

# CAJAL BLUE BRAIN PROJECT

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- Cajal Blue Brain project on media
- 1<sup>st</sup> International Workday
- RTD Programmes Participation
- CeSViMa Inauguration
- CeSViMa-School of Computer Science Degree

## Cajal Blue Brain Project on media

**TV Program: Informe Semanal. Report: A Journey inside the Brain.**  
February, 2010

'Informe Semanal' delves into mind secrets conducted by Spanish researchers that are currently working in the International Blue Brain Project under the initiative named 'Cajal Blue Brain Project' which is the Spanish representation in it.

Report link: <http://www.rtve.es/mediateca/videos/20100221/informe-semanal-viaje-interior-del-cerebro/701180.shtml>



**TV Program: tres14 (in 'Programas 2010-Simulación')**  
March, 2010

'Tres14' interviews Javier de Felipe, neurobiologist at the Cajal Institute (CSIC) in

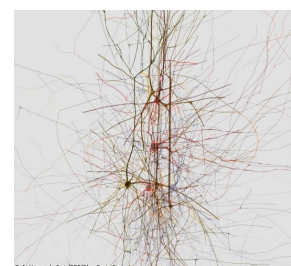
## Cajal Blue Brain Project 1<sup>st</sup> International Workday

### International Workday

On May 17<sup>th</sup> the first international workday of the Cajal Blue Brain Project was held at the UPM. The event took place at the School of Computer Science (UPM) and more than

fifty people attended. Most of them were members of the Cajal Blue Brain project but also members of the International Blue Brain participated.

Full new on page 2



Madrid, Director of the Cortical Circuits Laboratory (CTB, Universidad Politécnica de Madrid) and co-director of 'Cajal Blue Brain'. Prof. De Felipe explains how a brain can be simulated in a computer program.

Report link: <http://www.rtve.es/television/20100223/simulacion-tres14/319673.shtml>

**Madri+d: Información I+D: Análisis Madri+d**

**Cajal Blue Brain Project: Following the Cajal's Trace.**

January, 2010

One of the main aims of Neuroscience is the understanding of biological mechanisms that control mental activity of humans. Certainly, brain is the most interesting and enigmatic organ of the human being since works not only governing our organism but also controls our behavior and allows us to establish communication with other living organisms. Prof.: Javier de Felipe (Co-director of Cajal Blue Brain Project) *Laboratorio de Circuitos Corticales, CTB. Universidad Politécnica de Madrid (UPM) e Instituto Cajal, CSIC*

Report Link: <http://www.madrimasd.org/informacionIdi/analisis/analisis/analisis.asp?id=42299>



## International Cajal Blue Brain Project Workday

### International Workday

On May 17<sup>th</sup> the first international workday of the Cajal Blue Brain Project was held at the UPM. The event took place at the School of Computer Science (UPM) and more than fifty people attended. Most of them were members of the Cajal Blue Brain project but also members of the International Blue Brain participated.

The main aim of the workday was to pool the running scientific activities within the project related or shared with the international project as well as the following steps and future actions and collaborations.

The event consisted of several conferences dealing

with the main ongoing research areas in the project such as Electrophysiology, Volume & Density Data, EM Feature Extraction, Data Analysis and Visualization. These talks were followed by open discussions in which all the participants were involved.

A summary of the schedule was as follow:

#### - *Electrophysiology:*

- Methods (Prof.: Alfonso Araque)

#### - *Volume & Density Data:*

- Use of Volume and density data (Dr. Sean Hill)
- Cortical Circuits Laboratory (Prof.: Javier DeFelipe, Dr. Alberto Muñoz, Dra. Lidia

Alonso-Nanclares, Dra. Ruth Benavides-Piccione, Dr. Ángel Merchán)

- Overview of CajalBBP-Informatics (Dr. J.M. Peña)

#### - *EM Feature Extraction:*

- Use of Subcellular Data - Ultrastructure Builder (Dr. Daniel Keller)
- Microscopy Image Analysis (Dr. J.M. Peña & Dr. L. Baumela)

#### - *Data Analysis:*

- Analysis of neuromorphological data (D. Pedro L. López)

#### - *Visualization:*

- Overview Visualization (Dr. F. Schürmann)
- Visualization Efforts Spain (Prof.: Luis Pastor)

## RTD Programmes Participation and Future Challenges

Cajal Blue Brain project has submitted proposals in different national and international research programmes during this period:

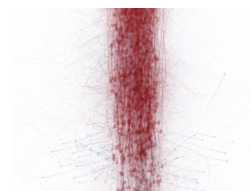
- SCOVIMI (PN 2008-2011, 2010 call), January 2010
- Human Resources: RyC (1), JdC (2), PTA (4), (PN 2008-2011 2010 call), February 2010
- TRUCO: Advanced Grant (2010 call, Ideas-VIIFP) March, 2010
- vNEUROGEN: FET Proactive Initiative (Call 5, ICT-VIIFP), April 2010
- Future challenge: Cajal Blue Brain Project is a partner within the Flagship initiative (EC) 'Simulation Brain' led by EPFL (Lausanne, Switzerland, Prof.: H. Markram (under preparation)

## Other Contributions

### PhD Thesis Defence

Theses reading during this period has been as follow:

- **D. Antonio LaTorre (UPM):** " A framework for hybrid dynamic evolutionary algorithms: multiple offspring sampling (mos)"
- **D. Pablo Toharia (URJC):** "Técnicas de recuperación por contenido de información multimedia y su aplicación a señal de vídeo no estructurada: optimizaciones en arquitecturas paralelas"
- **D. Jesús Montes Sánchez (UPM):** " Global behavior modeling: a new approach to grid autonomic management"



## Inauguration of CeSViMa

### INAUGURATION OF THE SUPERCOMPUTATION AND VISUALIZATION CENTRE IN MADRID, CESVIMA (CENTRO DE SUPERCOMPUTACIÓN Y VISUALIZACIÓN DE MADRID, CESVI-MA)

Source: Micinn

CeSViMa is the main centre in which the Cajal Blue Brain project is located. This center provides computational support for the scientific activities carried out in the project. The Minister of Science and Innovation, Cristina Garmendia, together with the President of the Universidad Politécnica de Madrid (UPM), Javier Uceda, have inaugurated the building that hosts both the Center of Integral Domotic (CeDInt) and the Center of Supercomputation and Visualization of Madrid (CeSViMa), in the 'Campus de Montegancedo' of UPM. These centers which are at the forefront of research in automation engineering and optics, ambient intelligence, supercomputing and interactive visualization, have had an investment of 11M € from MICINN, through several funding programs.



The minister has emphasized that these new research centers are two unique strengths of Montegancedo Campus of the UPM, which has reached the status of the International Campus of Excellence "due to its sectorial specialization, the adding of scientific, technological and entrepreneurial capacities that have been promoted in its environment and its global outreach.



These features, as has pointed out the Minister, have supposed to the Campus of Montegancedo a grant of 4 M € from the International Campus of Excellence Program which corresponds to the 8% of all resources allocated by the Ministry to the whole selected Campus to develop RTD activities for strengthening the International excellence.

The International Campus of Excellence Program is an initiative from the Government of Spain that seeks positioning our best universities in the international elite, promoting their educational, scientific and entrepreneurial capacities simultaneously, as well as their connection to the environment.

Cristina Garmendia has pointed out that the centers that have been opened today will play a key role in the excellence and competitiveness of the Universidad Politécnica de Madrid.

According to the Minister, 'collaboration with leading companies in their sectors such as IBM and T-Systems supports the targeting of these centers is adequate from the point of view of the productive sector, while projects such as the Cave of five screens from CeDInt or the Cajal Blue Brain Project from CeSViMa also demonstrate their utility regardless of market demands'.

According to the Minister's opinion, under this approach "the mission of knowledge transfer, so essential in the contemporary university, is assured." In addition, she noted that these centers "will have an important role in the driving of one of the fundamental missions of the university, especially under the changing of the model of production that is being addressed: the entrepreneurial mission."

More information: <http://www.micinn.es/portal/site/MICINN/>



## CeSViMa

CeSViMa is currently located in the Scientific and Technological Park of Montegancedo of the UPM. CeSViMa provides tools for high performance computing and advanced interactive visualization, providing computer support to national and international research projects within four basic areas: Astronomy, Space and Earth Sciences, Biomedicine and Health Sciences, Chemistry and Materials and Physics and Engineering. Currently, CeSViMa is integrated into the Spanish Supercomputing Network (RES), is included into the directory of Infrastructures and Laboratories Network of the Community of Madrid and is a member of the e-Ciencia Spanish Network.

Supercomputer Magerit

*Magerit* is a cluster consisting of 1204 computer nodes, of which 1036 nodes are eServer BladeCenter JS20, each one of them contains two PPC 2'2 GHz (8.8 GFlops) processors with 4 GB RAM and the rest 168 nodes are eServer BladeCenter JS21 with four PPC 2'3GHz (9.2 GFlops) processors with 8 GB RAM, implying 2,744 CPUs and 5.5TB RAM. All the nodes operate independently and with the same software configuration.

**More information: [www.cesvima.upm.es](http://www.cesvima.upm.es)**



*CeSViMa Inauguration*

*About CeSViMa*



## CONTACT DETAILS

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### CeSViMa

The Cajal Blue Brain Project is hosted by the Universidad Politécnica de Madrid (UPM) in the Scientific and Technological Park of Montegancedo Campus. Computational needs and support infrastructure required by CajalBBP are provided by two of the Research Centers of the Park, the Centro de Tecnología Biomédica (CTB) and the Centro de Supercomputación y Visualización de Madrid, CeSViMa, which is focused on the massive storage of information, high-performance computing and advanced interactive visualization.

More information: [www.cesvima.upm.es](http://www.cesvima.upm.es)

## Research Master Programme



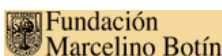
The Master's Degree in Advanced Computing for Science and Engineering (*Máster Universitario en Computación Avanzada para Ciencias e Ingenierías - CACI*) from the Universidad Politécnica de Madrid (UPM) is an interdepartmental Master that has the support of the Center for Supercomputing and Visualization Madrid (Centro de Supercomputación y Visualización de Madrid – CeSViMa, [www.cesvima.upm.es](http://www.cesvima.upm.es)). CACI program is part of the postgraduate offer of the School of Informatics of UPM.

### GENERAL INFORMATION

- Available positions: CACI offers **25 positions for new students**.  
- Application Periods: **For the 2010-11 Academic Year: June 27<sup>th</sup>, 2010.**  
[https://www.upm.es/preinscripcion\\_titulosoficiales/inscripcion.upm?idioma=I](https://www.upm.es/preinscripcion_titulosoficiales/inscripcion.upm?idioma=I)

- Communication of acceptance: **July 7<sup>th</sup>, 2010**  
- Start date of the program: **September 2<sup>nd</sup>, 2010.**  
**More information: <http://caci.cesvima.upm.es>**

## Sponsorship



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