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### Development of an artificial simulator of the nervous system to do research into diseases

EUREKALERT

Contact: Eduardo Ros Vidal  
[eduardo@atc.ugr.es](mailto:eduardo@atc.ugr.es)  
34-657-556-034  
[University of Granada](#)

***This release is available in [Spanish](#).***

Researchers of the [University of Granada](#) have developed a simulator, so-called EDLUT ('Event driven look up table based simulator'), which permits to reproduce any part of the body's nervous system, such as the retina, the cerebellum, the hearing centres or the nervous centres. This scientific advance permits to analyze and understand the functions of the nervous centres, to do research into new pathologies and diseases or test new medicines; it will also be useful to

improve the robots and machines inspired in the human body and the nervous system.

This simulator has been developed by the research group CASIP, of the department of Architecture and Computer Technology of the University of Granada, to which professor **Eduardo Ros Vidal** (coordinator of the projects in which the simulator has been developed) belongs to.

Unlike other simulators similar to the preceding versions, EDLUT permits to simulate several hundreds of thousands neurons at the same time, instead of several tens. This is possible thanks to the fact that the simulator "compiles" the behaviour of a neuron or several types of neurons in a first stage and next, it simulates medium and great-scale neuronal systems based on these pre-compiled models.

"This fact means an essential technological advance and indisputably affects the quality of nervous simulation", says professor Eduardo Ros.

### Free downloading

Another important advantage of the simulator developed at the [University of Granada](http://www.unh.ac.uk/ugr/) is that it is free software, this is, that it can be freely downloaded through the Internet at <http://code.google.com/p/edlut/>. In this sense, EDLUT means "an innovative version with regard to other simulators such as NEURON and GENESIS", in the words of Ros, and those companies of the biotechnological sector or research centres interested in this field can use it freely and adapt it to their own needs.

This simulator developed at the UGR has been financed by different research projects such as SpikeFORCE and SENSOPAC, initiatives of the European Commission through which research groups of different fields such as neuroscience, biocomputing and electronic engineers have been working since the year 2002 in order to get that robots have similar movement skills to those of the animals, and can also perceive a great number of signs of sensors and motors in order to draw cognitive notions.

Eduardo Ros Vidal insists that SENSOPAC a project which also has the participation of DLR (German Aerospace Agency), besides several universities such as the University of Edinburgh, Erasmus, Pavia, Lund, Cambridge- "intends to be the definitive boost that technology needs to generalize the use of robots in our everyday life".

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The results of this research project have been partly published in the renowned journals *Neural Computation* and *Biosystems*.





### Reference

Prof Eduardo Ros Vidal  
Department of Architecture and Computer Technology of the [University of Granada](http://www.unh.ac.uk/ugr/)  
Tlfno: +34 958 246 128 / +34 657 556 034  
E-mail: [eduardo@atc.ugr.es](mailto:eduardo@atc.ugr.es)  
Web: <http://www.sensopac.org> | <http://atc.ugr.es/~eduardo>

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