



“Healthy Living”: The finalists for the KUKA Innovation Award 2019 have been selected

Augsburg, August 2018 – Talented robotics specialists from around the world submitted their concepts and now the jury has selected five teams for the finals of the innovation competition. The finalists this year will be breaking new ground.

“The KUKA Innovation Award has been an established institution since 2014. Now in the sixth year, we have put the focus on medical robotics for the first time,” says Dr. Bernd Liepert, KUKA Chief Innovation Officer and patron of the competition. Talented robotics specialists from around the world were encouraged to send in their concepts on the current topic of “Healthy Living”.

An international jury of experts selected the best concepts from among 30 applications. Each of the finalists will be provided with a sensitive KUKA lightweight robot and a 3D vision system from Roboception free of charge for half a year to help the teams implement their concepts. In addition to this, they will be coached by KUKA experts throughout the competition.

For the first time, this year it is possible to use the medical variant of the sensitive lightweight robot, the KUKA LBR Med, for the finals. The LBR Med is the first robotic component worldwide to be certified for integration into a medical product. This makes a wide variety of applications possible in hospitals and rehabilitation centers.

The five research teams now have about seven months to implement their ideas. They will present their applications to thousands of visitors at the KUKA booth at Hannover Messe in April 2019. There, a jury of experts will select the winner of the Innovation Award and the accompanying 20,000-euro prize.

Team I&Bot: Back pain is a widespread health problem. The goal of the project from the developers at Capsix Robotics in Lyon is to perform an automat-

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ic and customized back massage using the KUKA LBR Med. The treatments are defined based on a generic body model and adapted to the patient using sensors. Besides massages, this technology makes various autonomous and customized body and skin treatments possible.

Team A.I. collaborative robot for laser treatments: Chronic venous disorders are typically treated using laser-based therapies. Usually, the laser is guided with the naked eye – which is challenging and requires a great deal of experience. The Portuguese team from the 2AI Applied Artificial Intelligence Laboratory of the Polytechnic Institute of Cávado and Ave is developing a robot-supported laser treatment for leg veins with the LBR Med based on automatic detection of unhealthy veins. Through cooperation of the doctor and robot, the treatment results are expected to improve significantly.

Team RoboFORCE: The colonoscopy is a common procedure to detect bowel cancer in its early stages. This procedure offers major advantages. Nevertheless, it also has disadvantages such as the risk of perforation, pain and high costs. As an alternative, researchers from the universities of Leeds, Vanderbilt and Turin are developing a robot platform using a magnetic capsule which navigates through the bowels thanks to magnetic coupling with an external magnet on an LBR Med. To enhance safety and performance, the team uses the Roboception vision system and creates an external 3D map of the patient.

Team iRONNA: A fundamental challenge in neurosurgical robotics is the development of autonomous and intelligent robots that can be used as sophisticated surgical instruments. They can make operating procedures shorter and safer. To achieve this, researchers at the University of Zagreb are developing an interactive robotic system to support neurosurgeons during the preoperative phase. For the pre-op procedure, the team is working on an interactive, gesture-based operation planning interface as well as on haptic and visual control methods for the actual operation.

Team RobUST: The Technical University of Munich team's application focuses on robot-assisted treatment of micro-fractures in the spine. Here, the LBR Med provides support during insertion of the needle into the spine. The surgeon also receives information about the procedure via augmented reality glasses. The goal of the project is to make the current clinical procedure more precise, easier to carry out and more efficient.



All information concerning the KUKA Innovation Award can be found here:

<https://www.kuka.com/de-de/technologien/konzernforschung/kuka-innovation-award>

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