

Maurizio Petrarca CV

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Petrarca Maurizio: published 63 peer-reviewed articles Scopus Author ID: 14825789800, <https://orcid.org/0000-0002-7330-3569>. Date of birth: Jan 15 1957 Nationality: Italy

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EDUCATION

2019 Qualifying examination as Associate Professor, Italian Ministry of University and Instruction.

2012 PhD, Measures in Mechanical Engineering CISAS, University of Padua, Italy

2007 Master in Science of Rehabilitation, Department of Medicine, "Tor Vergata" University, Rome, Italy

2004 Degree in Physiotherapy, Department of Medicine, "Tor Vergata" University, Rome, Italy

1984 Degree in Physiotherapy, Occupational Therapy and Speech Therapy, "Spolverini" Hospital, Ariccia, Rome Italy.

CURRENT POSITION

2000 – to this day Head of Movement Analysis and Robotic Laboratory (MARlab) Department of Neurorehabilitation and Robotics, "Bambino Gesù" Children's Hospital Research Institute (IRCCS), Rome, Italy

PREVIOUS POSITION

1984 – 1999 Therapist of the rehabilitation (Physiotherapist, Occupational Therapist and Speech Therapist), Department of Neurorehabilitation, "San Giovanni Battista" Hospital, SMOM - Rome, Italy

Short Biography

Maurizio Petrarca trained as a Therapist of the Rehabilitation in Rome, Italy (B.Sc. 1984). He obtained an M.Sc. degree in Rehabilitation Science, 2007 and a PhD in mechanical engineering, 2012. He practised for fifteen years in Rome, Italy, where he specialised in neurological rehabilitation in adults practising Physiotherapy, Speech and Occupational Therapy. He built an original optoelectronic system for movement analysis on a microcomputer. In this period, he also patented an original dynamic mechanical temporary orthosis for gait re-education (1995). Then he practised for twenty years at the "Bambino Gesù" Children's Hospital, where he specialised in neurological rehabilitation in children with the position of head of the Movement Analysis and Robotics Laboratory MARlab. Here he patented an ankle and knee robotic orthosis (2012); he realised an integrated environment for balance and gait re-education (an open-source project); and a knee robotic orthosis (another ongoing open-source project). Research interest: Understanding the motor control of balance, gait and upper limb reaching and grasping; studying sensory-motor impairments after neurological injury or disease in children and adults; determining the effectiveness of new interventions, including task-oriented therapy and interventions using different technologies towards a patient-centred rehabilitation.

Financed Projects

Principal Investigator (2021 in progress): Knee Robotic Adaptive Orthosis. 60.000,00 Euros. EUROBENCH FSTP-2 Grant.

Principal Investigator (2021 in progress) of the project: Knee Robotic Adaptive Orthosis on DORIS. 30.000,00 Euros. EUROBENCH FSTP-2 Grant.

Principal investigator (2021 in progress) Assessment and treatment of Ataxia gait disorders. 30.000,00 euros. Current Research grant ("Bambino Gesù" Children's Hospital - Research Institute).

Key person in the network project (2016-2021): Pediatric ataxias and Public Health: epidemiological studies and disease registry, characterisation of genetic determinants and implementation of protocols for diagnosis, management, and rehabilitation using innovative low cost, widely-accessible technologies. Grant of the Italian Ministry of Health NET-2013-02356160. 554.000,00 Euros.

Principal Investigator (2015-2019): Realisation of an integrated environment for the training and the recovery of body balance (DORIS). Grant of Italian Ministry of Health CO-2011-02351627, 300.000,00 Euros.

Invention

2019. He realised a low-cost robotic knee orthosis with phase dependant interaction and impedance control, not patented (in progress open-source project).

2017. He realised DORIS (Dynamic Oriented Integrated Rehabilitative System). It is a 6DoF Stewart Platform with a 1.2 m plate, controlled in impedance and in position integrated with an immersive Virtual Reality environment and an optoelectronic motion analysis system, not patented (in progress open-source project).

2012. Eu Patent n 13820927.5: P. CAPPÀ, F. PATANÈ, S. ROSSI, E. CASTELLI, M. PETRARCA. Actuated orthoses for knee and ankle. *Ortesi motorizzate di caviglia e ginocchio*.

1995. Italian Patent: 0000235749: PETRARCA M. Dynamic temporary orthoses for gait recovery after a lesion of the central nervous system. *Utilizzo di molle per realizzare ortesi dinamiche dell'arto inferiore al fine di ottenere il recupero funzionale della deambulazione dopo lesioni al sistema locomotore nell'uomo; come strumento di apprendimento e riapprendimento motorio*.

1988. He realised an optoelectronic system on a microcomputer, not patented.

Monographs

He published a monograph on gait recovery using dynamic passive components (springs) in 1996: Petrarca, M. Dynamic temporary orthoses for gait recovery after a lesion of the central nervous system. Towards an ecological rehabilitation. "La rieducazione della deambulazione nelle lesioni del SNC tramite ortesi dinamiche temporanee. Verso un'ecologia della riabilitazione". 1996 Piccoli Quaderni di Riabilitazione (PQR). Salvatore Giacquinto ed. 5; 2, pp. 1-45. In Italian.

He published a monograph on the development of gait analysis in 2019: Petrarca M. The Development of Gait Analysis in Developmental Age. 2019 Biosystems and Biorobotics 21, pp. 606-609.

Symposium Chair

EACD 2011, Motion Analysis, 23rd European Academy of Childhood Disability, Rome, Italy. IPBIS 2017, Robotic Rehabilitation, 2nd Conference on Paediatric Acquired Brain Injury, Rome Italy.

Invited speaker

ICNR 2018, Gait Analysis, 3rd International Conference on NeuroRehabilitation. Pisa, Italy.

Organisation Of Scientific Meetings

2019 Director of three-day National course: "Which Technology for which rehabilitation" 2nd edition, at the "Bambino Gesù" Children's Hospital Research Institute, Rome, Italy.

2016 Director of three-day National course: "Which Technology for which rehabilitation" 1st edition, at the "Bambino Gesù" Children's Hospital Research Institute, Rome, Italy.

2014 Chair of the 1st Clinical Movement Analysis World Conference SIAMOC, ESMAC joint Conference, Sept 29 – Oct 4. With 495 participants, 50 conference and symposium speakers and 320 scientific contributions, Rome, Italy.

2003 - to this day, Director of numerous courses on motion analysis in rehabilitative context.

Reviewing Activities

2013 – 2017 Review panel member, Motion Analysis, SIAMOC Scientific Society, Bologna, Italy.

2016 –to this day Review panel member, Bambino Gesù Children's Hospital Research Institute, Rome, Italy.

2018-2021 - Review panel member, Paediatric Ataxia, Italian Health Institute, Rome, Italy.

2018 to this day Review panel member, Robotics in Neurorehabilitation, Italian Health Institute, Rome, Italy.

Major Collaborations

Alain Berthoz, Sensory-Motor Integration, College de France, Paris, France

Kaat Desloovere, Motion Analysis, Katholieke Universiteit, Leuven, Belgium.

Jaap Harlaar, Robotics and Motion Analysis, TUDelft, Delft, Netherland.

Mindy Levin, Motor control, McGill University, Montreal, Canada.

Esteban Pavan, Erasmus project on Gait rehabilitation education, Fondazione Politecnico di Milano, Milan, Italy.

Awards and Memberships

Award for the scientific paper "New low cost device on microcomputer for movement analysis in clinics", Congress "Hai, torre animata, riflessioni su corpo movimento e sistema in riabilitazione", Castelvecchio Pascoli 6-8 ottobre 1990, Italy.

Award for the scientific paper at GCMAS 2010, Miami,US.

Award for the scientific paper at ESMAC 2011, Vienna, AT.

Award for the scientific paper "Gait analysis in patients with bladder extrophy." 01-01-2012 .

Award for the scientific paper "Brain network involved in visual processing of upper limb robotic training: an fMRI study." 4th International Cerebral Palsy Conference, Pisa, Italy, October 10-13, 2012.

Member of Scientific Committee of Siamoc from 2007 to 2011

Member of Scientific Committee of ESMAC from 2013 to 2015

Italian attaché at ESMAC society from 2017 to 2019

Founding member of the Interest Group (GIS) on Neuroscience in Physiotherapy of the Italian Association of Physiotherapy A.I.FI.

Vice-President of the A.I.FI.-GIS Neuroscience from 2016 to 2019

President of the A.I.FI.-GIS Neuroscience from 2019

Member of the Committee of A.I.FI. from 2019

Member of the European Reference Network for Rare Neurological Diseases (ERN-RND) 2019-to this day

Rome, July 21 2021.

Dr Maurizio Petrarca

A handwritten signature in black ink, reading "Maurizio Petrarca". The signature is written in a cursive style with a prominent flourish at the end of the last name.