

PERSONAL INFORMATION

FRANCESCO DONNARUMMA



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Date of birth 12 May 1977 | Nationality Italian

EDUCATION

- 2010 **Ph.D. in Computer and Information Science**
February 17th
Università degli Studi di Napoli Federico II
Thesis Title: A model for Programmability and Virtuality in Dynamical Neural Networks
- 2006 **M.Sc. in Physics (cybernetics),**
October 25th
Università degli Studi di Napoli Federico II
Thesis Title: Studio di un controllo senso-motorio ispirato al biologico realizzato tramite reti CTRNN

ACADEMIC
POSITIONS AND GRANTS

- 2020 **Member of the Editorial Board**
Frontiers in Neurobotics
ISSN: 1662-5218
www.frontiersin.org/journals/neurobotics#editorial-board
- 2018-2020 **Researcher (permanent position)**
Institute of Cognitive Sciences and Technologies (ISTC)
National Research Council (CNR) of Italy
- 2019-2025 **Associate Professor Habilitation**
Italian National Scientific Habilitation as Associate Professor
Academic Recruitment Field: 11/E1 - General Psychology, Psychobiology and Psychometrics
from 29/04/2019 to 29/04/2025
- 2020-2022 **Member of the consortium of the project MAIA**
Project MAIA: Multifunctional, adaptive and interactive AI system for Acting in multiple contexts
Horizon 2020 Framework Programme for Research and Innovation FET-Proactive
Grant Agreement: No. 951910

2020-2022 Scientific Advisor

- HiPlan: Hierarchical Planning during spatial navigation funded within Human Brain Project (HBP) second grant agreement (SGA2) - Horizon 2020 Framework Programme for Research and Innovation - Grant number: No. 78590 - January 2019 - present
- Affordance Landscape Viewer (ALV): Learning new skills by visualization object affordances that only experts can see - Funding scheme: Opportunities in Science and Technology (NICOP) - Department of the Navy, Office of Naval Research (ONR) - Grant number: N62909-19-1-2017 - January 2019 - present

2016-2018 Researcher (fixed term)

Institute of Cognitive Sciences and Technologies (ISTC) - National Research Council (CNR) of Italy

Contract - in “Probabilistic and Dynamical Systems neuro-computational models for goal-directed behavior of artificial agents and biological organisms” for:

- Human Science Frontiers Project (HSFP) grant agreement RGY0088/2014 - Beyond simple choices: computational and neuronal mechanisms for complex spatial behaviors (August 2016 - July 2018)
- HiPlan: Hierarchical Planning during spatial navigation funded within - Human Brain Project (HBP) second grant agreement (SGA2) - Horizon 2020 Framework Programme for Research and Innovation - Grant number: No. 78590 (August 2018 - December 2018)

2018 Invited Research Fellowship

Centre d'Etudes des Transformations des Activités Physiques et Sportives (CETAPS) Lab
Université de Rouen Normandie, France, collaborating with the group of Prof. Ludovic Seifert - (March-April)

2017 Appointed Reviewer of Scientific Proposals

European Research Council (ERC) Consolidator Grant 2017 Call
Appointer: European Research Council Executive Agency (ERCEA)
Call: ERC-2017-COG. Panel: PE6 (June 2017 to present).

2011-2016 Research Fellow

Institute of Cognitive Sciences and Technologies (ISTC)

National Research Council (CNR) of Italy

Contract - in “Dynamical Systems Computational models of goal-directed behaviors and their neural bases” (November 15 - July 31) for:

- Goal-Leaders - Goal-directed, Adaptive Builder Robots - Eu project FP7 - ICT - 270108 - (2011-2014)
- HUMANOBS - Humanoids That Learn Socio-Communicative Skills Through Observation - Eu project FP7 - ICT - 231453 - (2011-2012)

2013 Course Leader

Responsible for the course in *Analysis and interpretation of brain signals for Brain-Computer Interfaces applications* (September 1 - December 31), for:

- Cyber Brain project - “PON “Ricerca e Competitività” 2007- 2013, Linea di intervento 4.1.1.4” at Fondazione Neurone Onlus, project aimed at realizing a BCI centre of excellence in the South of Italy

2011-2012 Teaching Assistant

Contract of Integrative Didactic

Course of “Programming II (Laboratory Module)”

Informatics Department of Università degli Studi di Napoli Federico II

2010-2011 Research Collaborator

Contract: two-years Post Doc Grant (May 2010 - November 2011) in “Robotics - Environment Reconstruction and Representation for Aerial Vehicles” for:

- AIRobots (Innovative aerial service robots for remote inspections by contact) - Eu project FP7 - ICT - 248669 - at the Dipartimento di Informatica e Sistemistica (DIS), Università degli Studi di Napoli Federico II

2009-2010 **Research Collaborator**

Contract (September 2009 - April 2010) in “Neural Networks and Dynamical Systems in the modelling of Biological Neuronal Networks” for:

- “Modelli computazionali e robotici del comportamento biologico adattativo: problemi metodologici e integrazione multidisciplinare” - PRIN07
Dipartimento di Scienze Fisiche, Università degli Studi di Napoli Federico II.

2006-2009 **Ph.D. Student**

Computer and Information Science at Department of Mathematics and Application “Renato Caccioppoli” of Università degli Studi di Napoli Federico II

2009 **Research Collaborator**

Contract (October - December) in “Projecting and prototyping Evolutionary adaptive filters for electrical lift-controlling” for:

- EVODIALIFT (Evolutionary e-diagnostics and Tele-Monitoring for Lift Predictive e-maintenance) Regione Campania (POR 3.17 ICT)
Dipartimento of Ingegneria dei Materiali (DIMPS), Università degli Studi di Napoli Federico II

2009 **Visiting Ph.D.**

École Normale Supérieure De Cachan in Paris (July - August), funded by:

- short visit Grant n. 3014 with GAMES Eu research networking programme with the group of Prof. Patricia Bouyer of the Information Science Laboratory “Laboratoire Spécification et Vérification” (LSV)

2008-2009 **Research Collaborator**

Contract (November 2008 - August 2009) in “Simulation Techniques for on-line optimization of Event Systems” for:

- CAWSYS, project - Bando per la concessione degli aiuti alle PMI in attuazione della misura 3.17 del POR Campania 2000/2006 and eu-cofunded (Decreto Dirigenziale n. 25 del 28/02/2008, Regione Campania, capofila società Nettuno Solutions s.r.l) at the Dipartimento di Informatica e Sistemistica (DIS), Università degli Studi di Napoli Federico II.

2008 **Research Collaborator**

Contract (February - April) in “Personal Robotics and Brain-Computer Interfaces. State of the art, costs, benefits and legal issues” for:

- ETHICBOTS - Emerging Technoethics of Human Interaction with Communication, Bionic, and robOTic systems - Eu project FP6 - SOCIETY - 17759 - (2005-2008) coordinated by the Dipartimento di Scienze Fisiche, Università degli Studi di Napoli Federico II.

2007-2008 **Research Collaborator**

Contract (October - January) in “Machine Learning and AI and Robotic Systems: Epistemic Risk Evaluation and Reponsability Problems” for:

- ETHICBOTS - Emerging Technoethics of Human Interaction with Communication, Bionic, and robOTic systems - Eu project FP6 - SOCIETY - 17759 - (2005-2008) coordinated by the Dipartimento di Scienze Fisiche, Università degli Studi di Napoli Federico II.

RESEARCH PUBLICATIONS

- [1] Pasquale Arpaia, Renato Cuocolo, **Francesco Donnarumma**, Antonio Esposito, Nicola Moccaldi, Angela Natalizio, and Roberto Prevete. "Conceptual design of a machine learning-based wearable soft sensor for non-invasive cardiovascular risk assessment". In: *Measurement* 169 (2021), p. 108551.
- [2] Leopoldo Angrisani, Pasquale Arpaia, **Francesco Donnarumma**, Antonio Esposito, Mirco Frosolone, Giovanni Improta, Nicola Moccaldi, Angela Natalizio, and Marco Parvis. "Instrumentation for Motor Imagery-based Brain Computer Interfaces relying on dry electrodes: a functional analysis". In: *2020 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*. IEEE. 2020, pp. 1–6.
- [3] Andrea Apicella, **Francesco Donnarumma**, Francesco Isgro, and Roberto Prevete. "A survey on modern trainable activation functions". In: *arXiv preprint arXiv:2005.00817* (2020).
- [4] Pasquale Arpaia, **Francesco Donnarumma**, Antonio Esposito, and Marco Parvis. "Channel selection for optimal EEG measurement in motor imagery-based brain-computer interfaces". In: *International Journal of Neural Systems* (2020).
- [5] **Francesco Donnarumma** and Giovanni Pezzulo. "Moral decisions in the age of COVID-19: your choices really matter". In: *arXiv preprint arXiv:2004.07081* (2020).
- [6] **Francesco Donnarumma**, Roberto Prevete, Domenico Maisto, Andrea Fuscone, Matthijs van der Meer, Caleb Kemere, and Giovanni Pezzulo. "A framework to identify structured behavioral patterns within rodent spatial trajectories". In: *bioRxiv* (2020).
- [7] Giovanni Pezzulo, Laura Barca, Domenico Maisto, and **Francesco Donnarumma**. "Social epistemic actions". In: *Behavioral and Brain Sciences* 43 (2020).
- [8] Leopoldo Angrisani, Pasquale Arpaia, **Francesco Donnarumma**, Antonio Esposito, Nicola Moccaldi, and Marco Parvis. "Metrological performance of a single-channel Brain-Computer Interface based on Motor Imagery". In: *2019 IEEE International Instrumentation and Measurement Technology Conference (I2MTC)*. IEEE. 2019, pp. 1–5.
- [9] Pasquale Arpaia, Renato Cuocolo, **Francesco Donnarumma**, Dario D'Andrea, Antonio Esposito, Nicola Moccaldi, Angela Natalizio, and Roberto Prevete. "Feasibility of cardiovascular risk assessment through non-invasive measurements". In: *2019 // Workshop on Metrology for Industry 4.0 and IoT (MetroInd4. 0&IoT)*. IEEE. 2019, pp. 263–267.
- [10] **Francesco Donnarumma**. "Sensorimotor Communication Strategies for Improving Interactive Skills". In: *PERCEPTION*. Vol. 48. SAGE PUBLICATIONS LTD 1 OLIVERS YARD, 55 CITY ROAD, LONDON EC1Y 1SP, ENGLAND. 2019, pp. 164–164.
- [11] Carlos M Gómez, Antonio Arjona, **Francesco Donnarumma**, Domenico Maisto, Elena Isabel Rodríguez MARTÍNEZ, and Giovanni Pezzulo. "Tracking the time course of Bayesian inference with Event Related Potentials: a study using the central cue Posner paradigm". In: *Frontiers in psychology* 10 (2019), p. 1424.
- [12] Monica Maranesi, Stefania Bruni, Alessandro Livi, **Francesco Donnarumma**, Giovanni Pezzulo, and Luca Bonini. "Differential neural dynamics underlying pragmatic and semantic affordance processing in macaque ventral premotor cortex". In: *Scientific reports* 9.1 (2019), pp. 1–11.
- [13] Giovanni Pezzulo, **Francesco Donnarumma**, Haris Dindo, Alessandro D'Ausilio, Ivana Konvalinka, and Cristiano Castelfranchi. "The body talks: Sensorimotor communication and its brain and kinematic signatures". In: *Physics of life reviews* 28 (2019), pp. 1–21.
- [14] Giovanni Pezzulo, **Francesco Donnarumma**, Haris Dindo, Alessandro D'Ausilio, Ivana Konvalinka, and Cristiano Castelfranchi. "The future of sensorimotor communication research: Reply to comments on "The body talks: Sensorimotor communication and its brain and kinematic signatures"". In: *Physics of life reviews* 28 (2019), pp. 46–51.

- [15] Giovanni Pezzulo, **Francesco Donnarumma**, Domenico Maisto, and Ivilin Stoianov. “Planning at decision time and in the background during spatial navigation”. In: *Current Opinion in Behavioral Sciences* 29 (2019), pp. 69–76.
- [16] Roberto Prevede, **Francesco Donnarumma**, Andrea d’Avella, and Giovanni Pezzulo. “Evidence for sparse synergies in grasping actions”. In: *Scientific reports* 8.1 (2018), pp. 1–16.
- [17] **Francesco Donnarumma**, Marcello Costantini, Ettore Ambrosini, Karl Friston, and Giovanni Pezzulo. “Action perception as hypothesis testing”. In: *Cortex* 89 (2017), pp. 45–60.
- [18] **Francesco Donnarumma**, Haris Dindo, Pierpaolo Iodice, and Giovanni Pezzulo. “You cannot speak and listen at the same time: a probabilistic model of turn-taking”. In: *Biological Cybernetics* (2017), pp. 1–19.
- [19] **Francesco Donnarumma**, Haris Dindo, and Giovanni Pezzulo. “Sensorimotor coarticulation in the execution and recognition of intentional actions”. In: *Frontiers in Psychology* 8 (2017), p. 237.
- [20] **Francesco Donnarumma**, Haris Dindo, and Giovanni Pezzulo. “Sensorimotor communication for humans and robots: improving interactive skills by sending coordination signals”. In: *IEEE Transactions on Cognitive and Developmental Systems* 10.4 (2017), pp. 903–917.
- [21] Giovanni Pezzulo, **Francesco Donnarumma**, Pierpaolo Iodice, Domenico Maisto, and Ivilin Stoianov. “Model-based approaches to active perception and control”. In: *Entropy* 19.6 (2017), p. 266.
- [22] Giovanni Pezzulo, Pierpaolo Iodice, **Francesco Donnarumma**, Haris Dindo, and Günther Knoblich. “Avoiding accidents at the champagne reception: A study of joint lifting and balancing”. In: *Psychological science* 28.3 (2017), pp. 338–345.
- [23] **Francesco Donnarumma**, Domenico Maisto, and Giovanni Pezzulo. “Problem solving as probabilistic inference with subgoalting: explaining human successes and pitfalls in the tower of hanoi”. In: *PLoS computational biology* 12.4 (2016), e1004864.
- [24] **Francesco Donnarumma**, Roberto Prevede, Andrea de Giorgio, Guglielmo Montone, and Giovanni Pezzulo. “Learning programs is better than learning dynamics: A programmable neural network hierarchical architecture in a multi-task scenario”. In: *Adaptive Behavior* 24.1 (2016), p. 1059712315609412.
- [25] Domenico Maisto, **Francesco Donnarumma**, and Giovanni Pezzulo. “Nonparametric problem-space clustering: learning efficient codes for cognitive control tasks”. In: *Entropy* 18.2 (2016), p. 61.
- [26] Matteo Candidi, Arianna Curioni, **Francesco Donnarumma**, Lucia Maria Sacheli, and Giovanni Pezzulo. “Interactional leader–follower sensorimotor communication strategies during repetitive joint actions”. In: *Journal of the Royal Society Interface* 12.110 (2015), p. 20150644.
- [27] Haris Dindo, **Francesco Donnarumma**, Fabian Chersi, and Giovanni Pezzulo. “The intentional stance as structure learning: a computational perspective on mindreading”. In: *Biological cybernetics* 109.4-5 (2015), pp. 453–467.
- [28] **Francesco Donnarumma**, Aniello Murano, and Roberto Prevede. “Dynamic network functional comparison via approximate-bisimulation.” In: *Control & Cybernetics* 44.1 (2015), pp. 99–127.
- [29] **Francesco Donnarumma**, Roberto Prevede, Fabian Chersi, and Giovanni Pezzulo. “A programmer–interpreter neural network architecture for prefrontal cognitive control”. In: *International journal of neural systems* 25.06 (2015), p. 1550017.
- [30] Domenico Maisto, **Francesco Donnarumma**, and Giovanni Pezzulo. “Divide et impera: subgoalting reduces the complexity of probabilistic inference and problem solving”. In: *Journal of the Royal Society Interface* 12.104 (2015), p. 20141335.

- [31] Giovanni Pezzulo, **Francesco Donnarumma**, Pierpaolo Iodice, Roberto Prevede, and Haris Dindo. “The role of synergies within generative models of action performance and recognition: A computational perspective: Comment on “Grasping synergies: A motor-control approach to the mirror neuron mechanism” by A. D’Ausilio et al.” In: *Physics of Life Reviews* 12 (2015), pp. 114–117.
- [32] Fabian Chersi, **Francesco Donnarumma**, and Giovanni Pezzulo. “Mental imagery in the navigation domain: a computational model of sensory-motor simulation mechanisms”. In: *Adaptive Behavior* 21.4 (2013), pp. 251–262.
- [33] Francesco Donnarumma Giovanni Pezzulo Haris Dindo. “Sensorimotor Communication: a Theory of Signalling in Online Social Interactions”. In: *JAM V - 5th Joint Action Meeting*. Humboldt University, Berlin (Germany). 2013.
- [34] Domenico Maisto, **Francesco Donnarumma**, and Giovanni Pezzulo. “Using subgoals to reduce the descriptive complexity of probabilistic inference and control programs”. In: *RLDM 2013, The 1st Multidisciplinary Conference on Reinforcement Learning and Decision Making*, Princeton University, New Jersey, USA. 2013.
- [35] Giovanni Pezzulo, **Francesco Donnarumma**, and Haris Dindo. “Human sensorimotor communication: A theory of signaling in online social interactions”. In: *PloS one* 8.11 (2013), e79876.
- [36] **Francesco Donnarumma**, Vincenzo Lippiello, and Matteo Saveriano. “Fast incremental clustering and representation of a 3D point cloud sequence with planar regions”. In: *2012 IEEE/RSJ International Conference on Intelligent Robots and Systems*. IEEE. 2012, pp. 3475–3480.
- [37] **Francesco Donnarumma**, Roberto Prevede, and Giuseppe Trautteur. “Programming in the brain: a neural network theoretical framework”. In: *Connection Science* 24.2-3 (2012), pp. 71–90.
- [38] Giovanni Pezzulo, Francesco Rigoli, **Francesco Donnarumma**, and Fabian Chersi. “Hippocampal forward sweeps and the balance of goal-directed and habitual controllers: a Bayesian approach”. In: *Frontiers in Neuroscience: Neural Coding, Decision-Making & Integration in Time Series*. 2012.
- [39] Guglielmo Montone, **Francesco Donnarumma**, and Roberto Prevede. “A robotic scenario for programmable fixed-weight neural networks exhibiting multiple behaviors”. In: *International Conference on Adaptive and Natural Computing Algorithms*. Springer, Berlin, Heidelberg. 2011, pp. 250–259.
- [40] Pasquale Arpaia, **Francesco Donnarumma**, and Carlo Manna. “A differential discrete particle swarm optimization approach to model predictive control of building temperature”. In: *17th Symposium IMEKO TC4, 3rd Symposium IMEKO TC 19 and 15th IWADC Workshop on Instrumentation for the ICT Era*. 2010.
- [41] Pasquale Arpaia, Sabato Manfredi, **Francesco Donnarumma**, and Carlo Manna. “Model predictive control strategy based on differential discrete particle swarm optimization”. In: *2010 IEEE Workshop on Environmental Energy and Structural Monitoring Systems*. IEEE. 2010, pp. 70–73.
- [42] **Francesco Donnarumma**, Roberto Prevede, and Giuseppe Trautteur. “How and over what timescales does neural reuse actually occur?” In: *Behavioral and Brain Sciences* 33.4 (2010), p. 272.
- [43] Guglielmo Montone, **Francesco Donnarumma**, and Roberto Prevede. “Multiple programmable behaviours in a fixed weight artificial neural network. A robotic application”. In: *VII Convegno, Associazione Italiana Scienze Cognitive (AISC) 2010 – Pratiche della Cognizione*. 2010.
- [44] Giovanni Tessitore, **Francesco Donnarumma**, and Roberto Prevede. “An Action-Tuned Neural Network Architecture For Hand Pose Estimation”. In: *International Conference on Fuzzy Computation and 2nd International Conference on Neural Computation*. SciTePress. 2010, pp. 358–363.
- [45] **Francesco Donnarumma**. “A model for programmability and virtuality in dynamical neural networks”. PhD thesis. Università di Napoli, Federico II, 2009.

- [46] Ivano De Falco, Antonio Della Cioppa, **Francesco Donnarumma**, Domenico Maisto, Roberto Prevete, and Ernesto Tarantino. "CTRNN Parameter Learning using Differential Evolution." In: *ECAI*. 2008, pp. 783–784.
- [47] Guglielmo Tamburrini and **Francesco Donnarumma**. "L'uomo bionico e il futuro della mente". In: *Scienza e società* (2008), pp. 50–54.
- [48] Ivano De Falco, Antonio Della Cioppa, **Francesco Donnarumma**, Domenico Maisto, Roberto Prevete, and Ernesto Tarantino. "A Differential Evolution approach to CTRNN parameter learning". In: *WIVACE: Workshop Italiano di Vita Artificiale e Computazione Evolutiva*. 2007.
- [49] **Francesco Donnarumma**, Roberto Prevete, and Giuseppe Trautteur. "Virtuality in neural dynamical systems". In: *International Conference on Morphological Computation, ECLT, Venice, Italy, March*. 2007, pp. 26–28.
- [50] **Francesco Donnarumma**. "Studio di un controllo motorio ispirato al biologico realizzato tramite reti CTRNN". PhD thesis. Università di Napoli, Federico II, 2006.

RESEARCH INTERESTS

Computational Modelling of brain functions by Dynamical Neural Networks and Probabilistic Models

My research activity both includes functional modeling of brain activity by means of neural networks architectures and/or probabilistic models. I developed a programmable fixed-weight dynamic neural network architecture (see [37]) built on a biologically plausible recurrent Artificial Neural Networks (ANNs) model - Continuous Time Recurrent Neural Networks (CTRNNs) capable of exhibiting multiple behaviors and *fast* switching among them. Several applications of this model were developed (see e.g., [29] and [24]). I further developed probabilistic architectures explaining a wide range of human behaviors (e.g., [23, 17, 18]).

Cognitive Robotics and Neural Networks for Social Interaction and Robotic Systems

My research focused on computational models that includes biological aspects of the circuit including the hippocampus, the ventral striatum and the sensory-motor cortex and explains mechanistically how it may be used to imagine and evaluate future events (see: [32]), models for biologically (rats - monkeys) inspired strategic planning by probabilistic inference (see [30, 12]) and probabilistic Bayesian models for social interaction between agents (see [35, 19, 20, 26]).

Machine Learning and Neural Network theory

Machine learning techniques developed for several kinds of human data. Dictionary learning methods for the analysis of high dimensional kinematic/dynamic human grasps in [16]. Trial by trial analysis on EEG signals in [11]. In [41] techniques based on the discretization of Particle swarm optimization were developed. Differential Evolution strategies were introduced in the CTRNN framework in (see e.g., [24]). A neural network architecture was proposed in [44]. Moreover, a novel method was developed in order to reconstruct 3D environments for Unmanned Aerial Vehicles (UAVs) (see [36]). In [28] a new method for the comparison of dynamic networks is presented. In [25] a clustering technique based on Chinese restaurant process is presented to explain different coding capabilities for cognitive control.

OTHER RESEARCH AND
DIDACTIC ACTIVITIES2020 **Member of the Editorial Board**

Frontiers in Neurobotics

ISSN: 1662-5218

www.frontiersin.org/journals/neurobotics#editorial-board2020 **Guest Editor**

Frontiers in Computational Neuroscience

ISSN: 1662-5188

Research Topic in The Non-Learning Plasticity Hypothesis: Computational models, programmability, re-use and neuromodulation

<https://www.frontiersin.org/research-topics/17081/the-non-learning-plasticity-hypothesis>2020 **Guest Editor**

Entropy (ISSN 1099-4300)

Special Issue in "Probabilistic Inference in Goal-Directed Human and Animal Decision-Making". Section "Information Theory, Probability and Statistics".

2020 **Member of the Evaluation Commission**

Job: Research Fellow

Application: ISTC-AdR-282-2020-PD del 04/09/2020

Theme: Probabilistic and neural computational models of sensorimotor functions and experimental validations of models

Structure: Institute of Cognitive Science and Technologies - CNR

Project: Performing Actions in a Changing Environment (PACE) Project - PRIN-2017

Funding: MIUR - Ministero dell'Istruzione, dell'Università e della Ricerca

Timeframe: 01 September 2019 - 31 August 2022

2020 **Invited Speaker**

International Conference on Robotics and Automation - ICRA 2020 Workshop on Human-Robot Handovers.

Contribution title: "Models for Sensorimotor Communication in Humans and Robot".

Paris 4 June 2020 (virtual conference due to Covid-19 pandemic).

2019 **Invited Speaker**

Ph.D. School "Italo Gorini" 2019.

Contribution title: "Learning Efficient Codes for Environmental Signal Representation and Control Tasks".

2-6 September 2019. Naples, Italy

2018 **Invited Speaker**41st European Conference on Visual Perception (ECPV 2018), in Symposium *Perceiving others, interacting with them: new perspectives in action observation research*.

Contribution title: "Sensorimotor Communication Strategies for Improving Interactive Skills".

26-30 August 2018, Trieste, Italy.

doi:10.1177/0301006618824879

2017 **Member of the organization committee**Meeting: *Probabilistic approaches to brain and behaviour*

July 18-23, Praia a Mare (CS), Italy

2016 Member of the organization committee

International Meeting: *Internally generated sequences in the hippocampus*
September 28-30, 2016 - Ariccia (Rome), Italy.

2014 Header of the Course

Analysis and interpretation of brain signals for Brain-Computer Interfaces applications
Fondazione Neurone Onlus, for Cyber Brain project - PON "Ricerca e Competitività" 2007- 2013,
Linea di intervento 4.1.1.4
September 1 - December 31, Napoli, Italy

2014 Project meeting

Action, Brain, Language, & Evolution (ABLE) meeting
Workshop for the ABLE project, coordinated by Michael Arbib.
December 1-2, Rome, Italy

2014 Project meeting

Anatomy of Choice meeting
Workshop and Tutorial at Wellcome Trust Centre for Neuroimaging, University College of London, 12 Queen Square
November 6-7, London, Great Britain

2013 Poster Presentation

JAM V - 5th Joint Action Meeting Berlin Humboldt University, Senatssaal, Unter den Linden 6, 10099 -MitteJuly
Contribution title: Sensorimotor Communication: a Theory of Signalling in Online Social Interactions Poster presentation
26-29 2013, Berlin, Germany

2013 Poster Presentation

Symposium on Bayesian Inference: From Spikes to Behaviour at the Bernstein Center for Computational Neuroscience.
Contribution title: Hippocampal forward sweeps and the balance of goal-directed and habitual controllers: a Bayesian approach.
December 9-10, 2011 Tübingen, Germany

2012 Oral Presentation

25th International Conference on Intelligent Robots and Systems (IROS)
Contribution title: Fast incremental clustering and representation of a 3D point cloud sequence with planar regions
October 10th, 2012 - Vilamoura, Algarve - Portugal.

Teaching support

Contract of 25 hours of Didactic Activities integrating the teaching of the course of Laboratory of Programming
Università di Napoli Federico II Academic year - 2011-2012

2010 Member of the organization committee

Workshop on Mirror Codes for Social Interactions
June 28-29, 2010 – Capri, Italy.

2010 Invited Presentation

Università degli studi di Milano-Bicocca, Dipartimento di Scienze Umane per la Formazione
Contribution title: *Environmental Maps and neural networks: a simulation study*
In collaboration with the Project Prin 2007, "Il comportamento adattativo dei sistemi biologici e il metodo scientifico: il ruolo dei modelli formali e materiali, le spiegazioni funzionali, gli approcci disciplinari e l'unificazione"
October 6th, 2010 Milan, Italy

2009 Didactic support

Course of *Reti Neurali e Machine Learning Modulo A*, Informatic Degree Course 2009-2010
Università degli studi di Napoli Federico II

2009 Didactic support

Course of *Reti Neurali e Machine Learning Modulo B*, Informatic Degree Course 2009-2010
Università degli studi di Napoli Federico II

2008 Didactic support

Course of *Reti Neurali e Machine Learning Modulo A*, Informatic Degree Course 2008-2009
Università degli studi di Napoli Federico II

2008 Didactic support

Course of *Reti Neurali e Machine Learning Modulo B*, Informatic Degree Course 2008-2009
Università degli studi di Napoli Federico II

2008 Invited joint presentation

Joint presentation with Prof. Guglielmo Tamburrini, Università di Napoli Federico II and Dr. Matteo Santoro, Università di Genova,
Steinberg Auditorium of Carnegie Mellon University, Pittsburgh, U.S.A.
Contribution title: Mutual Knowledge and the Ethics of Human-Robot Interaction
April 3rd, 2008

2008 Oral Presentation

ECAI 2008, 18th European Conference on Artificial Intelligence
Contribution title: CTRNN Parameter Learning using Differential Evolution
July 15, 2008 - Patras, Greece.

2007 Didactic support

Course of *Mente e Macchine*, Informatic Degree Course 2007-2008
Università degli studi di Napoli Federico II

2007 Didactic support

Course of *Reti Neurali*, Informatic Degree Course 2007-2008
Università degli studi di Napoli Federico II

2007 Didactic support

Course of *Elaborazione delle Immagini II*, Informatic Degree Course 2007-2008
Università degli studi di Napoli Federico II

2007 Member of the organization committee

Workshop on Medical Imaging
Project: MAGIC-V (Medical Applications on a Grid Infrastructure Connection), INFN Group V,
Section of Naples
June 20-22, 2007 - Naples, Italy

2007 Summer School Attendant

SECEViTA - Corso Estivo in Computazione Artificiale e Vita Evolutiva
Summer School in Artificial Life and Evolutionary Approaches
August 31st - September 4th, 2007 - Sampieri (Ragusa), Italy

2007 Oral Presentation

WIVACE 2007, Workshop Italiano di Vita Artificiale e Computazione Evolutiva
Contribution title: A Differential Evolution approach to CTRNN parameter learning
September 6, 2007 - Sampieri (Ragusa), Italy

2007 Invited Discussant

Discussant on the the contribute of Prof. Luciano Pietronero, Università di Roma La Sapienza:
"La complessità dalle scienze naturali a quelle sociali" at the Quarto Convegno della Associazione Italiana Scienze Cognitive (AISC) *Cognizione, Complessità, Cittadinanza*
November 28-29, 2007 Aula Magna Luiss Guido Carli, Rome, Italy

2007 Poster presentation

ICMP 2007, International Conference on Morphological Computation. Venice, Italy
Contribution title: Virtuality in Neural Dynamical Systems
26-28 March 2007

2006 Member of the organization committee

International Workshop on Ethics of Human Interaction with Robotic, Bionic, and AI Systems:
Concepts and Policies
October 17-18, 2006 - Naples, Italy

