Home
Press Releases
Events
Submit a Release
Register
E-mail Notification
Search Archives
FAQs
Terms & Conditions
Contact us
Related services

Login

:: Print article :: All releases :: Back

Human-Like Robots. In Mind and Body

2009-02-26

Alin Albu-Schaeffer
DLR/Institute of Robotics and Mechatronics

GERMANY
Alin.Albu-Schaeffer@dlr.de
Tel: +49 8153 283689

A European research team is at the frontline of a new EC project to develop life-like robots. The project VIACTORS officially got under way February 2nd 2009 and will last three years.

Once upon a time there was a robot. Usually, a big rigid machine, programmed to execute its task with little information about its surroundings or, in the best science-fiction movies, a “big brain inside a box”, showing human-like intelligence and abilities.

But times change and for modern robotics the goal is not a brain-in-the-box, but rather an interplay between a central software and a biologically motivated, cleverly designed body (inspired by the complex neuromuscular structure) that allows the robot to carry out tasks in a way very similar to the humans.

The creation of a new generation of robots resulting from a deeper understanding of the correlation between structure, morphology and function is the scope of the European Project VIACTORS (Variable Impedance Actuation systems embodying advanced interaction behaviORS), coordinated by Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR - German Aereospace Center), and involving Universities and Research Centers from Italy, the Netherlands, Belgium and the United Kingdom.

The new robots will not only look more like human beings, but will also move like them, adapting their movements to different environments they encounter, moving and walking naturally while avoiding obstacles in their way.

“Unlike the humanoid robots available today, these robots will not be completely programmed,” explains Dr. Alin Albu-Schäffer, VIACTORS Coordinator, “Rather, they will be designed in a way that allows them to continuously and quickly adapt their movements based on their intrinsic mechanical features, very much in the way humans do.”

In order to reproduce human motor capacities in robots, the neuromuscular structures and mechanisms of humans will be closely studied.
“The revolution is that the new technology will be inserted directly into the physical structure of the robot. The robot motion will be determined not only by an external software program that will give instructions to the machine, but the capability of carrying out certain functions will be directly embodied in the physical form of the machine” says Albu-Schäffer.

This innovative technology will pave the way for new application fields, such as physiotherapy, with the creation of specialized “arms” sensitive enough to safely adapt their exerted pressure, household robots, advanced prostheses, along with autonomous robots for exploration of space and hostile environments. The results of this project will deeply impact applications where successful task completion requires direct collaboration between humans and robots in a shared workspace, or in situations where robots must move autonomously and as efficiently as humans.

But the challenge goes beyond the fields of concrete application. This project will also investigate on the relationship between cognitive performance and physical structure, a widely-debated theme in all science and philosophy communities. Robotics can be a testbed to verify the feasibility of building a model of some human cognitive capacities by discovering the physical structure underlying them.
“VIACTORS can contribute to this important debate carried on in scientific communities,” concludes Albu-Schaeffer, “and it contributes also on the theoretical side: we could have a better insight on the relation between body and mind if we could build – as is among the scopes of the project – robots that, because of certain physical configurations, can develop complex interactions with the environment, humans and other robots.”

With initiatives like VIACTORS along with the advancement of robotic technologies, the traditional image of a big, rigid, metal “intelligent” box is slowly disappearing, ushering in a new generation of robots that resemble humans in both structure and function.

Notes to editor:

Press Officer:
Alessandra Parravicini
Interdepartmental Research Center “E.Piaggio”
University of Pisa
Phone +39 050 2217 064
alessandra.parravicini@ing.unipi.it

For Interviews:
Alin Albu-Schaeffer – Project Coordinator
DLR/Institute of Robotics and Mechatronics
Phone +49 8153 283689
Alin.Albu-Schaeffer@dlr.de

Antonio Bicchi
Interdepartmental Research Center "E.Piaggio"
University of Pisa
Phone + 39 050 2217 064
bicchi@ing.unipi.it

Subject: Engineering; Innovation; Safety; Technology; Seventh Framework Programme;
Country: BELGIUM; GERMANY; UNITED KINGDOM; ITALY; NETHERLANDS;
Institution: Educational Body (School, University); European Institution; Industrial Association; Large Company; Medium Company; National Contact Points; Press; Private Research; Public Research; Small Company;
Category: Innovation Service; Project; Publication;
Programme Acronym: FP7-ICT;

RCN: 18910