

## Augmented-Reality-based digital twin approach for robot manipulation

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### Abstract

In recent years, robotics research has been facing a significant growing. Industrial and research interests are moving from the development of robots for structured industrial environments to the development of collaborative and autonomous robots operating in hybrid environments. The biggest drawback of the introduction of these cobots (collaborative robots) is that they are not user friendly. The fourth industrial revolution has allowed the introduction of new technologies that enhance the human robot interaction such as Augmented Reality (AR). In this poster, we suggest our approach which is an Augmented Reality-based digital twin approach for an easy and user-friendly Human-Robot interaction. The presented system is a marker-based system that allows users to program collaborative robots. This model aims to manipulate a virtual model of the robot using an AR head-mounted device.

### Speaker Publications:

1. "Survey: The Evolution of the Usage of Augmented Reality in Industry 4.0, May 2019 IOP Conference Series Materials Science and Engineering 521:012017, DOI: 10.1088/1757-899X/521/1/012017
2. "ARbI" Augmented Reality-based human-robot Interaction method, May 2018, Project: Human-Robot Interaction using mixed reality

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### Biography:

Abir GALLALA has completed her master in 2016 in Artificial Intelligence from the national engineering school of Sousse in Tunisia and a bachelor in industrial computer science from the same school. Currently she is pursuing a doctoral degree PhD at the university of Luxembourg in Human-Robot Interaction within the engineering department.