Research Field And Department	Robotics Systems Engineering and Automation
Supervisor	Ramón Barber
Title of the Work	Learning by imitation of trajectories in manipulation tasks

Abstract:

In both patient care and industrial handling, robotic arms are required to be capable of planning complex trajectories, adapting to changes in the environment and to the people they are working with. The robot must be able to generalize a few defined trajectories to similar situations and adapt them to any challenges that may arise during the handling task.

The objective of this work is to teach the robot to perform tasks through learning by imitation.

Main Tasks to Carry Out:

- Define simple manipulation tasks for the robot to perform.
- Teach the robot manipulation tasks through imitation learning.
- Test and document the manipulation results in response to slight changes in the task.

References/Bibliography if required

- Prados, S. Garrido, R. Barber, Learning and generalization of task-parameterized skills through few human demonstrations, Engineering Applications of Artificial Intelligence, Volume 133, Part D, https://doi.org/10.1016/j.engappai.2024.108310 vol. 12(10),. 2024.