

## **ABSTRACT**

Nowadays the area of autonomous robotic systems knows rapid growth resulting in these systems is increasingly taking hold in our lives but also to know valued by the public.

This thesis aims at simulating and modeling underwater robotic system at aquaculture environment. All data of the environment but also of simulation are taken from specific literature but also from Robotics automatic control and decision systems (RCDS) laboratory associates researchers.

The development of this environment accomplished with computer use but also with the operating system Linux. Furthermore, for the modeling of the aquaculture net and underwater robot we used the Simulator GAZEBO and Robotics language SDF in combination with the system ROS (Robotics operating system). Subsequently the operator by changing various parameters may perceive the reaction and behavior of underwater robots and aquaculture systems under the water surface.

With the successful implementation of the above environment and with the help of the Simulator is possible for the user to edit and experimented with various data without it being necessary to make real experiment into the water.