

DANIEL HERNÁNDEZ GARCÍA

(0044) · 7990 · 318068 ◊ d.hernandez_garcia@hw.ac.uk

Edinburgh Campus, EMB Building. ◊ EH14 4AS Edinburgh, UK

https://scholar.google.co.uk/citations?hl=en&user=WUy_3DEAAAAJ

EXPERIENCE

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

AINT352 Computational Intelligence

IIT, Istituto Italiano di Tecnologia

Affiliated Researcher - iCub

March 2017

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

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

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

GRANTS & 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

- Marta Romeo; **Daniel Hernández García**; Ting Han; Angelo Cangelosi; Kristiina Jokinen. **Predicting Apparent Personality From Body Language: Benchmarking Deep Learning Architectures for Adaptive Social Human-Robot Interaction.** *Advanced Robotics*. 2021. [Accepted]
- Yaniv Hanoach; 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

- 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.