

Towards the Construction of a Cybernetic Organism: The Place of Mental Processes

R. Balvetti, M.L. Bargellini, M. Battaglia, A. Botticelli, G. Casadei, A. Filippini, E. Pancotti, L. Puccia, C. Zampetti, G. Bozanceff, G. Brunetti, A. Guidoni, L. Rubini, and A. Tripodo
ENEA C.R. Frascati, Roma, Italy

rosanna.balvetti@enea.it ; marialaura.bargellini@enea.it ;
marco.battaglia@enea.it ; perantonioantonio@gmail.com ;
gemma.casadei@enea.it ; alessandra.filippini@enea.it ;
emanuela.pancotti@enea.it ; loredana.puccia@enea.it ;
consuelo.zampetti@enea.it ; bozanceff@alice.it ;
gianlucabrunetti73@yahoo.it ; armandoguidoni@alice.it ;
laurarubini.ga@gmail.com ; tripodoa@alice.it

Abstract

Observing the process, that inside the Organic Biological System generates actions, we wonder: where is the place of the mind?

The paper describes the cybernetic model GIASONE, a synthetic emulator of the Biological Intelligent System, and of its mental processes. Starting from GIASONE model, several intelligent applications have been realized both as assistive products to persons, and as implementations into already existing machines, making intelligent some processes, or processes functions technologically advanced..

Keywords: Organic Biological System, cybernetic model, GIASONE

ENEA

The National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), is set up with the purpose of developing research and technology innovation as well as providing advanced services to the energy sector, notably the nuclear sector, and foster sustainable economic growth.

ENEA, scientific research and technological development are carried out by more than 1500 scientists, on at its 9 Research Centers and 5 Laboratories. ENEA is endowed with a wide range of expertise, advanced facilities and instruments put at the disposal of for the ENEA research programs and the Nation's scientific and entrepreneurial communities.

The research group carries out its activity at ENEA CR Frascati - Rome. For years, the team takes care to build a cybernetic model of Synthetic Intelligence, called GIASONE, which emulates the cognitive and physiological behavior of human. Our group, particularly, researches and develops, synthetically, all those mental processes that produce, in the environment, coherent actions in response to external inputs.

After the conference is over, the International Institute of Informatics and Systemics (IIS, www.iis.org) will post the Proceedings on the web (including their ISBN or ISSN), so any author can download and print them. Best papers will also be published in a regular issue of the Journal of systemic, Informatics, and Systemics: JSCI, <http://www.iissci.org/journal/sci/Past.asp>

In the group, different skills work together, in a synergistic way: experts in mechatronics; physicists, physiology experts and bioengineering , psychologists and experts in cognitive processes and communication in humans.

The group achieved, on the model of GIASONE, intelligent machines, which operate on the basis of models emulated and that possess the ability to develop, independently, appropriate dexterities, and applying them into the environment , in real-time and at the right time (autonomata).

The realized applications are designed both to create: intelligent modules, as assistive devices to people, for example on visual perception, and intelligent prostheses; and intelligent modules intended to technologically advanced machines, in order to make autonomous, some of their functions.

Our activities has been object of national and international projects, are described in various publications, and has been presented in several international scientific contexts.

