

Curriculum vitae of Daniele Caligiore

PERSONAL INFORMATION

Family name, First name: Caligiore, Daniele

Date of birth: 27/07/1976

Place of birth: Siracusa

Nationality: Italian

URL for web site: <http://www.istc.cnr.it/it/people/daniele-caligiore>

EDUCATION

2011 (13/04): PhD in Biomedical Engineering, University Campus Bio-Medico, Italy

2010 (11/01-15/06): Visiting Research Assistant, University of Plymouth, UK

2008 (31/08-06/09): Waseda-SSSA-KIST International Summer School “Fundamentals of Biorobotics”

2003 (10/07): Control engineering abilitation, University of Catania, Italy

2003 (24/01): Master Degree in Electronics Engineering (Robotics), University of Catania, Italy

CURRENT POSITION

2011-: Researcher (from December 2016 with a permanent position)

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

PREVIOUS POSITIONS

2008-2010: PhD Student

Institution: University Campus Bio-Medico, Italy

2007-2011: Research fellow

Institution: Department of Psychology, University of Bologna, Italy

2006-2009: Research assistant

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

2005-2006: Research assistant volunteer

Institution: Computing and Modelling Unit, ENEA Research Centre, Italy

2004-2005: Research assistant volunteer

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

FELLOWSHIPS AND AWARDS

24 months research grant (March 2015-March 2017):

Topic: Building computational models to study Parkinson’s disease

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

Funds: EU project IM-CLeVeR - Intrinsically Motivated Cumulative Learning Versatile Robots

34 months post-doc research grant (May 2012-March 2015):

Topic: Development of embodied and bio-constrained computational models of motor learning based on intrinsic and extrinsic motivations

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

Funds: EU project IM-CLeVeR - Intrinsically Motivated Cumulative Learning Versatile Robots

14 months post-doc research grant (March 2011-May 2012):

Topic: Development of embodied and bio-constrained computational models of motor learning

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

Funds: EU project IM-CLeVeR - Intrinsically Motivated Cumulative Learning Versatile Robots

36 months research grant (March 2008-March 2011):

Topic: Development of computational models to reproduce by computer simulations cognitive neuroscience experiments

Institution: Department of Psychology, University of Bologna, Italy

Funds: EU project ROSSI - Emergence of communication in Robots through Sensorimotor and Social Interaction

6 months research grant (January 2010-June 2010):

Topic: Development of computational models to study affordances processing in Parkinson's

Institution: School of Psychology and Centre for Robotics and Neural Systems, University of Plymouth, UK

Funds: EU project ITALK - Integration and Transfer of Action and Language Knowledge in Robots and UK project VALUE - Vision, Action, and Language Unified by Embodiment

8 months research grant (December 2008-August 2009):

Topic: Development of computational models to reproduce cognitive neuroscience experiments in humans and non-human primates, analyzing neural activity and movement time

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

Funds: EU project IM-CLeVeR - Intrinsically Motivated Cumulative Learning Versatile Robots

4 months research grant (November 2007-March 2008):

Topic: Programming of kinematic experiments and Development of computational model to study grasping behaviours

Institution: Department of Psychology, University of Bologna, Italy

Funds: Department of Psychology, University of Bologna, Italy

13 months research grant (September 2006-October 2007):

Topic: Development of computational model to study reaching/grasping behaviours in humans

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

Funds: EU project MindRaces: from Reactive to Anticipatory Cognitive Embodied Systems

10 months research grant (October 2005-August 2006):

Topic: Development of computational model to study reaching/grasping behaviours in humans

Institution: Institute of Cognitive Sciences and Technologies, National Research Council, Italy

Funds: EU project MindRaces: from Reactive to Anticipatory Cognitive Embodied Systems

National prizes (2015)

Prize: Special prize “Intesa San Paolo” StartUp Initiative Boot Camp for Entrepreneurs” for the +me system described in Özcan, B., Caligiore, D., Sperati, V., Moretta, T., & Baldassarre, G. (2016). Transitional Wearable Companions: A Novel Concept of Soft Interactive Social Robots to Improve Social Skills in Children with Autism Spectrum Disorder. *International Journal of Social Robotics*, 8(4), 471-481.

Institution: Start Cup Lazio 2015

Prize: “Best Project for Social Innovation” for the +me system

Institution: Start Cup Lazio 2015

Invited speaker travel and accommodation grant (2014)

Topic: invited speaker for a talk titled “Subcortical involvement in action understanding”

Institution: University of Southern California, Los Angeles, USA

Funds: NSF INSPIRE project “Action, Vision and Language, and their Brain Mechanisms in Evolutionary Relationship”

Travel and accommodation grant (2008)

Topic: Waseda-SSSA-KIST International Summer School “Fundamentals of Biorobotics”

Institution: University Campus Bio-Medico, Italy

Funds: University Campus Bio-Medico, Italy

Highlights CNR 2009-2010

The article “Caligiore, D., Borghi, A.M., Parisi, D., & Baldassarre, G. (2010). TRoPICALS: A Computational Embodied Neuroscience Model of Compatibility Effects. *Psychological Review*, 117, 1188-1228” has been selected as one of the best paper published by CNR researchers and included in the “Highlights of CNR 2009-2010”

RESEARCH PROJECTS

Funded projects

- 2016-2020:** EU FET project GOAL-Robots: Goal-based Open ended Autonomous Learning Robots
role: writing parts of the proposal
- 2011-2014:** EU project IM-CLeVeR: Intrinsically Motivated Cumulative Learning Versatile Robots
role: writing parts of the proposal, taking part
- 2010:** EU project ITALK: Integration and Transfer of Action and Language Knowledge in Robots
role: taking part
- 2010:** UK project VALUE: Vision, Action, and Language Unified by Embodiment
role: taking part
- 2008-2011:** EU project ROSSI: Emergence of communication in Robots through Sensorimotor and Social Interaction
role: taking part
- 2006-2007:** EU project MindRaces: from Reactive to Anticipatory Cognitive Embodied Systems
role: taking part

TEACHING

- 2015:** Teacher assistant
Topic: From neuroscience to computational embodied neuroscience, course of Psychology
Institution: University “Suor Orsola Benincasa”, Napoli, Italy
- 2009:** Teacher assistant
Topic: Simulating motor behaviour by neural networks, course of Robotics
Institution: University Campus Bio-Medico, Roma, Italy
- 2004-2006:** Teacher
Topic: Control systems
Institution: High-school - Istituto Tecnico Industriale Statale “A. Volta”, Subiaco (Roma), Italy
- 2001-2002:** Teacher assistant
Topic: Electronic
Institution: University of Catania, Italy

INTERDISCIPLINARY COLLABORATIONS

Topic: embodied cognition, affordances, Parkinson's disease

- Prof. M. Hallett, National Institutes of Health, USA,
Prof. A. M. Borghi, Department of Psychology, University of Bologna, Italy
Prof. A. Cangelosi, Centre for Robotics and Neural Systems, University of Plymouth, UK

Topic: computational neuroscience, cerebellum, motor control and rehabilitation

- Prof. M. A. Arbib, University of Southern California, USA
Prof. R. C. Miall, School of Psychology, University of Birmingham, UK
Prof. E. Guglielmelli, Università Campus Bio-Medico di Roma, Italy

ORGANIZATION OF SCIENTIFIC MEETING, EDITORIAL BOARDS, RESPONSIBILITIES

- 2017:** Organization of the First international Workshop on Ethical Issues of Open Ended-Learning in Autonomous Robots (<http://www.e-fai.org/>)
- 2016:** Vice president and co-founder of “science2mind”, an interdisciplinary association of expert, researchers and professionals who are passionate bringing positive impact to society and people’s life by investigating brain, cognition, artificial intelligence, and autonomous robotics (<https://science2mind.org/>)
- 2016:** Guest editor of the Consensus paper “The Cerebellum”: Towards a Systems-Level View of Cerebellar Function: the Interplay Between Cerebellum, Basal Ganglia, and Cortex (2016), , Editor-in-Chief: Prof. Mario Manto
- 2011:** Guest editor of the Special issue of the international journal Psychological Research on “Vision

action and language unified by embodiment” Editor-in-Chief: Prof. Bernhard Hommel
2010: Organization of EU ROSSI final review meeting, Munich, Germany

IT SKILLS

Operating systems	Linux; Windows; macOS High Sierra
Programming languages	C/C++; Python; MATLAB
Data analysis	MATLAB; R
Computer simulation tools and robotic platforms	Neural Simulation Tool (NEST); Neuroscience Gateway (NSG); Arduino; iCub robot

BIBLIOMETRIC INDICES (18/01/2018)

N° of citations	Google Scholar: 726	Scopus: 325
N° of publications	Google Scholar: 56	Scopus: 29
H-index	Google Scholar: 13	Scopus: 9
i10-index (number of publications with at least 10 citations)	Google Scholar: 19	

Google Scholar web	https://scholar.google.com/citations?user=WHeGj2QAAAAJ&hl=en
Scopus web page	https://www.scopus.com/authid/detail.uri?authorId=23092725300
ResearchGate web	https://www.researchgate.net/profile/Daniele_Caligiore
PubMed web page	http://www.ncbi.nlm.nih.gov/pubmed/?term=caligiore+d

10 selected publications

1. Journal **PLOS Computational Biology** (Impact Factor 2017: 4.587)

Title	Dysfunctions of the basal ganglia-cerebellar-thalamo-cortical system produce motor tics in Tourette syndrome
Authors	<u>Caligiore Daniele</u> , Mannella Francesco, Arbib Michael A., Baldassarre Gianluca
Year of publication	2017
Number of citations	4 - Google Scholar
DOI	http://dx.doi.org/10.1371/journal.pcbi.1005395 .

2. Journal **Psychological Review** (Impact Factor 2016: 7.581) (Impact Factor 2014, year of publication: 7.972)

Title	Integrating Reinforcement Learning, Equilibrium Points and Minimum Variance to Understand the Development of Reaching: A Computational Model
Authors	<u>Caligiore Daniele</u> , Parisi Domenico, Baldassarre Gianluca
Volume	121
Pages	389-421
Year of publication	2014
Number of citations	15 - Google Scholar
DOI	http://dx.doi.org/10.1037/a0037016 .

- 3. Journal Psychological Review**
(Impact Factor 2016: 7.581)
(Impact Factor 2010, year of publication: 7.784)
- Title TRoPICALS: A Computational Embodied Neuroscience Model of Compatibility Effects
- Authors Caligiore Daniele, Borghi Anna M., Parisi Domenico, Baldassarre Gianluca
- Volume 117
- Pages 1188-1228
- Year of publication 2010
- Number of citations 89 - Google Scholar
- DOI <http://dx.doi.org/10.1037/a0020887>
- 4. Journal Neuroscience & Biobehavioral Reviews**
(Impact Factor 2016: 8.580)
(Impact Factor 2013, year of publication: 10.284)
- Title The contribution of brain sub-cortical loops in the expression and acquisition of action understanding abilities
- Authors Caligiore Daniele, Pezzulo Giovanni, Miall R. Chris, Baldassarre Gianluca
- Volume 37
- Pages 2504-2515
- Year of publication 2013
- Number of citations 66 - Google Scholar
- DOI <http://dx.doi.org/10.1016/j.neubiorev.2013.07.016>.
- 5. Journal Neuroscience & Biobehavioral Reviews**
(Impact Factor 2017: 8.580)
- Title Action observation and motor imagery for rehabilitation in Parkinson's disease: A systematic review and an integrative hypothesis
- Authors Caligiore Daniele, Mustile Magda, Spalletta Gianfranco, Baldassarre Gianluca
- Volume 72
- Pages 210-222
- Year of publication 2017
- Number of citations 3 - Google Scholar
- DOI <http://dx.doi.org/10.1016/j.neubiorev.2016.11.005>
- 6. Journal Psychological Research**
(Impact Factor 2016: 2.681)
(Impact Factor 2013, year of publication: 2.462)
- Title How affordances associated with a distractor object affect compatibility effects: A study with the computational model TRoPICALS
- Authors Caligiore Daniele, Borghi Anna M., Parisi Domenico, Ellis Rob, Cangelosi Angelo, Baldassarre Gianluca
- Volume 77
- Pages 7-19
- Year of publication 2013
- Numero citazioni 38 - Google Scholar
- DOI <http://dx.doi.org/10.1007/s00426-012-0424-1>

- 7. Journal Nature Partner Journal (npj) Parkinson's Disease**
 Title Parkinson's disease as a system-level disorder
 Authors Caligiore Daniele, Helmich Rick C, Hallett Mark, Moustafa Ahmed A, Timmermann Lars, Toni Ivan, Baldassarre Gianluca
 Year of publication 2016
 Number of citations 2 - Google Scholar
 DOI <http://dx.doi.org/10.1038/npjparkd.2016.25>
- 8. Journal Adaptive Behavior**
(Impact Factor 2017: 1.151)
(Impact Factor 2014, year of publication: 1.098)
 Title Modular and hierarchical brain organization to understand assimilation, accommodation and their relation to autism in reaching tasks: a developmental robotics hypothesis
 Authors Caligiore Daniele, Tommasino Paolo, Sperati Valerio, Baldassarre Gianluca
 Volume 22
 Pages 304-329
 Year of publication 2014
 Number of citations 5 - Google Scholar
 DOI <http://dx.doi.org/10.1177/1059712314539710>
- 9. Journal The Cerebellum**
(Impact Factor 2016: 2.429)
 Title Consensus Paper: Towards a Systems-Level View of Cerebellar Function: the Interplay Between Cerebellum, Basal Ganglia, and Cortex
 Authors Caligiore Daniele, Pezzulo Giovanni, Baldassarre Gianluca, Bostan Andreea C., Strick Peter L., Doya Kenji, Helmich Rick C., Dirckx Michiel, Houk James, Jörntell Henrik, Lago-Rodriguez Angel, Galea Joseph M., Miall R. Chris, Popa Traian, Kishore Asha, Verschure Paul F. M. J. Zucca Riccardo, Herreros Ivan
 Pages 1-27
 Year of publication 2016
 Number of citations 22 - Google Scholar
 DOI <http://dx.doi.org/10.1007/s12311-016-0763-3>
- 10. Journal PLOS ONE**
(Impact Factor: 4.411)
 Title Intrinsic Motivations Drive Learning of Eye Movements: An Experiment with Human Adults
 Authors Caligiore Daniele, Mustile Magda, Cipriani Daniele, Redgrave Peter, Triesch Jochen, Baldassarre Gianluca
 Year of publication 2015
 Number of citations 4 - Google Scholar
 DOI <http://dx.doi.org/10.1371/journal.pone.0118705>