



## CLAUDIA CASELLATO

Curriculum vitae

### PERSONAL DATA

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Place, date of birth	Milano, 28 <sup>th</sup> August 1981
Address	Piazza Napoli 30/2, 20146 Milano, Italy
Tel office	(+39) 0382 987607
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E-mail	claudia.casellato@unipv.it; clacasellato@hotmail.com
family	First (son) born on 2 <sup>nd</sup> Oct 2015; Second (daughter) born on 10 <sup>th</sup> Oct 2018

### EDUCATION AND FORMATION COURSES

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- January 2007- March 2011 – **European Ph.D. in Bioengineering**, Politecnico di Milano. Thesis: “*Investigations on physiological and pathological sensory-motor control: from biomechanics to brain functional imaging*”; supervisor: Prof A. Pedrocchi
- November 2006 – **Qualification to the profession of engineer**
- September 2009 - February 2010 and September 2005 -January 2006 – Université de Bourgogne (Laboratory INSERM ERM 207), Dijon (France). Collaboration for Master thesis and for Ph.D. research activities
- April 2006 – **Master degree in Bioengineering** (mark: 110/110) at Politecnico di Milano. Thesis: “*Plasticity of motor control: analysis of muscular synergies in pointing movement protocol during transient microgravity*”, in collaboration with Université de Bourgogne; supervisor: Prof A. Pedrocchi
- January - June 2004 – **International program ERASMUS/SOCRATES** at the NTNU (Norwegian University of Science and Technology), Trondheim (Norway)
- October 2003 – **Bachelor degree in Bioengineering** (mark: 107/110) at Politecnico di Milano
- July 2000 – **High school diploma** (mark: 100/100), at Liceo S.S. Vittorio Veneto, Milano
  
- Course “CINECA: parallel computing for brain simulation” – Bologna (July 2018)
- School “Big data, neuroscience and law” - Centre for Health Technologies – Pavia (September 2017)
- Course “Introduction to Marconi High Performance Computing Cluster, for users and developers (CINECA)” – Milano (April 2017)
- Course “Supercomputing - FutureLearn PRACE” (online course) (2017)
- Workshop on Neural Simulator NEST – Karlsruhe (2016) and Jülich (2017)
- Summer School “Soft Robotics” – ETHZ, Zurich (2012)
- Summer School “Neurophysiology” – Padova (2011)
- Summer School “Neurorobotics” - Sant’Anna Institute, Pisa (2007)

### WORK EXPERIENCES: CONTRACTS

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- 1 April 2020 - now – **Senior Assistant Professor** (Ricercatore a t.d. - t.pieno - art. 24 c.3-**b** L. 240/10) at Dept. of Brain and Behavioral Sciences, University of Pavia, Italy.
- July 2017- March 2020 – **Assistant Professor** (Ricercatore a t.d. - t.pieno - art. 24 c.3-**a** L. 240/10) at Dept. of Brain and Behavioral Sciences, University of Pavia, Italy. Funding: Human Brain Project
- March 2011 - July 2017 – **Post-doc Research Fellow** at Dept. of Electronics, Information and Bioengineering (at NeuroEngineering and medical robotics laboratory), Politecnico di Milano, Italy

- 2014-2017: Motor and cardiorespiratory control in microgravity; new technological solutions for experiments on the International Space Station (assegno di ricerca, art. 22 l. 240/2010. Controllo motorio e cardiorespiratorio in assenza di gravità; nuove soluzioni tecnologiche per esperimenti sulla stazione spaziale internazionale)
- 2012-2014: Development of a robotic platform for the cerebellar computational models (assegno di ricerca, art. 22 l. 240/2010. Sviluppo di una piattaforma robotica per la valutazione di modelli computazionali del cervelletto)
- October-December 2011 – visiting post-doc at CITIC, University of Granada (Spain)
- 2011-2012: Methods and technologies for investigating motor learning (assegno di ricerca, art. 22 l. 240/2010 e art. 51, comma 6, L. 449/1997. Metodi e tecnologie per lo studio dell'apprendimento motorio)

## NATIONAL SCIENTIFIC QUALIFICATION

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**National Scientific Academic Qualification as Associate Professor** - sector: Electronic and Informatic Bioengineering (Abilitazione Scientifica Nazionale – ASN, Professore II fascia. Settore concorsuale: 09/G2 BIOINGEGNERIA). Validity from 16/10/2018 to 16/10/2024

## BRIEF SUMMARY OF THE SCIENTIFIC PROFILE

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My research interests and activities have been and are oriented to deal with the fascinating topic of **motor learning and control**, by tackling the issue both through an empirical and computational approach. The experimental approach involves to develop **set-up and protocols** able to detect and interfere with the learning process in physiological and pathological conditions. The computational approach involves the reconstruction of **neural circuit models** and their embedding **into behavioral loops**, able to implicitly generate high-level motor functions from elementary neural features and circuit mechanisms, **in physiological and pathological conditions** as well.

In more details, my main research activities are hereafter described. For each topic the most representative publications, reported in the ATTACHMENT A, are specified.

- **Computational Neuroscience and Neurorobotics.** Reconstruction of the cerebellar microcircuit, with multiple neuron types, structural and functional connectivity, based on the most updated neurophysiological data. Plasticity mechanisms within the network in closed-loop control systems to investigate the learning properties, also in cerebellar pathological states or under neural perturbations. Use of multiple neural simulators (Python-NEST, Python-NEURON). Real-time approaches have been used for embedding these networks as brain-inspired controllers in real robots. Different behavioral tasks have been designed and implemented to test complex motor and memory skills driven by the cerebellar network. My work in this framework was within EU projects (Human Brain Project - SP6 Brain Simulation; REALNET - WP5 “Development of robotic simulators and real integrated robotic platform with brain-inspired controllers for complex motor and memory tasks”), with closed international collaborations. I have daily supervised 2 PhD students on these topics, at Politecnico di Milano. I’m actually coordinating a team of Post-docs at Neurocomputation lab at Dept. of Brain and Behavioral Sciences, University of Pavia.
- **Neurorehabilitative and assistive tool development for movement disorders**
  - EMG-based biofeedback, and myocontrol of robotic devices: set-up development and clinical studies with dystonic children. I have established a strong collaboration with Prof. T. Sanger (USC, Los Angeles), IRCCS Neurological Institute C. Besta (Milano) and IRCCS Institute E. Medea (Lecco, Italy). I participated in the design of a NIH grant actually ongoing. I have daily supervised 1 PhD student on this topic, at Politecnico di Milano
  - Eye-tracking for neuroprosthesis control: development of eye-tracking module control for neurological patients’ intention detection. My work in this framework was within EU project MUNDUS, specifically on WP4 “Head/gaze end effector control”
- **Human physiological and pathological motor control**
  - Motor control in weightlessness: adaptation in transient (parabolic flights) and long-term (International Space Station -ISS) microgravity. My work was within projects funded and supported by Italian, European and NASA Space Agencies. I carried out experimental campaigns at Johnson Space Center in Houston on astronauts (pre and post flight) and through remote support from International Space Station (in-flight). For the HW development and flight certification I worked with the Engineering Society Kayser Italia (Livorno, Italy). I participated at parabolic flight experimental campaigns organized by Novespace.
  - Motor control in movement disorders: muscular and kinematic strategies in dystonic patients, learning skills under dynamic perturbation. I worked on the set-up and analyses methods, and carried out clinical tests with patient recruitment managed by neurologists at IRCCS Neurological Institute C. Besta (Milano)

- Movement-related neuroimaging: simultaneous measurements of kinematics and Functional Magnetic Resonance Imaging. I worked in collaboration with Rehabilitative Center Villa Beretta (Lecco, Italy)

## ROLES IN SCIENTIFIC PROJECTS

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- SCIENTIFIC RESPONSIBILITY
  - **Co-PI** for unit *Pavia University* in the project “*Whole-brain rodent spiking neural networks*” – HBP OpenCall for SGA3 “Rodent Microcircuits”
  - **Co-PI** for unit *Pavia University* in the project “*ARBOR Implementation of the Inferior Olive Network*” – HBP Open Call for SGA3 “Preparing Cellular-Level Models for Portable HPC Simulation using Arbor”
  - **Task co-Leader** for unit *Pavia University T5.2 “Detailed cellular level description”* - SGA3 (2020-2023) of Human Brain Project Horizon 2020 Framework Programme (HBP)
  - **Principal Investigator** of projects “HBP\_Nest” and “NEST multi-scale simulations of EyeBlink Conditioning” (high performance computing resources from CINECA for cerebellar modelling in Human Brain Project), 2018 and 2019 (CINECA IS CRA programme)
  - **Winner** of “Fondo per il finanziamento delle attività base di ricerca” MIUR 2018
- PARTECIPATION
  - **Human Brain Project Horizon 2020** Framework Programme for Research and Innovation – SGA1 (Grant Agreement No. 720270, 2016-2018) and SGA2 (Grant Agreement No. 785907, 2018-2020). My main task: cerebellar microcircuit models in the Brain Simulation Platform
  - **Partnering Project** CerebNEST (Human Brain Project) (2017-now). My main task: cerebellar microcircuit models into neurorobotic environments
  - **Co-Design Project** “Mouse-Based Cellular Cortical and Sub-Cortical Microcircuit Models” (Human Brain Project) (2018-now) [[www.humanbrainproject.eu/en/about/project-structure/codesign-projects/#CDP2](http://www.humanbrainproject.eu/en/about/project-structure/codesign-projects/#CDP2)]. My main task: multiple brain areas in a modular architecture, embedded in functional behavioral loops
  - **NIH project** “Multi-center trial of Augmented Sensory Feedback in Children with Dyskinetic CP”, funded by the US National Institute of Health (NIH grant: 1R01HD081346; 2013-2019; Subaward: 61430868). PI: Prof T Sanger (Children Hospital Los Angeles; Dept. Bioengineering USC, Los Angeles) [[https://projectreporter.nih.gov/project\\_info\\_description.cfm?projectnumber=5R01HD081346-04](https://projectreporter.nih.gov/project_info_description.cfm?projectnumber=5R01HD081346-04)]. My main task: set-up validation, clinical acquisitions and data analysis
  - **European project REALNET** “Realistic Real-time Networks: computation dynamics in the Cerebellum” (ICT-2009.6 FET Proactive GA 270434, 2011-2014) [<https://cordis.europa.eu/project/rcn/97465/factsheet/it>]. My main task: simplified cerebellar spiking networks into real robots
  - **European project MUNDUS** “MULTImodal Neuroprosthesis for Daily Upper limb Support” (ICT-2009.7.2 Accessible and Assistive ICT GA 248326, 2010-2013) [<https://cordis.europa.eu/project/rcn/94288/it>]. My main task: eye-tracking module for patient’s intention detection
  - Projects “MOVE and SLINK”, funded by **ASI (Italian Space Agency)** (2013-038-I.0), in collaboration with NASA. My main task: support for in-flight set-up development and testing, protocol design, and experimental acquisitions on astronauts
  - Project “Resistive countermeasure - ARED kinematics”, funded by **ASI (Italian Space Agency)** (2013-065-R.0), in collaboration with ESA. My main task: support for in-flight set-up testing, protocol design, and experimental acquisitions
  - Project “Tridimensional Ballistocardiography in microgravity”, funded by **ASI (Italian Space Agency)** (2013-064-R.0), in collaboration with ESA. My main task: onground experimental acquisitions

## SPEAKER AT INTERNATIONAL AND NATIONAL SCIENTIFIC CONFERENCES

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- INVITED TALKS
  - “*Sistemi adattivi bio-ispirati: modelli computazionali del cervelletto con capacità di apprendimento*” – corso *Intelligenza artificiale: un percorso tra uomo e computer* – May 2020, Collegio Borromeo, Pavia (Italy)

- “Reconstruction and simulation of the cerebellar microcircuit”, at 4th HBP Student Conference - Jan 2020, Pisa (Italy) – travels supported by HBP Training Programme
  - “Reconstruction and simulation of the cerebellar microcircuit”, at CodeJam#10 EBRAINS - Integration and Workflows, Nov 2019, Heidelberg (Germany)
  - “Ricostruzione e simulazione del microcircuito cerebellare: uno scaffold versatile per diversi livelli di dettaglio e di scala”, at CINECA - workshop on HPC solution for Neuroscience, June 2019, Bologna (Italy) – travels supported by HBP Education Programme
  - “Reconstruction and simulation of the cerebellar microcircuit: a scaffold strategy to embed different levels of neuronal details”, at CNS - workshop on Generative connectomics and plasticity, July 2019, Barcelona (Spain)
  - “Proof of concept of pathology modelling with closed loop simulations”, at School of Brain Cells & Circuits "Camillo Golgi" - Modeling the brain and its pathologies, Aug 2019, Erice (Italy)
  - “Cerebellar microcircuit: from models to behaviors”, at Erasmus MC, June 2018, Rotterdam (Holland)
  - “Cerebellar microcircuit: from models to behaviors”, at Dept. of Electrical Engineering, Technical University of Denmark, March 2018, Copenhagen (Denmark)
  - “Microcircuits in action: towards bottom-up modeling of brain function”, at School of Brain Cells & Circuits "Camillo Golgi" - From cell physiology to integrated signals and emerging brain functions, Dec 2017, Erice (Italy)
  - “Robotic learning by cerebellar spiking controller”, at FENS Satellite Event: Biologically-based models of neurons and microcircuits, July 2014, Pavia (Italy)
  - *Brain-inspired robotic control: learning in cerebellum-driven movement tasks through a cerebellar realistic model*, at CNS - workshop on Computations in the cerebellar circuit, July 2013, Paris (France)
- ORAL PRESENTATIONS at INTERNATIONAL CONFERENCES
    - “Synergy-based myocontrol of a two degree of freedom robotic arm in children with dystonia”, at ICNR Converging Clinical and Engineering Research on Neurorehabilitation, Oct 2016, Segovia (Spain)
    - “Blind & Imagined: sensori-motor mechanism changes in long-term lack of gravity”, at EMBC 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Aug 2015, Milano (Italy)
    - “Brain-inspired sensorimotor robotic platform: learning in cerebellum-driven movement tasks through a cerebellar realistic model”, at International Joint Conference on Computational Intelligence, Sept 2013, Vilamoura (Portugal)
    - “Sensory-motor adaptation onboard the ISS: results from two astronauts”, at International Society for Gravitational Physiology, May 2009, Xian (China)
    - “Synergic organization of motor control in normal gravity and microgravity”, at Italian Society for Space Biomedicine and Biotechnology, Mar 2007, Bari (Italy)

## SCIENTIFIC WORKSHOP ORGANIZATION AND MEMBERSHIPS

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- Scientific organizer of *Hackathon on cerebellum modeling*, HBP Education. 13-15<sup>th</sup> January 2020, University of Pavia. Talks on cerebellum models and tutorials for their development and applications, using Human Brain Project infrastructures [https://www.humanbrainproject.eu/en/education/participatecollaborate/infrastructure-events-trainings/hackathon-on-cerebellum-modelling/]
- Member of Society for Neuroscience (SfN)
- Member of Organization for Computational Neurosciences (OCNS)

## AWARDS AND SCHOLARSHIPS

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- Best poster at HBP Summit Athens 2020. *Cerebellum: advanced neuron and microcircuit models*. R De Schepper, S Masoli, ..., C Casellato, E D'Angelo.
- Travel award at Organization for Computational Neurosciences 2019 [www.cnsorg.org/cns-2019]
- Best paper at 7th International IEEE/EMBS Conference on Neural Engineering 2015 (Montpellier, France)
- Best poster at School of Brain Cells & Circuits "Camillo Golgi" 2015 (Erice, Italia)
- NCM (Neural Control of Movement) society scholarship 2011
- Zonta International Amelia Earhart Fellowship 2008

## EDITORIAL ACTIVITIES

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- **Review Editor** in the Editorial Board of Frontiers in Robotics and AI - Biomedical Robotics
- **Review Editor** in the Editorial Board of Frontiers in Neurorobotics
- Reviewer at 27th Annual Computational Neuroscience Meeting CNS\*2018
- Referee for several peer-reviewed indexed Journals (ISI), e.g. Scientific Reports, Neurocomputing, International Journal of Neural Systems, Journal of NeuroEngineering and Rehabilitation, PLoS, IEEE Transactions on Robotics, Frontiers in Neurorobotics, Frontiers in Bioengineering and Biotechnology, Transactions on Neural Systems and Rehabilitation Engineering

## ACADEMIC ROLES

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- Member of the **Academic Board of PhD program “Biomedical Science”** at University of Pavia (from 2019)
- **PhD external examiner** (invited) at Robotics Laboratory, Faculty of Environment and Technology, University of the West of England, Bristol, UK (PhD viva on 24<sup>th</sup> Sept 2019)

## TEACHING ACTIVITIES

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- MAIN TEACHER
  - **AY 2018-2019; 2019-2020: “Neural modelling and computation” (6 ECTS)** for **Master Degree (MSc)** in Psychology, neuroscience and human sciences (in English); at University of Pavia and University School for Advanced Studies IUSS, Pavia
  - **AY 2015-2016; 2017-2018: PhD course “Methods and techniques for research in neuroscience”**. Specific topic (**1 ECTS**): “Computational Model of Brain: from molecular level to microcircuits models”; at Politecnico di Milano
  - **AY 2018-2019; 2019-2020: “Fisiopatologia e Immunologia”**, Specific topics (16 hours of frontal lectures): Neurophysiology bases, biomechanics, fluidodynamics, thermodynamics; at Osteopathy University School TCIO, Milano
  - **AY 2014-2015; 2015-2016; 2016-2017; 2017-2018: “Fisica e Biofisica”** (16 hours of frontal lectures); at Osteopathy University School TCIO, Milano
- TEACHING ASSISTANT
  - **AY 2012-2013; AY 2014-2015: Master course Neuroengineering** (main teacher: Prof. A. Pedrocchi), (12 hours; 17 hours); at Biomedical Engineering at Politecnico di Milano
  - **AY 2012-2013: Master course Laboratory of Medical Robotics and surgery technology** (5 hours), at Biomedical Engineering at Politecnico di Milano
  - **AY 2010-2011; 2011-2012: PhD course “Medical Robotics”**. Laboratory class: Brain-inspired robotics; at Politecnico di Milano
  - **AY 2014-2015: PhD course “Human friendly robotics”**. Laboratory class: Brain-inspired robotics; at Politecnico di Milano
- Co-Supervisor of **16 Master theses** in Bioengineering at Politecnico di Milano (Italy), of **2 Master theses** in Psychology, neuroscience and human sciences at University of Pavia (Italy)
- Co-supervisor of **3 PhD thesis** in Bioengineering at Politecnico di Milano (Italy):
  - F. Lunardini, *Functional assessment methods and EMG-based interventions for children with dystonia* – May 2016 (PhD Award CNR- IEIIT GNB 2016)
  - A. Antonietti, *Computational cerebellar models and their embodiment in behavioral loops to understand neural bases of motor learning* – May 2018 (PhD Award GNB 2018)
  - A. Geminiani, *Simulations of cerebellar networks towards understanding of pathologies, linking complex neuronal models to behavior* – July 2019 (PhD Award GNB 2019)

## OVERALL SCIENTIFIC PRODUCTION

SCOPUS AUTHOR ID: 36558806300; ORCID.ORG/0000-0002-8729-0391; TOT CITATIONS=632; H-INDEX = 14 [SCOPUS ON MAY 2020]

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- 31 articles on international peer-reviewed indexed Journals
  - 2 book chapters
  - 27 publications on International Conference Proceedings indexed in Scopus and/or WoS
  - 38 contributions at International Conferences
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### Articles on international peer-reviewed indexed Journals

- Casellato C, Ambrosini E, Galbiati A, Biffi E, Cesareo A, Beretta E, Lunardini F, Zorzi G, Sanger T, Pedrocchi A. *EMG-based vibro-tactile biofeedback training: effective learning accelerator for children and adolescents with dystonia? A pilot crossover trial.* J NEUROENG REHABIL 2019; 16(1):150; doi: 10.1186/s12984-019-0620-y
- Geminiani A, Pedrocchi A, D'Angelo E, Casellato C. *Response Dynamics in an Olivocerebellar Spiking Neural Network With Non-linear Neuron Properties.* FRONT. COMPUT. NEUROSCI. 2019; 13:68; doi: 10.3389/fncom.2019.00068
- Geminiani A, Casellato C, Pedrocchi A, D'Angelo E. *Complex Electroresponsive Dynamics in Olivocerebellar Neurons Represented With Extended-Generalized Leaky Integrate and Fire Models.* FRONT. COMPUT. NEUROSCI. 2019; 6:13:35; doi: 10.3389/fncom.2019.00035
- Casali S, Marenzi E, Medini C, Casellato C\*, D'Angelo E\* (\*co-last authors). *Reconstruction and Simulation of a Scaffold Model of the Cerebellar Network.* FRONT. NEUROINFORM. 2019; 15, 13:37. doi: 10.3389/fninf.2019.00037
- Geminiani A, Casellato C, Locatelli F, Prestori F, Pedrocchi A, D'Angelo E. *Complex dynamics in simplified neuronal models: reproducing Golgi cell electroresponsiveness.* FRONT. NEUROINFORM. 2018; 12, 1–19; doi:10.3389/fninf.2018.00088
- Antonietti A, Martina D, Casellato C, D'Angelo E, Pedrocchi A. *Control of a humanoid NAO robot by an adaptive bioinspired cerebellar module in 3D motion tasks.* COMPUT. INTELL. NEUROSCI. 2019; 4862157 doi:10.1155/2019/4862157
- Antonietti A, Monaco J, D'Angelo E, Pedrocchi A, Casellato C. *Dynamic Redistribution of Plasticity in a Cerebellar Spiking Neural Network Reproducing An Associative Learning Task Perturbed by TMS.* INT J NEURAL SYST 2018; 28(9); doi: 10.1142/S012906571850020X
- Geminiani A, Casellato C, Antonietti A, D'Angelo E, and Pedrocchi A. *A multiple-plasticity spiking neural network embedded in a closed-loop control system to model cerebellar pathologies.* INT J NEURAL SYST 2018; 28; doi: 10.1142/S0129065717500174
- Lunardini F, Casellato C, Bertucco M, Sanger TD, Pedrocchi A. *Children with and without dystonia share common muscle synergies while performing writing tasks.* ANNALS BIOMED ENG 2017; 1-14;doi:10.1007/s10439-017-1838-0
- Martin-Yebra A, Landreani F, Casellato C; Pavan E, Migeotte PF, Frigo C, Martinez Cortes J, Caiani E. *Evaluation of respiratory- and postural-induced changes on the ballistocardiogram signal by time warping averaging.* PHYSIOL. MEAS. 2017; doi: 10.1088/1361-6579/aa72b0
- D'Angelo E, Antonietti A, Casali S, Casellato C, et al. *Modelling the cerebellar microcircuit: new strategies for a long-standing issue.* FRONT. CELL. NEUROSCI. 2016; 10:176; doi: 10.3389/fncel.2016.00176
- Antonietti A, Casellato C, D'Angelo E, and Pedrocchi A. *Model-driven Analysis of Eyeblink Classical Conditioning Reveals the Underlying Structure of Cerebellar Plasticity and Neuronal Activity.* IEEE TRANS NEURAL NETW LEARN SYST. 2017; doi: 10.1109/TNNLS.2016.2598190
- Casellato C, Pedrocchi A, Ferrigno G. *Whole-body movements in long-term weightlessness: hierarchies of the controlled variables are gravity-dependent.* J. MOT. BEHAV. 2017; 1-12; doi: 10.1080/00222895.2016.1247032
- Politti F, Casellato C, Kalytczaka M, Santos Garciaa M, Biasotto-Gonzaleza DA. *Characteristics of EMG frequency bands in temporomandibular disorders patients.* J. ELECTROMYOGR. KINESIOL. 2016; 119-125; doi: 10.1016/j.jelekin.2016.10.006
- Lunardini F, Cesareo A, Biffi E, Casellato C, Pedrocchi A, Sanger TD. *EMG-based vibro-tactile biofeedback improves motor control in children with secondary dystonia: two case reports.* NEUROPSYCHIATRY 2016; 6(6): 337–343; doi: 10.4172/Neuropsychiatry.1000158
- Antonietti A, Casellato C, Garrido J.A, Luque N.R, Naveros F, Ros E, D'Angelo E, and Pedrocchi A. *Spiking Neural Network with Distributed Plasticity Reproduces Cerebellar Learning in Eye Blink Conditioning Paradigms.* IEEE TRANS. BIOMED. ENG. 2016; 63: 210-219; doi: 10.1109/TBME.2015.2485301
- D'Angelo E, Mapelli L, Casellato C, Garrido J.A, Luque N, Monaco J, Prestoria F, Pedrocchi A, Ros E. *Distributed circuit plasticity: new clues for the cerebellar mechanisms of learning.* THE CEREBELLUM 2016; 15(2):139-151; doi: 10.1007/s12311-015-0711-7

- Lunardini F, Casellato C, d'Avella A, Sanger TD, Pedrocchi A. *Robustness and Reliability of Synergy-Based Myocontrol of a Multiple Degree of Freedom Robotic Arm*. IEEE TRANS NEURAL SYST REHABIL ENG. 2016; 940-950; doi: 10.1109/TNSRE.2015.2483375
- Casellato C, Antonietti A, Garrido J.A, Ferrigno G, D'Angelo E, Pedrocchi A. *Distributed cerebellar plasticity implements generalized multiple-scale memory components in real-robot sensorimotor tasks*. FRONT. COMPUT. NEUROSCI. 2015; 9; doi: 10.3389/fncom.2015.00024
- Lunardini F, Maggioni S, Casellato C, Bertucco M, Pedrocchi A, Sanger TD. *Increased task-uncorrelated muscle activity in childhood dystonia*. J NEUROENG REHABIL 2015; 12:52; doi: 10.1186/s12984-015-0045-1
- Lunardini F, Bertucco M, Casellato C, Bhanpuri N, Pedrocchi A, Sanger TD. *Speed-accuracy trade-off in a trajectory-constrained self-feeding task: a quantitative index of unsuppressed motor noise in children with dystonia*. J CHILD NEUROL. 2015; 30(12):1676-85; doi: 10.1177/0883073815578526
- Casellato C, Antonietti A, Garrido J.A, Carrillo R.R, Luque N.R, Ros E, Pedrocchi A, D'Angelo E. *Adaptive robotic control driven by a versatile spiking cerebellar network*. PLoS One 2014; 9(11): e112265; doi:10.1371/journal.pone.0112265
- Monaco J, Casellato C, Koch G, D'Angelo E. *Cerebellar theta burst stimulation dissociates memory components in eyeblink classical conditioning*. EUR J NEUROSCI. 2014; 40(9):3363-3370; doi: 10.1111/ejn.12700
- D'Angelo E, Solinas S, Garrido J, Casellato C, et al. *Realistic modeling of neurons and networks: towards brain simulation*. FUNCT NEUROL. 2013; 28(3): 153-166; doi: 10.11138/FNeur/2013.28.3.153
- Pedrocchi A, Ferrante S, Ambrosini E, Gandolla M, Casellato C et al. *MUNDUS project: MULTimodal Neuroprosthesis for Daily Upper limb Support*. J NEUROENG REHABIL 2013; 10:66; doi: 10.1186/1743-0003-10-66
- Casellato C, Pedrocchi A, Zorzi G, Vernisse L., Ferrigno G, Nardocci N. *EMG-based visual-haptic biofeedback: a tool to improve motor control in children with primary dystonia*. IEEE TRANS NEURAL SYST REHABIL ENG. 2013, 21(3):474-480; doi: 10.1109/TNSRE.2012.2222445
- Casellato C, Pedrocchi A, Zorzi G, Rizzi G, Ferrigno G, Nardocci N. *Error-enhancing robot therapy to induce motor control improvement in childhood onset primary dystonia*. J NEUROENG REHABIL 2012; 9:46; doi: 10.1186/1743-0003-9-46
- Casellato C, Tagliabue M, Pedrocchi A, Papaxanthis C, Ferrigno G, Pozzo T. *Reaching while standing in weightlessness: a new postural solution to oversimplify movement control*. EXP BRAIN RES 2012; 216(2): 203-215; doi: 10.1007/s00221-011-2918-2
- Casellato C, Zorzi G, Pedrocchi A, Ferrigno G, Nardocci N. *Reaching and writing movements: sensitive and reliable tools to measure genetic dystonia in children*. J CHILD NEUROL. 2011; 26(7): 822-9; doi: 10.1177/0883073810392997
- Gandolla M, Ferrante S, Casellato C, Ferrigno G, Molteni F, Martegani A, Frattini T, Pedrocchi A. *fMRI brain mapping during motion capture and FES induced motor tasks: Signal to Noise Ratio assessment*. MED ENG PHYS. 2011; 33:1027-1032; doi: 10.1016/j.medengphy.2011.04.005
- Casellato C, Ferrante S, Gandolla M, Volonterio N, Ferrigno G, Baselli G, Frattini T, Martegani A, Molteni F, Pedrocchi A. *Simultaneous Measurements of Kinematics and fMRI: Compatibility Assessment and Case Report on Recovery Evaluation of one Stroke Patient*. J NEUROENG REHABIL 2010; 7:49; doi: 10.1186/1743-0003-7-49

## Book chapters

- Antonietti A, Casellato C, D'Angelo E, Pedrocchi A. *Computational Modelling of Cerebellar Magnetic Stimulation: the Effect of Washout*. In BRAINCOMP 2019, LECTURE NOTES IN COMPUTER SCIENCE. Submitted
- Lunardini F, Casellato C, Sanger TD, Pedrocchi A. *Synergy-based myocontrol of a two degree of freedom robotic arm in children with dystonia*. BIOSYSTEMS AND BIOROBOTICS 2017, Vol 15, 595-599; doi: 10.1007/978-3-319-46669-9\_98

## Publications on international peer-reviewed indexed Conference Proceedings

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