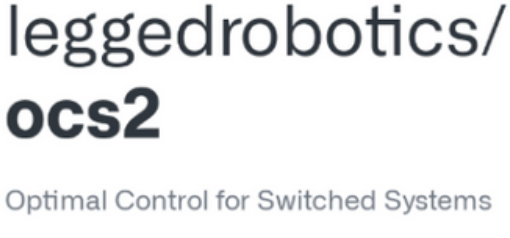




GAIT CONTROLLER

FOR QUADRUPED ROBOT

Controller:   

The controller works with a NMPC based on ROS Noetic and OCS2 toolbox. The library includes a simulation package and a hardware interface adaptable for quadruped robots.

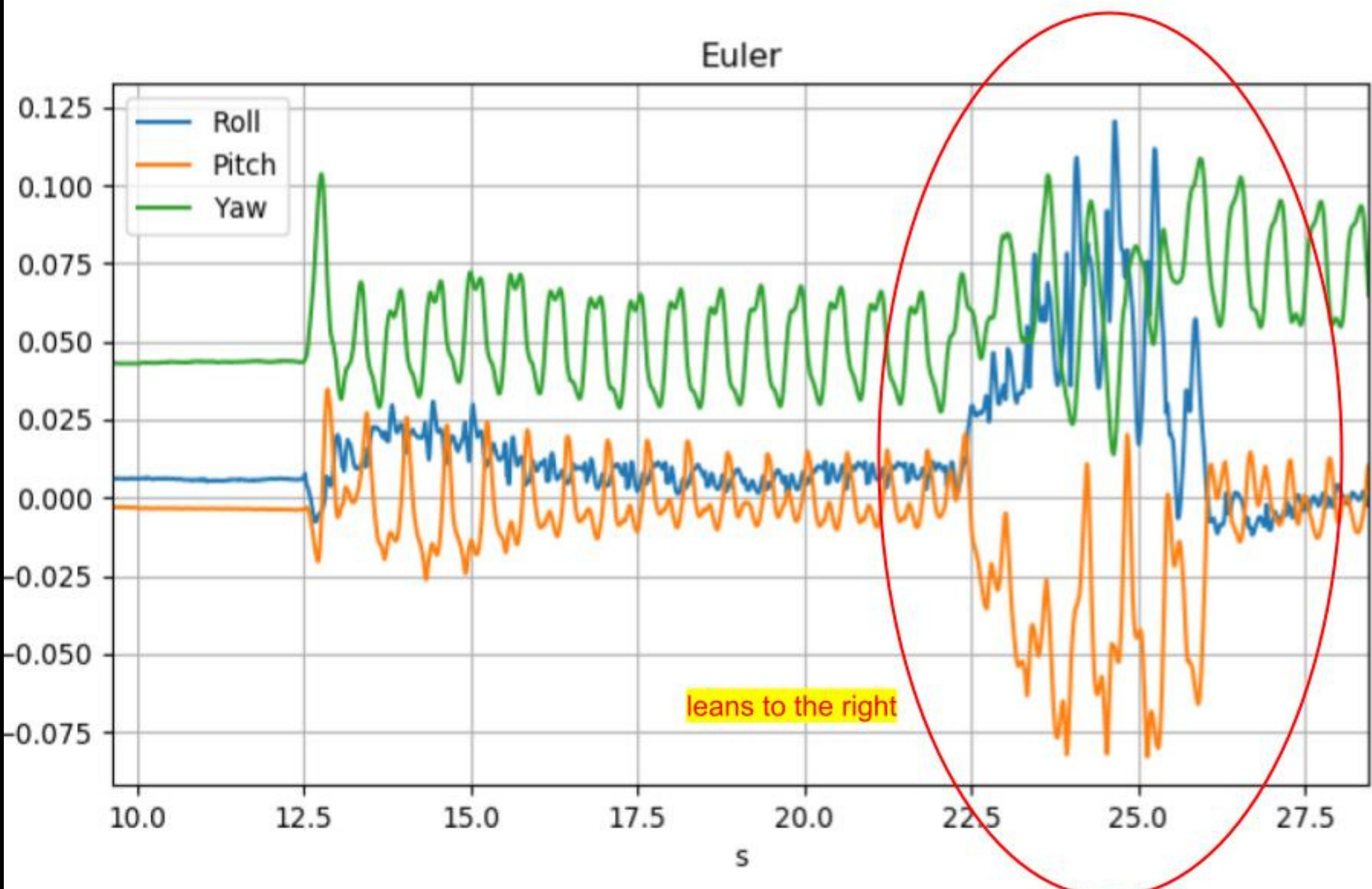
Commands:

The robot can be moved with teleoperation using a bluetooth joystick, as well as beforehand automatic commands gave by the operator. The comands handler is built for easy integration of new features.



Debug:

After the first integration of the MPC to the hardware interface, the robot was responding to commands but was quite unstable on his rear right leg. Saving test and data plots helped to explicit wrong behaviors.

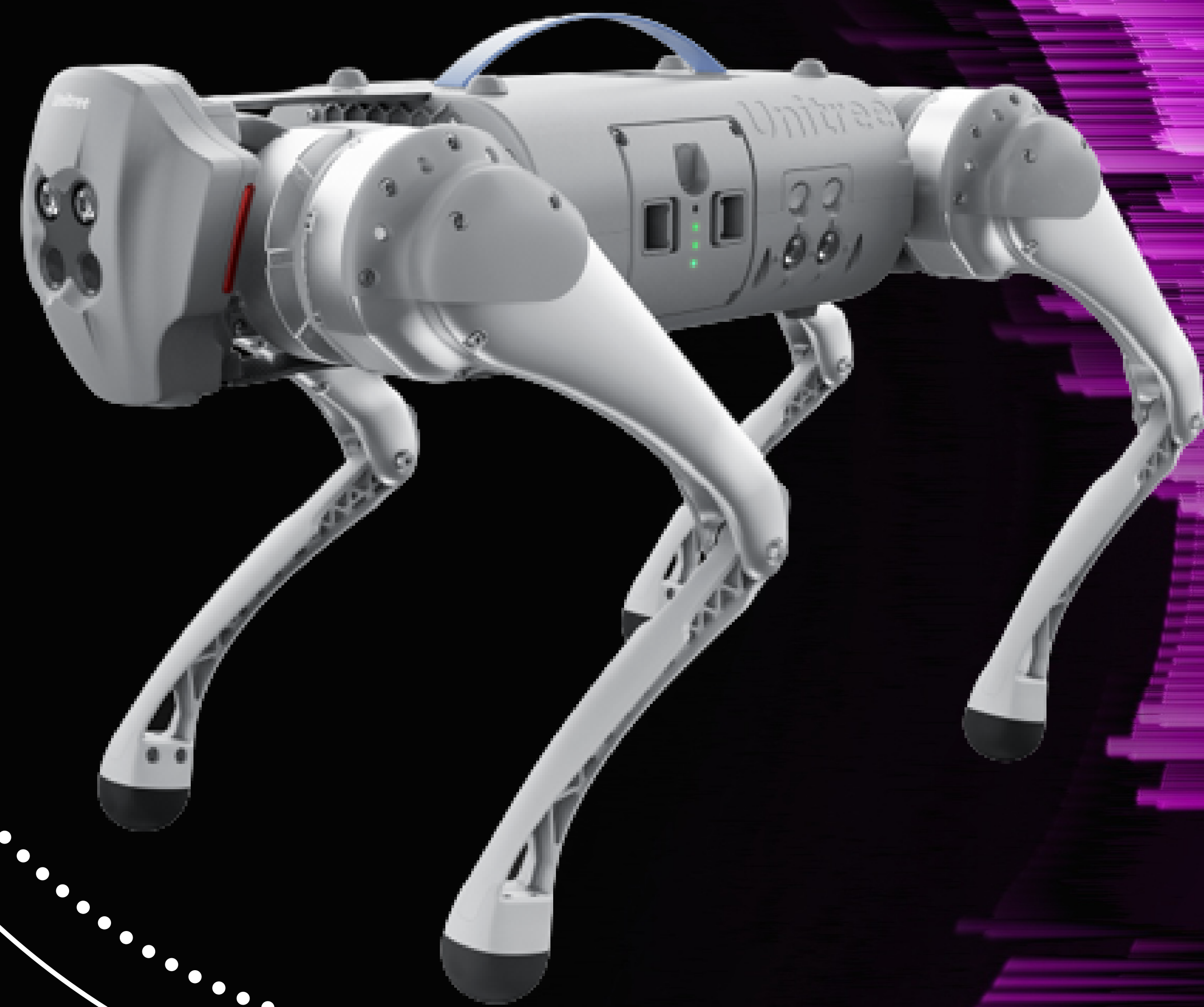


Goals:

This project aimed to re-create a full gait control system for Unitree Go1. As the robot will be deployed on very challenging terrains, the gait have to be stable and resist to unexpected perturbations.

UnitreeRobotics®

Go1 Edu: A quadruped robot for education



Results:

This project ended with a complete implementation of an open-source gait control system. High-level operations can now be performed on the Unitree Go1. Some safety features still need to be added.

