

PRESS RELEASE

COLLABORATIVE ROBOTICS AND INDUSTRY 4.0: FROM THE COLLABORATION BETWEEN ESAOTE AND THE BIORBOTICS INSTITUTE THE NEW ROBOTIC SYSTEM TO OPTIMIZE THE TESTS FOR THE IMPROVING RELIABILITY OF ULTRASOUND PROBES PRODUCTION

September 25th, 2018 - The goal is to optimize the tests for the improving reliability of ultrasound probes production, through an automation system according with the principles of industry 4.0. For this reason, [Esaote](#), leading medical imaging company by providing innovative clinical solutions from prevention to therapy, and [The BioRobotics Institute](#) of **Scuola Superiore Sant'Anna** have developed a highly innovative robotic cell which, under the leadership of an operator, is able to direct the transducer and to certify its effectiveness.

The outcomes of this collaboration have been summarized in the report "[Pulse-echo test for medical imaging ultrasound probe and collaborative robot: performance and usability](#)", written by **Marco Controzzi**, **Michele Bacchereti** and **Francesco Clemente** (The BioRobotics Institute), **Andrea Grandoni**, **Lorenzo Francalanci** and **Alessandro Fabbrizzi** (Esaote).

The robotic cell allows the cooperation between human labor and the most advanced automation systems. This offers an integrated solution and it makes the tests more efficient and traceable. The robotic cell consists in a collaborative robotic arm with a gripper which can verify the correct position of the probes with the help of an operator. This is an important step towards the automation of the process which allows to have more precise data about the repeatability and the operation of the probe (currently all the tests take place manually, with the only intervention of the operator).

"The robotic cell has reached two goals – says **Marco Controzzi**, researcher of The BioRobotics Institute - The first is to automate the procedure for the operation of the tests; the second is to keep in the foreground the role of man. Esaote operators will interact with the robot, supporting it during the tests. This line of research reflects the mission of "Human-Robot-Interaction", the laboratory of Collaborative Robotics of The BioRobotics Institute. We imagine a synergy between men and robots, combining the advantages of manual production with precision and repeatability of automation."

"The manufacturing process of ultrasound probes – says **Andrea Grandoni** of Esaote – is traditionally not suitable for automation. For this reason, among the possible solutions, collaborative robotic presents the best cost-effectiveness ratio because it improves productivity with low investments, with a quality improvement. The system managed by The BioRobotics Institute would allow us to support the man in the operations of testing the ultrasound probes."

About Esaote: The Esaote Group is a leading Company in the biomedical equipment sector., in particular in the areas of ultrasound, dedicated MRI and software for managing the diagnostic process. Headquartered in Genoa, Italy, the Group has its production and research units in Italy (Genoa and Florence) as well as in the Netherlands (Maastricht) and it is active in around 80 countries in the world. The Esaote Group recorded a consolidated turnover of around €245 million in 2017, 70% of which was generated on international markets. The Group employs about 1,150 individuals, 20% of whom work in research and development, a sector in which the company invests around 9% of its total turnover. Information on Esaote and its products is available at www.esaote.com

THE BIOROBOTICS INSTITUTE: Advanced education, frontier research and innovation: this is The BioRobotics Institute of Sant'Anna School of Advanced Studies, founded in 2011. The Institute has built a vast wealth of knowledge and expertise in several fields of biorobotics, such as: social robotics, industrial robotics, assistive/rehabilitation/surgical robotics, neural engineering, cognitive systems, bio-inspired robots and their ethical, legal, social and economic implications.

The Institute aims to act as a linking bridge among international centres of knowledge and to create a new concept of engineers that are scientists, inventors, entrepreneurs and problem solvers.

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