

# DANIEL HERNÁNDEZ GARCÍA

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[https://scholar.google.co.uk/citations?hl=en&user=WUy\\_3DEAAAAJ](https://scholar.google.co.uk/citations?hl=en&user=WUy_3DEAAAAJ)

## EXPERIENCE

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### **Interaction Lab, School of Mathematical and Computer Sciences, Heriot-Watt University**

April 2020 - Present

*Research Associate*

*Edinburgh, UK*

- Post-Doctoral Research Associate.

Research on Human-Robot Interaction in social robots for elderly care in the scope of the H2020 SPRING project.

### **Cognitive Robotics Lab, Department of Computer Science, University of Manchester**

January 2019 - March 2020

*Research Associate*

*Manchester, UK*

- Post-Doctoral Research Associate.

Research on Human-Robot Interaction in social robots for elderly care in the scope of the H2020 MoveCare projects.

### **Centre for Robotics and Neural Systems, University of Plymouth**

April 2017 - December

2018

*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.

### **School of Computing, Electronics and Mathematics, University of Plymouth**

September

2017 - September 2018

*Associate Lecturer/Demonstrator*

*Plymouth, UK*

- Hourly Paid Demonstrator, Marker, and Lecturer for different modules:

ROCO224 Introduction to Robotics

PRCO304 Computing Project

MECH533 Robotics and Control

SOFT152 Software Engineering

AIN352 Computational Intelligence

### **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

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<b>Universidad Carlos III de Madrid, Spain</b> Ph.D. in Electrical Engineering, Electronics and Automation Ph.D. thesis: <i>Robot Skills Adaptation of Learned Models with Tasks Constraints</i>	<i>2011 - 2014</i>
<b>Universidad Carlos III de Madrid, Spain</b> Master in Robotics and Automation Master thesis: <i>Human-Robot Remote Collaboration and Learning of Skills</i>	<i>2008 - 2010</i>
<b>Universidad Simón Bolívar, Venezuela</b> Degree in Electronic Engineering	<i>2001 - 2007</i>

## TEACHING EXPERIENCE

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### Teaching Experience:

- **F21AS Advanced Software Engineering** (MSc)  
Heriot-Watt University. Lecturer. 2021
- **COMP34212 Cognitive Robotics** (BSc Computer Science)  
University of Manchester. Lab Demonstrator. 2019
- **ROCO224 Introduction to Robotics** (MEng Robotics)  
University of Plymouth. Lecturer. 2018
- **PRCO304 Computing Project** (BSc Computing)  
University of Plymouth. Marker. 2017
- **MECH533 Robotics and Control** (MSc Robotics Technology)  
University of Plymouth. Lab Demonstrator. 2017
- **SOFT152 Software Engineering** (BSc Computing)  
University of Plymouth. Marker. 2017
- **AINT352 Computational Intelligence** (BSc Computing)  
University of Plymouth. Lecturer. 2017
- **Control Engineering I (14026)** (Bsc Electrical Power Engineering)  
Universidad Carlos III de Madrid. Lab Demonstrator. 2012
- **Control Engineering II (14032)** (Bsc Electrical Power Engineering)  
Universidad Carlos III de Madrid. Lab Demonstrator. 2011
- **Industrial Informatics (15694)** (Bsc Industrial Technology Engineering)  
Universidad Carlos III de Madrid. Lab Demonstrator. 2011-12
- **Computer Architectures II (EC3731)** (Bsc Electronic Engineering)  
Universidad Simon Bolivar. Undergraduate Teaching Assistant. 2006
- **Computer Architectures I (EC2721)** (Bsc Electronic Engineering)  
Universidad Simon Bolivar. Undergraduate Teaching Assistant. 2005

### Project/Thesis Supervisions

- Miss Hazel Taylor. *Human Robot Interaction for Nuclear Robotics*. The University of Manchester.  
Ph.D.-Student Co-Supervisor. (2019-)

## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	C/C++, C#, Python, Ruby, Java, Matlab, R
<b>WEB &amp; APIs</b>	HTML, CSS, Javascript, XML, Django, Ruby on Rails
<b>Development Tools</b>	Git, CMake, Qt, Visual Studio, Eclipse, Android Studio, Unity3D
<b>Robotic Frameworks</b>	ROS, Yet Another Robot Platform (YARP), OpenRAVE, Gazebo
<b>Robotic Platforms</b>	iCub, Pepper, NAO, BAXTER, HOAP, Robonova, REST
<b>Neural Networks Tools</b>	Tensorflow, Keras, PyTorch, NENGO, PyNN, SpiNNaker.
<b>Languages</b>	English, Spanish

## GRANTS & AWARDS

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

### Publications in Journals

- Yaniv Hanoch; Francesco Arvizzigno; **Daniel Hernández García**; Sue Denham; Tony Belpaeme; Michaela Gummerum. **The Robot Made Me Do It: HumanRobot Interaction and Risk-Taking Behavior.** *Cyberpsychology, Behavior, and Social Networking*. November 2020.
- Erik Billing; Tony Belpaeme; Haibin Cai; Hoang-Long Cao; Anamaria Ciocan; Cristina Costescu; Daniel David; Robert Homewood; **Daniel Hernández García**; Pablo Gmez Esteban; Honghai Liu; Vipul Nair; Silviu Matu; Alexandre Mazel; Mihaela Selescu; Emmanuel Senft; Serge Thill; Bram Vanderborght; David Vernon; Tom Ziemke. **The DREAM Dataset: Supporting a data-driven study of autism spectrum disorder and robot enhanced therapy.** *PLOS ONE 15(8)*. August 2020.
- Hoang-Long Cao; Pablo Gomez Esteban; Madeleine Bartlett; Paul Edward Baxter; Tony Belpaeme; Erik Alexander Billing; Haibin CAI; Mark Coeckelbergh; Cristina Costescu; Daniel David; Albert De Beir; **Daniel Hernández García**; James Kennedy; Honghai Liu; Silviu Matu; Alexandre Mazel; Amit Kumar Pandey; Kathleen Richardson; Emmanuel Senft; Serge Thill; Greet Van de Perre; Bram Vanderborght; David Vernon; Kutoma Wakanuma; Hui Yu; Xiaolong Zhou; Tom Ziemke. **Robot-Enhanced Therapy: Development and Validation of Supervised Autonomous Robotic System for Autism Spectrum Disorders Therapy.** *IEEE Robotics & Automation Magazine*. vol. 26, no. 2, pp. 49-58, June 2019.
- **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*. March 2018.
- **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 Constraints.** *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

- Nancie Gunson; Weronika Sieińska; Yanchao Yu; **Daniel Hernández García**; Jose L. Part; Christian Dondrup; Oliver Lemon. **Coronabot: A Conversational AI System for Tackling Misinformation 2021 ACM International Conference on Information Technology for Social Good (GoodIT 2021).** Virtual. September 09-11, 2021.
- Jose L. Part; **Daniel Hernández García**; Yanchao Yu; Nancie Gunson; Christian Dondrup; Oliver Lemon. **Towards Visual Dialogue for HRI In Companion of the 2021 ACM/IEEE International Conference on Human-Robot Interaction (HRI '21 Companion).** Virtual. March 09-11, 2021.

- **Daniel Hernández García**; Yanchao Yu; Weronika Sieińska; Jose L. Part; Nancie Gunson; Oliver Lemon; Christian Dondrup. **Explainable Representations of the Social State: A Model for Social Human-Robot Interactions** *AI-HRI AAAI Fall Symposium Series Virtual*. November 13-14, 2020.
- Marta Romeo; **Daniel Hernández García**; Ray Jones; Angelo Cangelosi. **Deploying a Deep Learning Agent for HRI with Potential end-users at Multiple Sheltered Housing Sites** *HAI 2019: 7th International Conference on Human-Agent Interaction*. Kyoto, Japan. October 06-10, 2019.
- Paul Vogt; Rianne van den Berghe; Mirjam de Haas; Laura Hoffmann; Junko Kanero; Ezgi Mamus; Jean-Marc Montanier; Cansu Oran; Ora Oudgenoeg-Paz; **Daniel Hernández García**; Fotios Papadopoulos; Thorsten Schodde; Josje Verhagen; Christopher D. Wallbridge; Bram Willemsen; Jan de Wit; Tony Belpaeme; Tilbe Gksun; Stefan Kopp; Emiel Krahmer; Aylin C. Kntay; Paul Lese-man; Amit Kumar Pandey. **Second Language Tutoring using Social Robots. A Large-Scale Study.** *IEEE/ACM International Conference on Human-Robot Interaction 2019*. Daegu, Korea.
- Madeleine Bartlett; **Daniel Hernández García**; Serge Thill; Tony Belpaeme. **Recognising Human Internal States: A Conceptor-Based Approach.** *Workshop at IEEE/ACM International Conference on Human-Robot Interaction 2019*. Daegu, Korea. March 11.
- Christopher Wallbridge; Rianne van den Berghe; **Daniel Hernández García**; Junko Kanero; Sverin Lemaignan; Tony Belpaeme. **Using a Robot Peer to Encourage the Production of Spatial Concepts in a Second Language.** *HAI 2018: Human-Agent Interaction 2018*. Southampton (UK) December 15-18, 2018.
- 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*. Madrid (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.

## ORGANIZATION/CHAIR/EDITORIAL BOARD FOR CONFERENCES, WORKSHOPS AND JOURNALS

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- Co-Organizer. **Artificial Intelligence (AI) for Human-Robot Interaction (HRI) Symposium**, (AI-HRI 2021), AAAI 2021 FALL SYMPOSIUM SERIES. Online, November 4-6, 2021.
- Workshop Co-Organizer. **Social Robots in Therapy and Care**, 14th ACM / IEEE International Conference on Human-Robot Interaction (HRI 2019). Daegu, Korea. March 11.
- 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.