Presentation of the group

The research group Neuroimage Analysis (NIA) of the University of Barcelona whose area expertise is the processing and analysis of neuroimaging, from the segmentation and description of images to their classification and subsequent application in supporting the diagnosis.

Their research focuses on the development and application of new methods of computer vision and machine learning for the processing and analysis of medical images of different modalities. Currently, they center on neurological images: anatomical and functional Magnetic Resonance Imaging (MRI and fMRI), and the combination of them.

Team

**Principal Researcher:** Dr. Laura Igual  
**Members:** Dr. Petia Radeva, Dr. Lluís Garrido Ostermann, Marta Núñez, Mohamed Oualid Benkarim, Sonja Simpraga, Maria del Mar Vila.

Industrial Sectors

- Biotechnology and Health Sciences sector.  
- Information and Communication Technologies sector (ICT).

Services offered

- They have developed a new method for early diagnosis of ADHD. Advances in research of this project have drawn attention in the media and broadcasting has been made in several national media. The news about the interview to the Dr. Laura Igual was broadcast by la Xarxa de Televisions de Catalunya: [http://youtu.be/_TPjklbPjY](http://youtu.be/_TPjklbPjY), and the news was published in more than 15 digital media.
- They have an ongoing framework for collaboration with Fundación IMIM in research of automatic image analysis for the study of neurological mental disorders.
- They participated in the project "Analysis of intestinal motility using advanced machine learning techniques" funded by the company Given Imaging Ltd.
- They offer support to image-based diagnostic.
- They are interested in collaboration with clinical groups, research groups or companies interested in medical imaging, neuroimaging preferably.

Activity of Research

They have participated in over 14 research competitive projects and two framework agreements for collaboration with other research centers.
Among the projects, they highlight two of interest:

- Project to develop a new method for early diagnosis of ADHD (UB-IMIM).
- Project for the characterization of obesity through automatic analysis of functional magnetic resonance imaging (UB).

**Publications**

- Laura Igual; Joan Carles Soliva; Sergio Escalera; Roger Gimeno; Oscar Vilarroya; Petia Radeva. *Automatic Brain Caudate Nuclei Segmentation and Classification in Diagnostic of Attention-Deficit/Hyperactivity Disorder*. Computerized Medical Imaging and Graphics, 36(8), pp.591-600, 2012.

**Transfer activities**

They have participated in important technology transfer processes with several hospitals (Hospital Vall d'Hebron, Hospital del Mar, Hospital Parc Taulí, Hospital Universitari Germans Trias i Pujol de Badalona) and we have published four patents with the company Given Imaging Ltd.

- **SYSTEM AND METHOD FOR IMPROVING A DISCRIMINATIVE MODEL.** Inventors: Michal Drozdzal, Petia Radeva, Jordi Vitrià, Fernando Azpiroz, Laura Igual, Santiago Seguí, Carolina Malagelada.
- **METHOD FOR AUTOMATIC CLASSIFICATION OF IN VIVO IMAGES.** Inventors: Laura Igual, Jordi Vitrià, Fernando Vilarriño, Santiago Seguí , Carolina Malagelada, Fernando Azpiroz, Petia Radeva. Patent Number; US2010046816-A1
- **SYSTEM AND METHOD FOR SYNCHRONIZING IMAGE SEQUENCES CAPTURED IN-VIVO FOR AUTOMATIC COMPARISON.** Inventors: Michal Drozdzal, Petia Radeva, Jordi Vitrià, Fernando Azpiroz, Laura Igual, Santiago Seguí, Carolina Malagelada
- **SYSTEM AND METHOD FOR AUTOMATIC DETECTION OF IN VIVO CONTRACTION VIDEO SEQUENCES.** Inventors: Michal Drozdzal, Petia Radeva, Santiago Seguí, Laura Igual, Carolina Malagelada, Fernando Azpiroz, Jordi Vitrià. US Patent App. 20,100/046,816

**Location**

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