# DANIEL HERNÁNDEZ GARCÍA

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## EXPERIENCE

**School of Computing, Electronics and Mathematics, University of Plymouth** April 2017 - Present
*Associate Lecturer/Demonstrator* *Plymouth, UK*

· Demonstrator, Marker, and Associate Lecturer for different modules:

ROCO224 Introduction to Robotics (17/SP/SB/M)

PRCO304 Computing Project (17/SP/SB/M)

MECH533 Robotics and Control (17/AU/SB/M)

SOFT152 Software Engineering (17/AU/SD/M)

AINT352 Computational Intelligence (17/AU/SB/M)

**Centre for Robotics and Neural Systems, University of Plymouth** April 2017 - Present
*Post-Doctoral Research Fellow* *Plymouth, UK*

· Post-Doctoral Research Fellow in Human-Robot Interaction.

Research on Human-Robot Interaction in social robots for education and therapy; developing Robot-Enhanced Therapy (RET) and child-friendly tutor robots for second language learning in the scope of the DREAM and L2TOR projects.

Study the potential of Deep Learning for social robotics. Can Deep Learning be used to have access to the social world, allowing the robot to make better decisions.

**IIT, Istituto Italiano di Tecnologia** March 2017
*Affiliated Researcher - iCub* *Genoa, IT*

· Affiliated Researcher in the iCub lab. Working with the event-driven iCub under Dr. Chiara Bartolozzi.

Integrating spiking networks and an embodied cognitive robot into a neuromorphic system, using asynchronous event-based vision sensors and the SpiNNaker spiking neural processor.

**Centre for Robotics and Neural Systems, University of Plymouth** April 2016 - March 2017
*Post-Doctoral Research Fellow* *Plymouth, UK*

· Post-Doctoral Research Fellow in Cognitive and Neuro-Robotics (BABEL Project).

Research in real-time implementations of brain language models within the SpiNNaker neuromorphic architecture on the humanoid robot iCub.

**RoboticsLab, Universidad Carlos III de Madrid** October 2008 - December 2014
*Research Assistant* *Madrid, ES*

· Research assistant and PhD candidate.

Research activities in the fields of Humanoid Robots, Human-Robot Interaction, Human-Robot Collaboration, Learning Algorithms, Learning from Demonstration, Cognitive Systems and Robot Control.

· Demonstrator for various courses for the Department of Systems Engineering and Automation.

15694 Industrial Informatics (Informtica Industrial)

14026 Control Engineering I (Ingeniera de Control I)

14032 Control Engineering II (Ingeniera de Control I)

**LASA, École Polytechnique Fédérale de Lausanne** March 2010 - June 2010
*Visiting Researcher* *Lausanne, CH*

· Visiting researcher at Learning Algorithms and Systems Laboratory (LASA) under Dr. Aude Billard.

Worked on learning within the framework of programming by demonstration, encoding robot's end-effector trajectories with dynamical systems. Developing interfaces for natural human-machine type of interactions. Implemented 3 controllers learning the position and orientation of the end-effector in a manipulation task.

**Sartenejas Technology Park** February 2008 - August 2008
*Research Engineer* *Caracas, VE*

· R&D traffic engineering and intelligent transport systems (ITS) project researcher.

**EINPHOS** September 2007 - August 2008
*Development Engineer* *Caracas, VE*

· Development Engineer for the Automatization of the Theatrical Rigging System of the Ros Reyna Hall at The Teresa Carreo Cultural Complex, Caracas, Venezuela.

**IAI, Spanish National Research Council (CSIC)** August 2006 - December 2006
*Visiting Researcher* *Madrid, ES*

· Visiting researcher at Instituto de Automática Industrial (IAI) under Prof. Dr. Manuel Armada.

Design and Implementation of HumanRobot Interface for the REST Robot.

**Electronics and Circuits Department, Universidad Simón Bolívar** September 2005 - March 2006
*Undergraduate Teacher Assistant* *Caracas, VE*

· Undergraduate Teaching Assistant for the Electronics and Circuits Department.

EC2721 Computer Architectures I (Arquitectura del Computador I).

EC3731 Computer Architectures II (Arquitectura del Computador II).

## EDUCATION

**Universidad Carlos III de Madrid, Spain** *2011 - 2014*
Ph.D. in Electrical Engineering, Electronics and Automation
Ph.D. thesis: *Robot Skills Adaptation of Learned Models with Tasks Constraints*

**Universidad Carlos III de Madrid, Spain** *2008 - 2010*
Master in Robotics and Automation
Master thesis: *Human-Robot Remote Collaboration and Learning of Skills*

**Universidad Simón Bolívar, Venezuela** *2001 - 2007*
Degree in Electronic Engineering

## TEACHING EXPERIENCE

### University Teaching: Modules shared with colleagues

· 2018 - **ROCO224 Introduction to Robotics (17/SP/SB/M)** Associate Lecturer.

· 2017 - **MECH533 Robotics and Control (17/AU/SB/M)** Demonstrator.

### Teaching in other Academic Institutions

· 2012 - **Control Engineering I (14026)** (Bachelor's Degree in Electrical Power Engineering), Universidad Carlos III de Madrid. Demonstrator.

· 2011 - **Control Engineering II (14032)** (Bachelor's Degree in Electrical Power Engineering), Universidad Carlos III de Madrid. Demonstrator.

· 2011-12 - **Industrial Informatics (15694)** (Bachelor's in Industrial Technology Engineering), Universidad Carlos III de Madrid. Demonstrator.

· 2006 - **Computer Architectures II (EC3731)** (Bachelor's in Electronic Engineering), Universidad Simon Bolivar. Undergraduate Teaching Assistant.

· 2005 - **Computer Architectures I (EC2721)** (Bachelor's in Electronic Engineering), Universidad Simon Bolivar. Undergraduate Teaching Assistant.

### Project/Thesis Supervisions

· 2010-2014 Final year projects for BSc in Electrical Power Engineering and Industrial Technology Engineering. Universidad Carlos III de Madrid.

## AWARDS

· **4-year Research Scholarship ("Formacin de Personal Investigador" (FPI)).** Ministerio de Economía y Competitividad. Spanish Government. 2008-2012 Euro 70.000

## PUBLICATIONS

### Publications in Journals

- **Daniel Hernández García**; Samantha Adams; Alex Rast; Thomas Wennekers; Steve Furber; Angelo Cangelosi. **Visual Attention and Object Naming in Humanoid Robots Using a Bio-Inspired Spiking Neural Network.** *Robotics and Autonomous Systems.* Accepted.
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **A Use Case of an Adaptive Cognitive Architecture for the Operation of Humanoid Robots in Real Environments.** *International Journal of Advanced Robotic Systems.* December 2016.
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **Task Oriented Control of a Humanoid Robot through the Implementation of a Cognitive Architecture.** *Journal of Intelligent and Robotic Systems.* June 2016.
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **Adaptation of Robot Skills Models to New Task Contraints.** *International Journal of Humanoid Robotics.* Vol 12. Issue 3. September 2015.
- Miguel González-Fierro; **Daniel Hernández García**; Thrishantha Nanayakkara; Carlos Balaguer. **Behavior Sequencing Based on Demonstrations - a Case of a Humanoid Opening a Door While Walking.** *Advanced Robotics.* February 2015.

### Conference and Workshop Contributions

- Ricardo de Azambuja; **Daniel Hernández García**; Martin Stoelen; Angelo Cangelosi. **Neuro-robotic Simulations on the Degradation of Multiple Column Liquid State Machines.** *International Joint Conference on Neural Networks (IJCNN 2017).* Anchorage, Alaska (USA) May 14-19, 2017
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **Generation and Adaptation of Robot Skills Models.** *IEEE-RAS International Conference on Humanoid Robots.* Madird (Spain). November 18-20, 2014.
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **Generation of New Robot Skills from Learned Skills.** *19th World Congress of the International Federation of Automatic Control.* Cape Town (South Africa). August 24-29, 2014.
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **Knowledge Base Representation for Humanoid Robot Skills.** *19th World Congress of the International Federation of Automatic Control.* Cape Town (South Africa). August 24-29, 2014.
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **Framework for Learning and Adaptation of Humanoid Robot Skills to Task Constraints.** *ROBOT2013: First Iberian Robotics Conference.* Madrid (Spain). November 28-29, 2013.
- **Daniel Hernández García**; Concepción A. Monje; Carlos Balaguer. **Cognitive Model Framework for Learning and Adaptation of Robot Skills to Task Constraints.** *RoboCity2030 12th Workshop: Robótica Cognitiva.* Madrid (Spain). July 04, 2013.
- David Herrero; Paolo Pierro; **Daniel Hernández García**; Miguel González-Fierro; Carlos Balaguer. **Perception System for Working with Humanoid Robots in Unstructured Collaborative Scenarios.** *2012 International IEEE Intelligent Vehicles Symposium. Workshops V Perception in Robotics.* Alcalá de Henares (Spain). July 03, 2012.

· Paolo Pierro; **Daniel Hernández García**; Miguel González-Fierro; Carlos Balaguer; Lorenzo Blasi; Andrea Milani. **A human-humanoid interface for collaborative tasks.** *Second workshop for young researchers on Human-friendly robotics.* Sestri Levante (Italy). December 03, 2009.

· Paolo Pierro; **Daniel Hernández García**; Miguel González-Fierro; Lorenzo Blasi; Andrea Milani; Carlos Balaguer. **Humanoid teleoperation system for space environments.** *14th International Conference on Advanced Robotics (ICAR '09).* Munich (Germany). June 24-29, 2009.

## INTERNATIONAL CONFERENCE AND WORKSHOP ORGANIZATION/CHAIR

· Workshop Co-Organizer. **Social Robots in Therapy: Focusing on Autonomy and Ethical Challenges**, 13th ACM / IEEE International Conference on Human-Robot Interaction (HRI 2018). Chicago, IL, USA. March 5.