



The European Coordination Hub for Open Robotics Development



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## **ECHORD++ Experiments Call II Kick-Off**

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Experiment Presentations

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Palma de Mallorca, Spain

3 May, 2016





The European Coordination Hub for Open Robotics Development



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**HOMEREHAB**

Development of Robotic Technology for  
Post-Stroke Home Tele-Rehabilitation

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**UMH – Universidad Miguel Hernández**

CEIT – Centro de Estudios e Investigaciones Técnicas

INSTEAD – Instead Technologies

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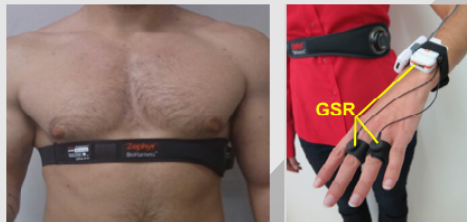
Nicolás García-Aracil - UMH



# Brief Experiment Description

HOMEREHAB aims at developing a new tele-rehabilitation robotic system for delivering therapy to stroke patients at home.

- A proof-of-concept prototype will be developed based on the RoboTherapist 2D robotic system manufactured by Instead Technologies.
- HOMEREHAB will monitor the patient's physiological state at home and develop adaptive therapies based on such information.



 **ROBOTHERAPIST2D**

- The system will be evaluated by patients. A two week visit to Peccioli RIF is planned.



## Novelty/Objectives

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The main objective of HOMEREHAB is the integration of robotic and biomechatronic technologies for home rehabilitation services.

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- Convert RoboTherapist 2D system into a home rehabilitation robot without reducing therapy performance.
- Develop an artificial learning system to estimate user's intentions and physiological state.
- Develop a novel adaptive control system able to provide individualized therapy.
- Validate the system with patients.

# Impact

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**HOMEREHAB will get significant SOCIAL, ECONOMIC and TECHNOLOGICAL impacts.**

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- Social:
  - It will assist in the individualization of rehabilitation treatment at home
  - Each stroke patient will receive the right and best form of rehabilitation
- Technological:
  - It will research on novel patient monitoring techniques and adaptive controllers for in-home robotic rehabilitation systems
- Economic:
  - A commercial HOMEREHAB system will be developed for INSTEAD.
  - It is expected to provide INSTEAD with a growth of 15% in its market share.