



Instituto Universitario de Investigación
en Ingeniería de Aragón
Universidad Zaragoza

I3A: Aragon Institute for Engineering Research
Instituto de Investigación en Ingeniería de Aragón

R&D at I3A of the University of Zaragoza



2020, June

I3A of the University of Zaragoza



Universidad
Zaragoza



Placed at Campus Río Ebro (Zaragoza) next to the Engineering and Architecture Faculty (EINA)

OUR OBJECTIVES:

- The promotion of **scientific research** related to diverse fields of engineering.
- Contribute to economic development by **technology transfer** to the industrial sector.
- Support of high qualification **education**, at postgraduate and doctoral level.
- The **dissemination** of science and technology in society.

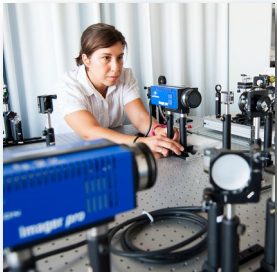
I3A inside the University of Zaragoza



University of Zaragoza: main institution

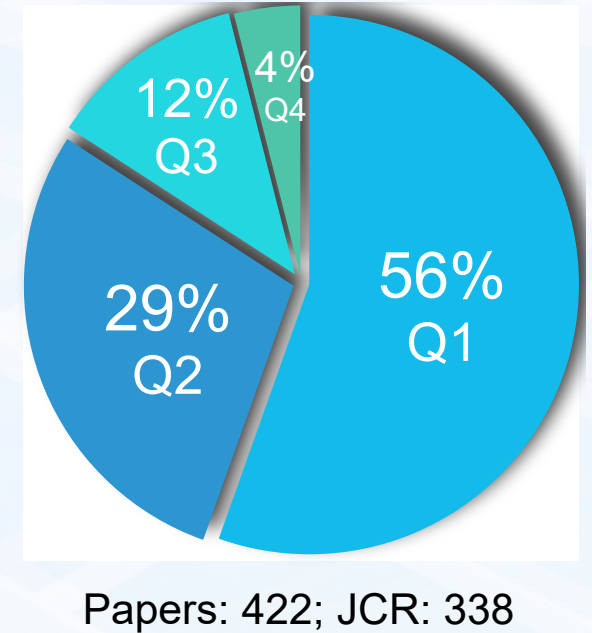
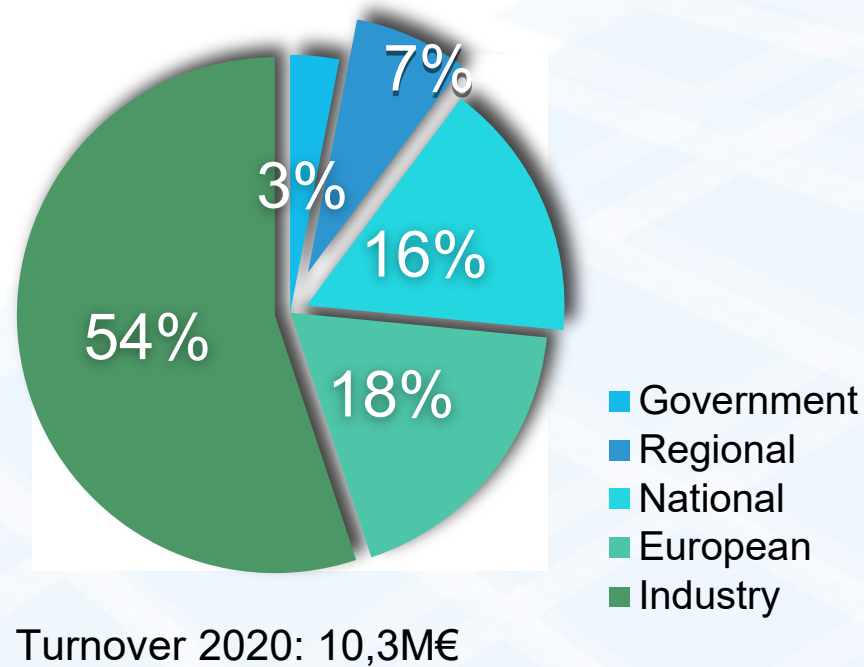
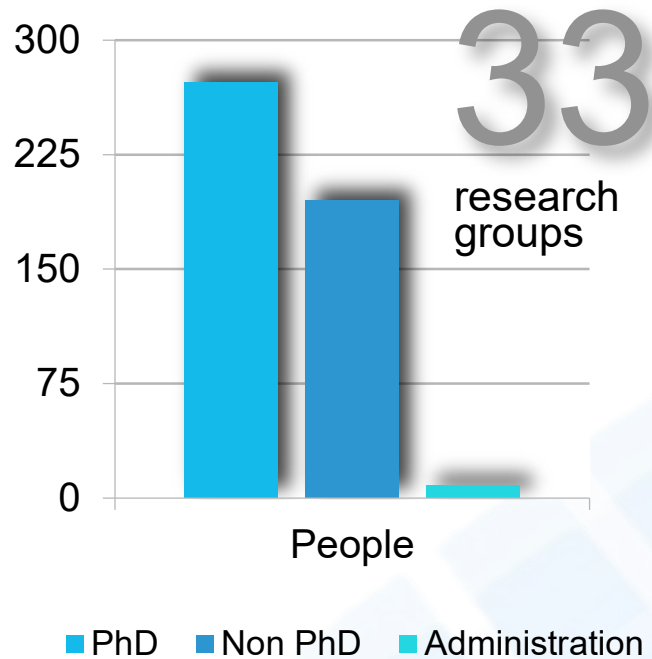


I3A: research coordination & strategy, scientific policy, labs management, technical services



Research groups: knowledge

Some figures 2020



22
New PhD thesis

100
Oral conferences

11
Invited talks

10
new registered patents

8 Cutting-edge labs



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Personal

- 272** Miembros permanentes doctores
- 201** Miembros temporales
- 29** Miembros adscritos
- 8** Profesionales de Administración y Servicios
- 4** Divisiones
- 33** Grupos de investigación

Fondos anuales

- 10.3M€** Total
- 5.4M€** Empresa
- 1.8M€** Europeo / Internacional
- 1.6M€** Nacional
- 0.7M€** Autonómico
- 0.3M€** Soporte Gobierno de Aragón
- 0.3M€** Cátedras
- 0.1M€** Cuotas y servicios

Actividad científica

- 386** Proyectos iniciados en 2020
- 699** Proyectos activos
- 338** Artículos JCR
- 56%** Primer cuartil
- 84** Artículos sin factor de impacto
- 161** Congresos
- 29** Libros y capítulos de libros
- 12** Cursos y jornadas
- 28** Conferencias por investigadores externos
- 10** Patentes concedidas

International
Knowledge Transfer

Proyección internacional

Participación en redes científicas y plataformas tecnológicas

Más de 100 colaboraciones con centros extranjeros

Interacción con la sociedad

- 1** Foro Tecnológico y Empresarial
- Más de 15** Premios y Distinciones
- Numerosas** participaciones en exposiciones, charlas, ...
- Más de 150** apariciones en medios de comunicación

Generat
knowle

+400
+30 R
+600

Intelligence
r Economy
stry 4.0
zed Medicine
gmented Reality

Research divisions

We structure our research lines into 4 strategic research divisions

ICT Division

Technologies for the knowledge society

Chemical Processes & Recycling Division

Engineering to improve the environment

Industrial Technologies Division

Technologies for the factories of the future

Biomedical Engineering Division

Engineering techniques for the improvement of health





Information & Communication Technologies Division

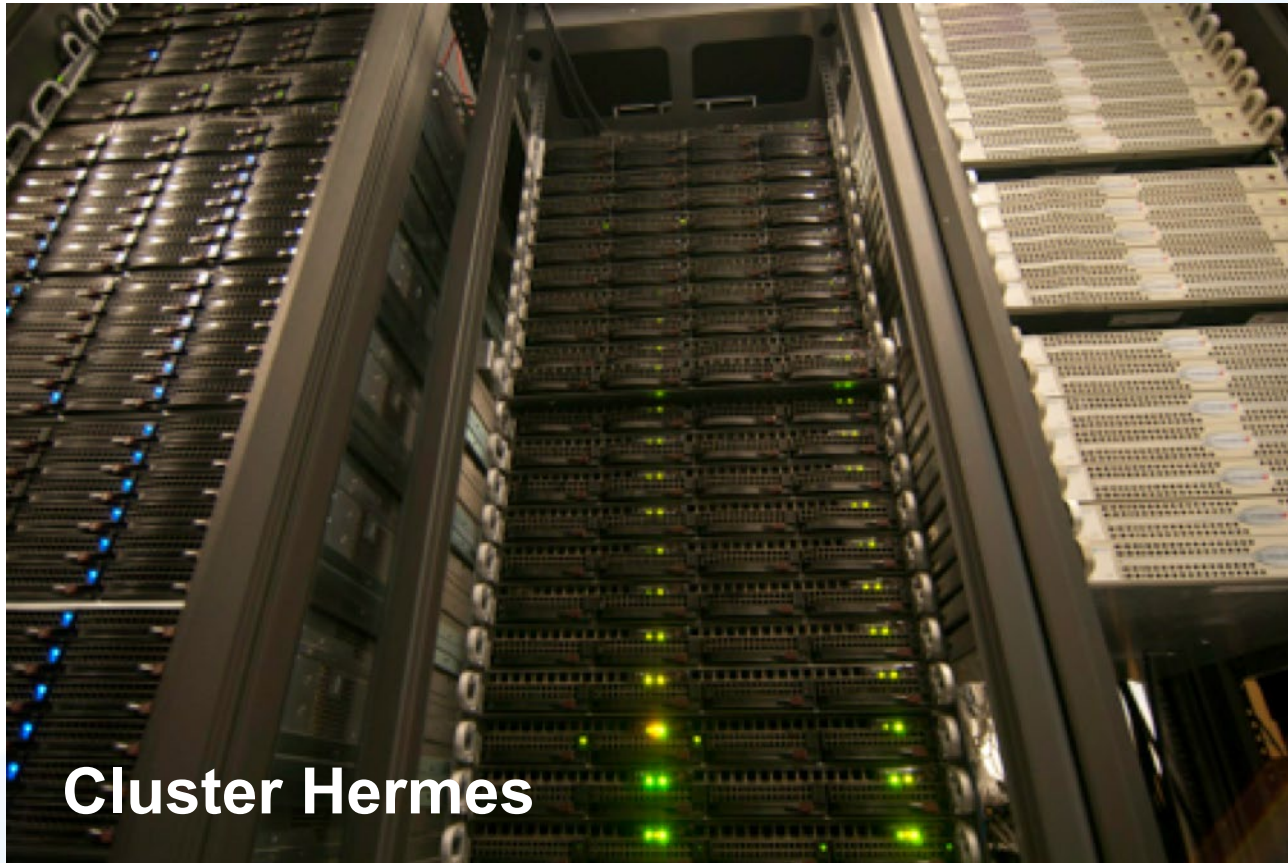
Technologies for the knowledge society

- ▶ Advanced computing technologies and smart embedded systems
- ▶ Infrastructures, technologies and services for communications
- ▶ ICT for digital content and creativity : audio-visual technologies and multimedia
- ▶ Advanced interfaces and robots
- ▶ Artificial Intelligence, Virtual and Augmented reality, Intelligent buildings

Research laboratories



U27. ICTS NANBIOSIS - CIBERBBN



Cluster Hermes



Navigation robotics

Processes & Recycling research areas



Chemical Processes & Recycling Division

Engineering to improve the environment

- ▶ Energy and environment
- ▶ Hydrogen technologies
- ▶ Recycling and waste valorization
- ▶ Packaging, food quality and safety
- ▶ Agro-food technologies
- ▶ Circular Economy

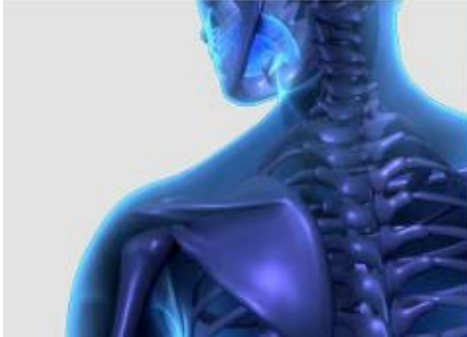
Research laboratories



Thermal engineering lab



Biomedical engineering research areas

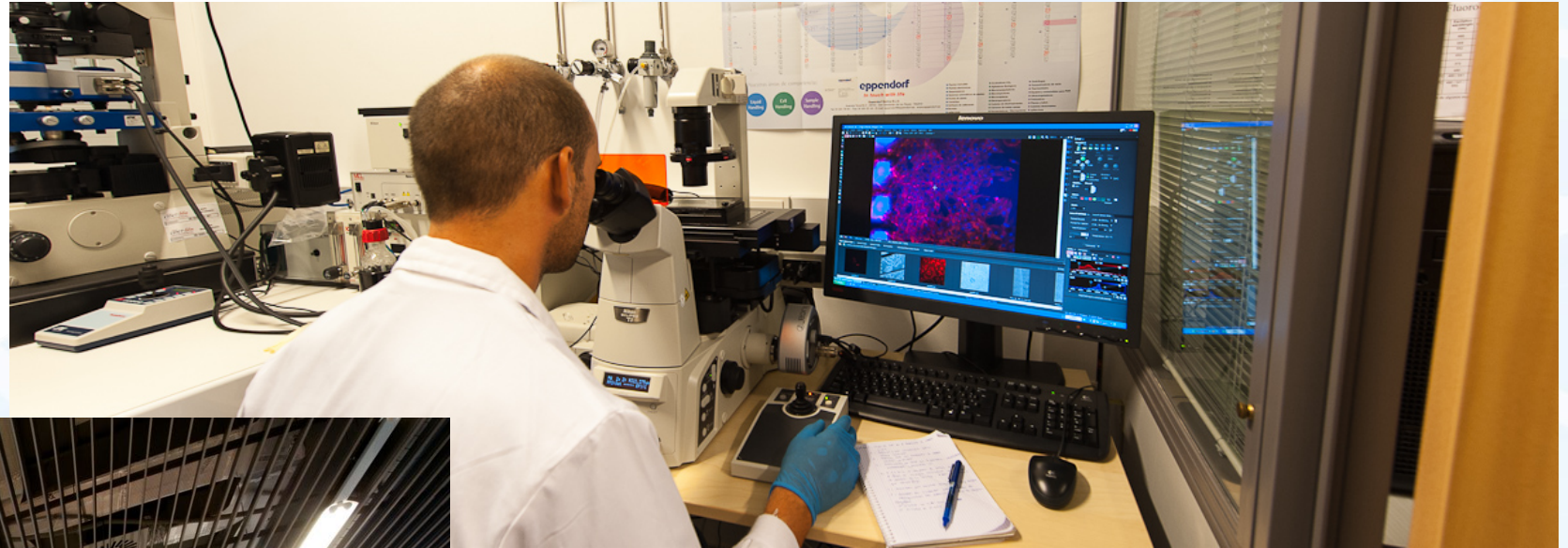
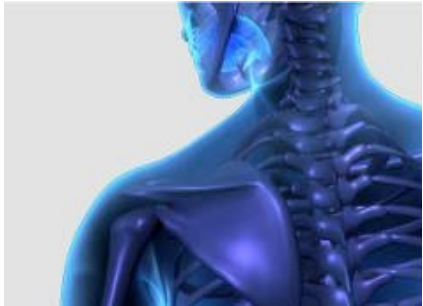


Biomedical Engineering Division

Engineering techniques for the improvement of health

- ▶ Biomaterials and tissue engineering
- ▶ Biological and biomechanical modeling
- ▶ Biomedical instrumentation and signal processing
- ▶ Prevention and care technologies
- ▶ Personalized medicine, AI

Research laboratories

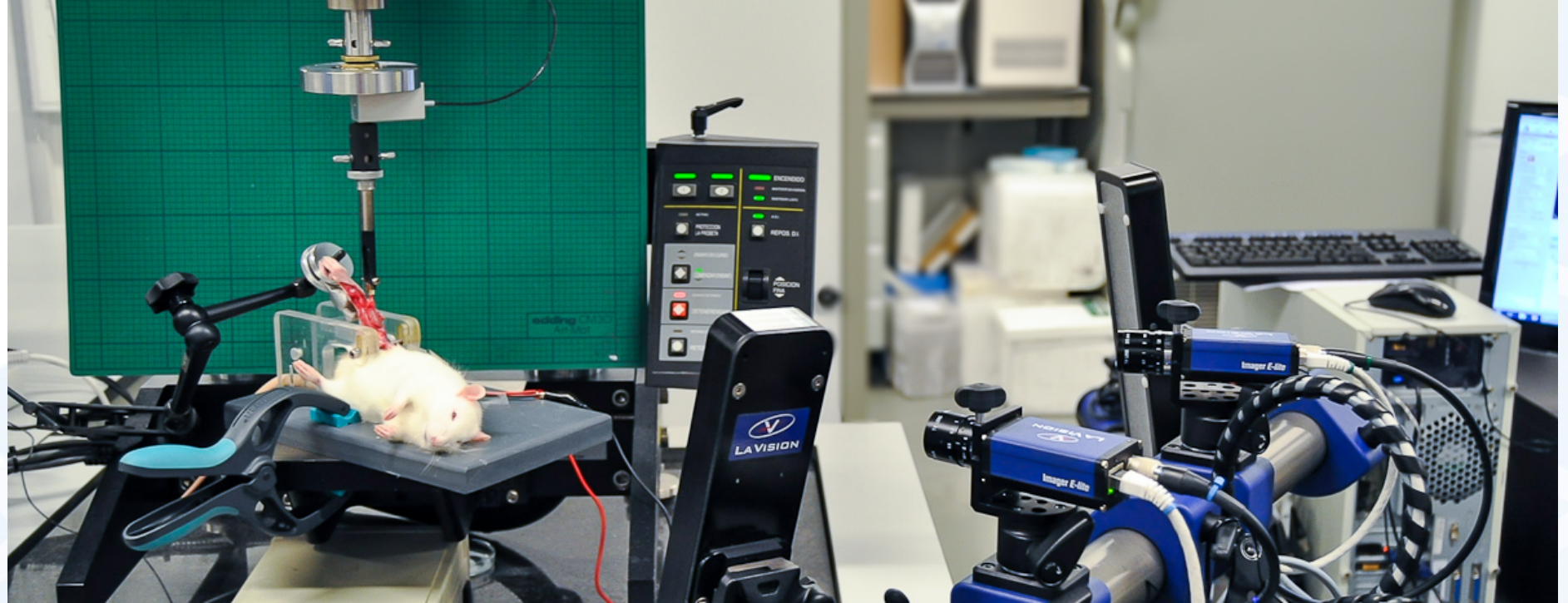
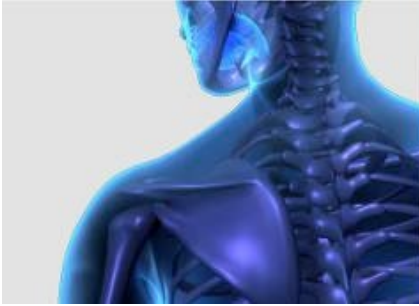


**Confocal
Microscopy**



Human Movement Laboratory

Research laboratories



**Tissue and scaffold
characterization laboratory**

Industrial Technologies research areas



Industrial Technologies Division

Technologies for SMART MANUFACTURING

- ▶ **Electronics & photonics**
- ▶ **Metrology & advanced fabrication**
- ▶ **Automotive**
- ▶ **Logistics**
- ▶ **Advanced materials & structural design**
- ▶ **Industry 4.0, Fotonics, Home Appliances**

Research laboratories





Smart Cities

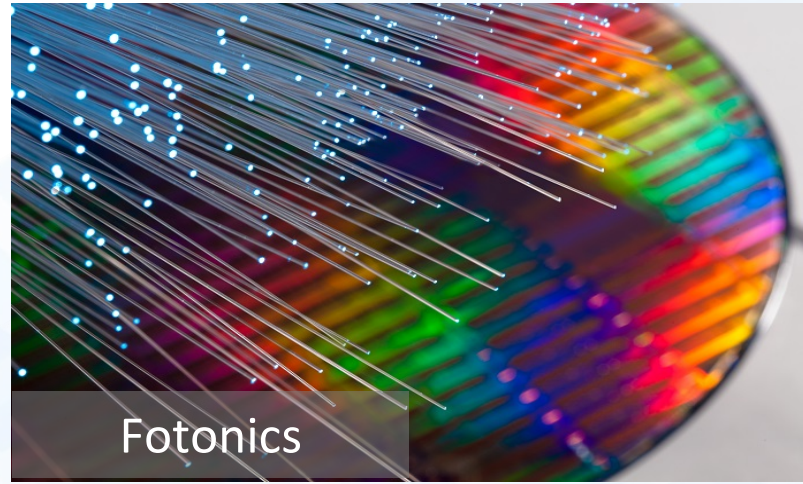
Cutting-edge Labs

We have recently created 8 cutting-edge labs

Home Appliance Technologies



Artificial Intelligence



Fotonics



Circular Economy



Industry 4.0



Personalized Medicine



Virtual & Augmented Reality

Education and Skills

Biomedical Engineering
Master & PhD program



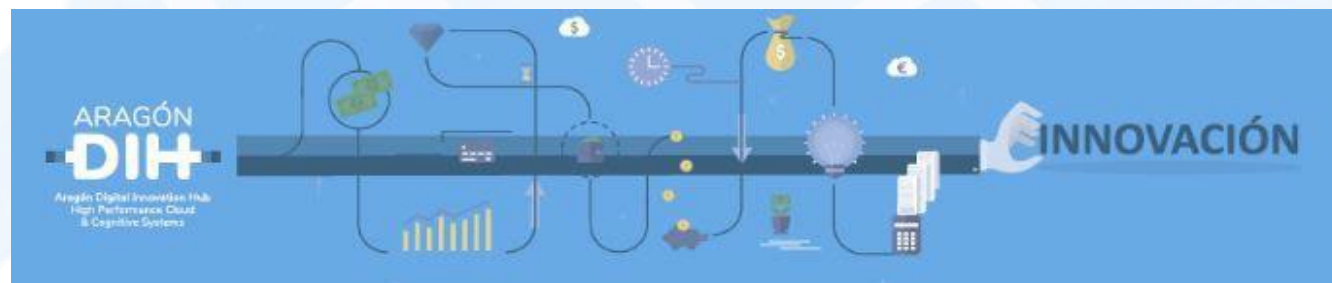
Expert on Digital Transformation &
Smart Manufacturing Program



Young Researchers' Day



Support to Digital Transformation



Dissemination



Pint of Science



School Visits & Open days



Photonics Education



Exhibitions

ion
ility



Our Institute holds 3 ERC grants in
biomedical engineering and ICT

ERC grants

Key Projects

INSILICO-CELL



José Manuel García Aznar

MODELAGE



Esther Pueyo

CHAMELEON



Diego Gutiérrez

Success case: technology transfer

B/S/H



8 different groups from I3A work in collaboration with the company B/S/H

The University of Zaragoza is the world second institution in research related to home appliances according to the Thomson Reuters World Innovation Report 2017

Success case: social challenges

Assistive Technologies



Several groups from I3A work in the development of new technologies applied to cognitive & physical disabled and elderly people



Why I3A can face complex challenges?

FACT 1

We have Good Research Teams in many fields of engineering ranging from chemical engineering to software engineering.



FACT 2

There are many evidences about the quality of the research teams. It can be difficult to find a Research Institution with a good level in the following large list of indicators: Publications, Research Projects, International visibility, financial support, patents, industrial impact.

FACT 3

The added value of I3A is the **PLASTICITY**, understood as the ability to adapt this line of action to the stated **CHALLENGE**



FACT 4

Small flexible groups can face these complex/big problems through a structure such as I3A



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