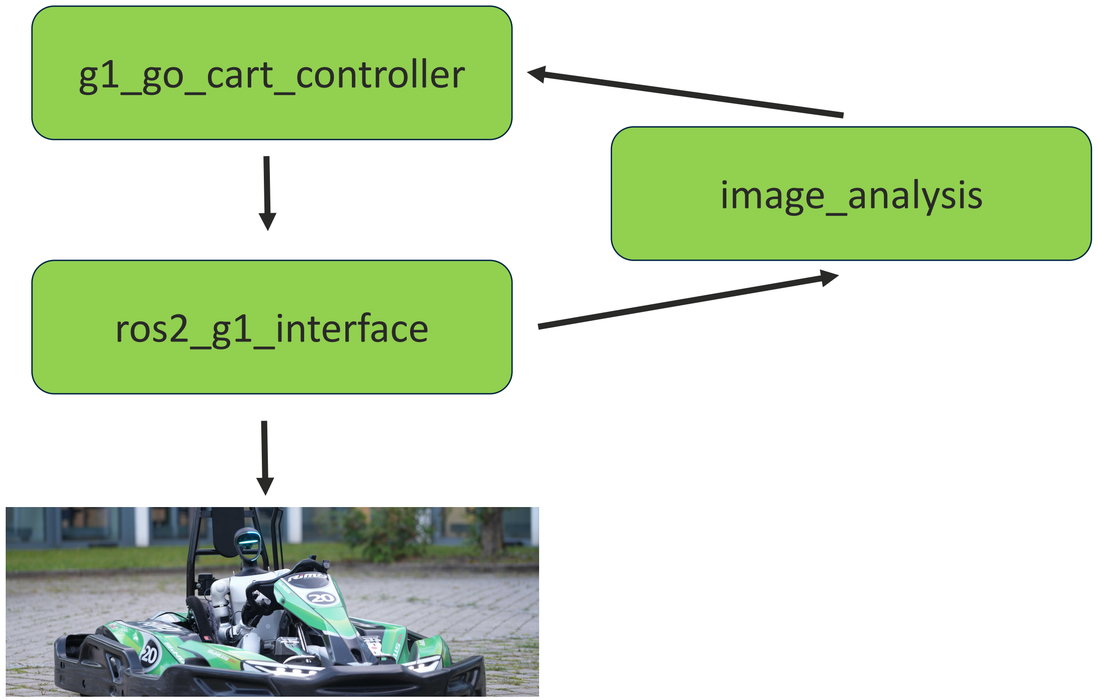
Observationen – Tiefenwahrnehmungskamera und IMU



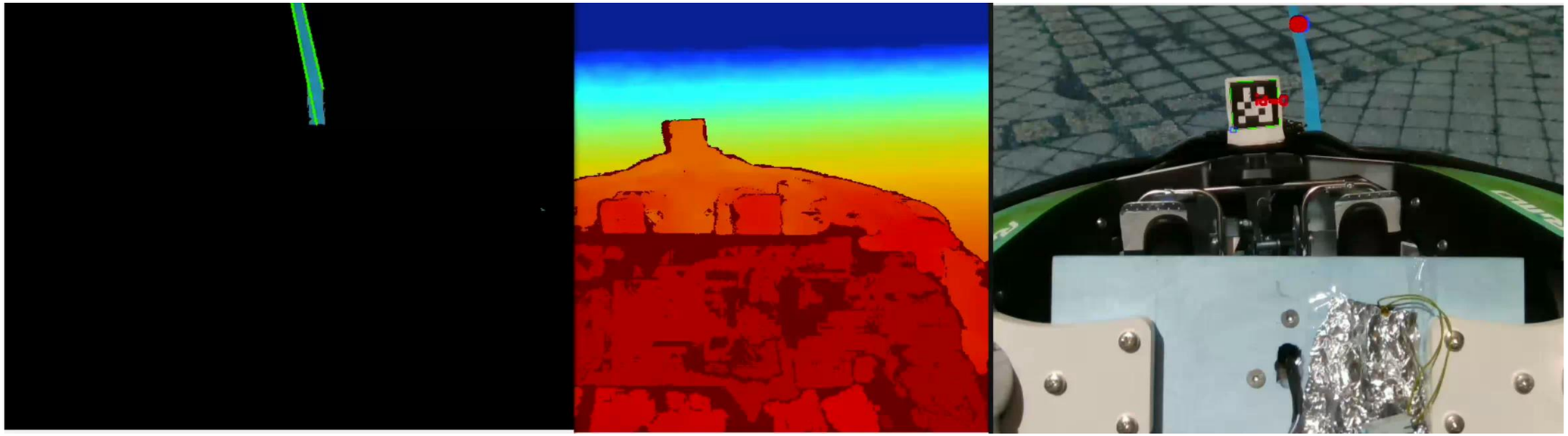
Observationen - LiDAR



ROS2– Selbstfahrende humanoide Roboter

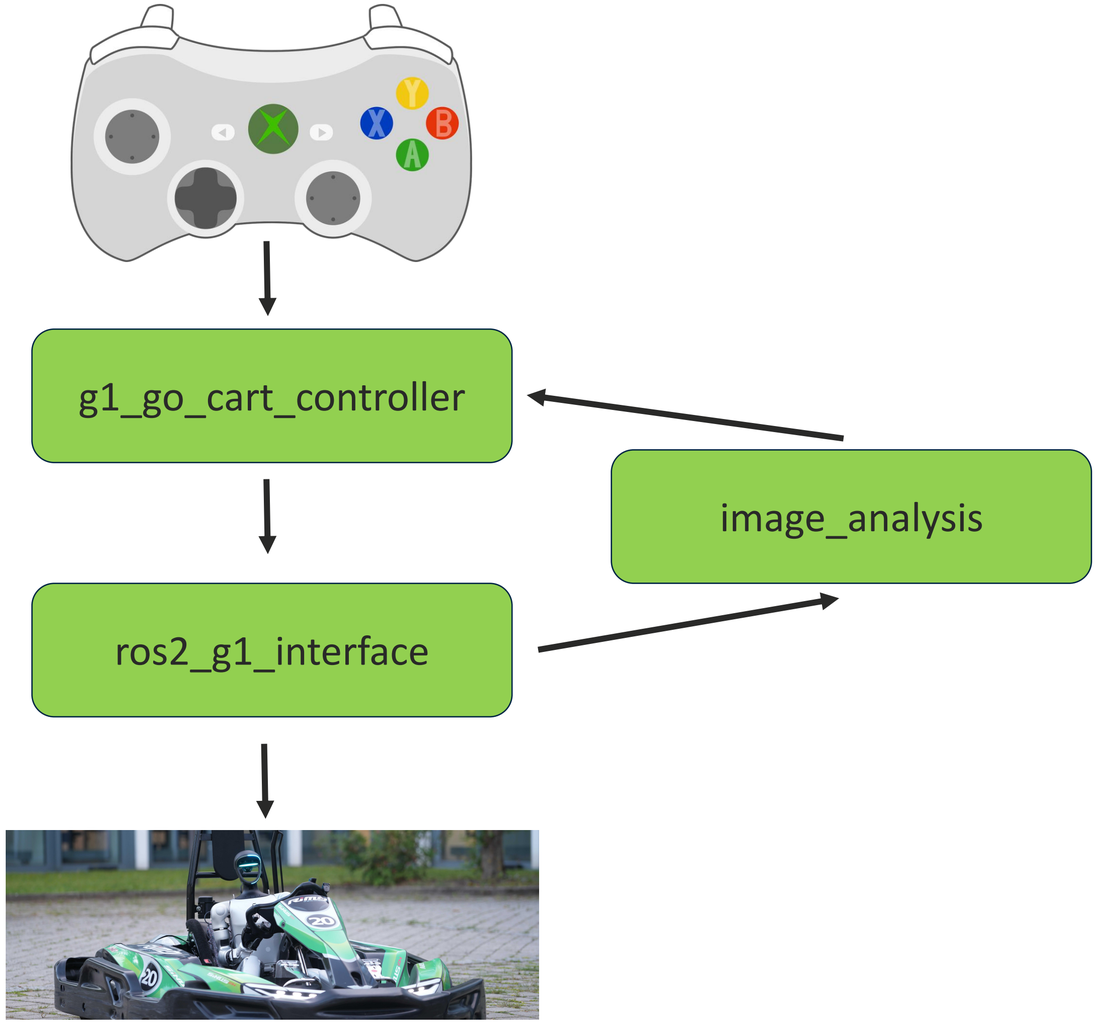


Observationen und Steuern

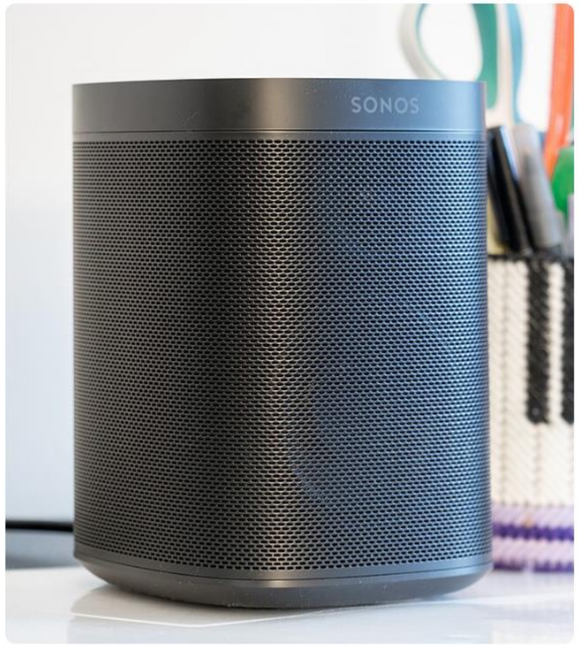


mit "humans in the loop"

ROS2– mit "humans in the loop"



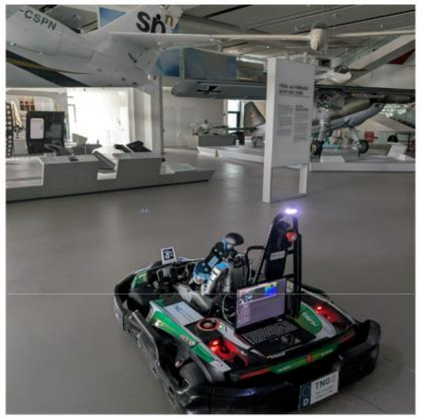
GPU, Mikrofon und Lautsprecher



Eine Lern-Plattform








Vielen Dank!

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