

Curriculum Vitae (February, 2020)
VICTOR SANTAMARIA

ADDRESS Robotics and Rehabilitation Laboratory
Department of Mechanical Engineering
Columbia University
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EDUCATION

2011 – 2015 Ph.D., Human Physiology and Neuroscience, University of Oregon,
OR, Supervisor: Marjorie H. Woollacott
2009 – 2010 M.A., Neuroscience, Institute of Castilla y León, University of Salamanca, Spain
2007 – 2008 M.A., Pediatric Physical Therapy, International University of Catalunya, Spain
2004 – 2007 B.S., Physical Therapy, Department of Health Science, University of Malaga,
Spain
2002 – 2004 Technical Degree in Environmental Chemistry, I.E.S. Labor University, Malaga,
Spain

PROFESSIONAL ACADEMIC EXPERIENCE

2020 – current Associate Research Scientist, Department of Mechanical Engineering,
Columbia University, NY, Supervisor: Dr. Sunil K. Agrawal
2017 – 2019 Postdoctoral Research Scientist, Department of Mechanical Engineering,
Columbia University, NY, Supervisor: Dr. Sunil K. Agrawal
2017 – 2018 Adjunct Professor, Master Thesis Supervisor, Physical Therapy Department,
International University of Catalunya, Spain
2016 – 2017 Adjunct Professor, 'Analysis & Synthesis of Human Motion II', Physical Therapy
Department, New York University, NY
2015 – 2017 Postdoctoral Fellow, Department of Biobehavioral Sciences,
Teachers College, Columbia University, NY, Supervisor: Dr. Andrew M. Gordon
2011 – 2015 Graduate Student Fellow, Human Physiology Department,
University of Oregon, OR
2012 – 2014 Lab Instructor, 'Motor Control' Human Physiology Department,
University of Oregon, OR
2013 – 2014 Teacher Assistant, 'Principles of Nutrition' Human Physiology Department,
University of Oregon, OR

PROFESSIONAL CLINICAL EXPERIENCE

2016 – Current Pediatric Physical Therapist, ADAPT Community Network, NY
2015 – 2016 Pediatric Physical Therapist, Pathways OT Therapeutic Wellness, NY
2008 – 2011 Pediatric and Adult Neurologic, Home Therapy, Malaga, Spain
2008 Early Intervention Program, Fuensocial, Malaga, Spain
2008 Geriatric Physical Therapist, La Esperanza, Malaga, Spain
2008 Orthopedic Physical Therapist, Policlinica San Juan, Malaga, Spain
2007 Orthopedic Physical Therapist, Clinica Larios, Malaga, Spain

PT POSTGRADUATE CLINICAL TRAINING

- Kinesio Taping (K3): Advanced Techniques & Clinical Reasoning
Hospital for Special Surgery, New York (US), 2019
- Advanced Clinical Practice in Pediatrics
American Physical Therapy Association (APTA): Pediatric Section, Nebraska (US), 2019
- Application of the Segmental Assessment of Trunk Control (SATCo) in CP
The Robert Jones & Agnes Hunt Hospital, Oswestry (UK), 2012
- Kinetic Control: Understanding Movement and Function
Spanish Association of Physiotherapists (AEFI), Madrid (Spain), 2010
- Neurodynamic Techniques: Butler's concept
Clinic Bonilla, Malaga (Spain), 2009
- Kinesio Taping (K1 & K2): Assessments, Fundamental Concepts and Techniques
Spanish Association of Physiotherapists (AEFI), Madrid (Spain), 2009
- Assessment and application of DAFO's Cascade in CP
Centro Civico, Malaga (Spain), 2009
- Introduction to Spontaneous General Movement Assessment in Newborns
Catholic University of San Antonio, Murcia (Spain), 2008
- Manual Therapy for the Craniocervical-Temporomandibular Region
Illustrious College of Physical therapist of Andalusia (ICPFA), Malaga (Spain), 2007
- Hydrotherapy and Aquatic Therapy
Hydrotherapy and Adapted Aquatic Therapy, Cadiz (Spain), 2007
- Treatment for Hemophilic Arthropathies and Coagulopathies
La Fe Hospital, Valencia (Spain), 2006 & 2013
- *Logoss Online PT Coursework, 2006-2008*
 - Pediatric Physical Therapy
 - Principles in Neurologic Disorders for PTs
 - Diseases of the Vertebral Column
 - Knee Rehabilitation

PROFESSIONAL LICENSURE

- 2015 – current Licensed Physical Therapist by The New York State Education Department, Office of the Professions: License # 039706.
- 2007 – 2011 Licensed Physical Therapist by Illustrious Professional College of Physiotherapists of Andalusia (ICPFA), Spain: License # 3491.
- 2007 – 2011 Licensed Physical Therapist by Spanish Society of Physiotherapists (AEF), Spain: License # 8933.

PROFESSIONAL SERVICE AND MEMBERSHIP

- 2019 – current ORCID: 0000-0002-7889-6957.
- 2019 – current Member of American Physical Therapy Association (APTA): 856142.
- 2008 – current Spanish Society in Pediatric Physical Therapy (SEFIP).

RESEARCH INTERESTS

Postural and reaching control; motor learning and control therapies; robotic rehabilitation; cerebral palsy.

SCIENTIFIC AWARDS

- 2014 Eugene Evonuk Award: \$10,000 Scholarship. Human Physiology Department, University of Oregon, OR
- 2010 Accesit Award of Investigation. Ilustrious Professional College of Physical Therapists of Andalucia, Spain.

PUBLICATIONS

* *Student authors*

1. **Santamaria V.** Luna T.* Khan M.* Agrawal S (2020). The Robotic Trunk-Support-Trainer (TruST) to Measure and Increase Postural Workspace during Sitting in People with Spinal Cord Injury. *Nature: Spinal Cord Series and Cases*. 6 (1): 1-7.
2. **Santamaria V.**, Rachwani J., Saussez, G., Bleyenheuft, Y., Dutkowsky, J., Gordon A.M., & Woollacott, M.H (2020). The Seated Postural & Reaching Control Test (SP&R-co) in Cerebral Palsy: A Validation Study. *Physical & Occupational Therapy in Pediatrics*. 1-29.
3. Khan, M.,* Luna, T.,* **Santamaria, V.**, Omofuma, I.,* Martelli, D., Rejc, E., Stein, J., Harkema, S., Agrawal, S (2019). Stand Trainer with Applied Forces at the Pelvis and Trunk: Response to Perturbations and Assist-As-Needed Support. *Transactions on Neural Systems & Rehabilitation Engineering*. 27(9): 1855-1864.
4. Ophaswongse, C.* , Murray, R.C.* , **Santamaria, V.**, Wang, Q., & Agrawal, S.K (2019). Human evaluation of wheelchair robot for active postural support (WRAPS). *Robotica*. 37(12): 2132-2146.
5. Khan, M.I.* , **Santamaria, V.**, & Agrawal, S.K. (2017). Improving trunk-pelvis stability using active force control at the trunk and passive resistance at the pelvis. *IEEE Robotics and Automation Letter*, 3, 2569-2576.
6. Khan, M.I.* , **Santamaria, V.**, Kang, J.* , Bradley, B.M.* , Dutkowsky, J.P., Gordon, A.M., & Agrawal, S.K. (2017). Enhancing seated stability using trunk support trainer (TruST). *IEEE Robotics and Automation Letter*, 2, 1609-1616.
7. **Santamaria, V.**, Rachwani, J., Manselle, W., Saavedra, S.L., & Woollacott, M.H. (2017). The impact of segmental trunk support on reaching and posture while sitting in healthy adults. *Journal of Motor Behavior*, 50, 51-64.
8. **Santamaria, V.**, Rachwani, J., Saavedra, S.L., & Woollacott, M.H. (2016). The impact of segmental trunk support on posture and reaching in children with moderate and severe cerebral palsy. *Pediatric Physical Therapy*, 28, 285-293.
9. Rachwani, J., **Santamaria, V.**, Saavedra, S.L., & Woollacott, M.H. (2015). The development of trunk control and its relation to reaching in infancy: A longitudinal study. *Frontiers in Human Neuroscience*, 9, 94.
10. **Santamaria, V.** & Rachwani, J. (2014). Literature review: XL Scientific document. Development of reach-to-grasp & related sensorimotor systems in typical developing infants. *Sociedad Española de Fisioterapia en Pediatría*.
11. Rachwani, J., **Santamaria, V.**, Saavedra, S.L., Wood, S., Porter, F., & Woollacott, M.H. (2013) Segmental trunk control acquisition and reaching in typically developing infants. *Experimental Brain Research*, 228, 131-139.
12. **Santamaria, V.**, & Rachwani, J. (2010). Physiotherapy in haemophilic arthropathy of the knee. *Cuestiones de Fisioterapia*, 39, 68-77.
13. **Santamaria, V.** (2008). Literature review: XVII Scientific document. Infantile obesity & pickwick syndrome. *Sociedad Española de Fisioterapia en Pediatría*.

MANUSCRIPTS UNDER REVIEW

* *Student authors*

1. **Santamaria, V.**, Khan, M.I.*, Luna, T.*, Kang, J.*, Dutkowsky, J.P., Gordon A.M., & Agrawal, S.K. Sitting Acquisition in Cerebral Palsy Using the Robotic Trunk-Support-Trainer (“*under review*”).
2. Luna, T.*, Omofuma, I.,* **Santamaria, V.** Agrawal, S., (2019). Control Mechanisms in Standing during Simultaneous Perturbations and Active Assistance with the Robotic Upright Stand Trainer (RobUST) (“*under review*”).

MANUSCRIPTS IN PREPARATION

* *Student authors*

1. Sidiropoulos A.*, **Santamaria, V.**, & Gordon M.A. Interlimb coordination improvements after upper limb therapy in cerebral palsy.
2. **Santamaria, V.**, Rachwani, J., Saavedra, S.L., & Woollacott, M.H. The impact of segmental trunk support on posture and reaching in children with moderate and severe cerebral palsy: An electromyographic study.

CONFERENCE PRESENTATIONS

* *Student authors*

- Santamaria, V.**, Khan, M.I.*, Luna, T.*, & Agrawal, S.K. (2018, October). Seated postural control assessment in SCI with the trunk support trainer (TruST). NYS SCI Research Symposium. The Rockefeller University, New York, NY.
- Ophaswongse, C.*, Murray, R.C.*, **Santamaria, V.**, & Agrawal, S.K. (2018, October). Wheelchair robot for active postural support (WRAPS) for SCI patients. NYS SCI Research Symposium. The Rockefeller University, New York, NY.
- Khan, M.I.*, **Santamaria, V.**, Kang, J.*, Bradley, B.M.*, Dutkowsky, J.P., Andrew, M.G., & Agrawal, S.K. (2017, June). Enhancing seated stability using trunk support trainer (TruST). IEEE International Conference in Robotics & Automation. Malaysia, Singapore.
- Santamaria, V.**, Khan, M.I.*, Kang, J.*, Bradley, B.M.*, Dutkowsky, J.P., Agrawal, S.K., & Andrew, M.G. (2016, November). Enhancing seated postural control with the trunk support trainer (TruST). Ann Gentile Memorial Conference: The Future of Motor Learning in Rehabilitation and Movement Science, New York, NY.
- Peterson, M., **Santamaria, V.**, Burgos, P., & Rachwani, J. (2015, November). Confiabilidad del analisis de los movimientos sin marcadores. XIII Congreso Internacional Oritel. Jornadas Fundacionales de la Academia Latinoamericana de Desarrollo Infantil y Discapacidades, Asunción, Paraguay.
- Santamaria, V.**, Rachwani, J., Saavedra, S.L., & Woollacott, M.H. (2015, June). The impact of segmental trunk Support on posture and reaching in children with cerebral palsy: A kinematic and electromyographic study. International Society for Posture and Gait Research, Seville, Spain.
- Rachwani, J., **Santamaria, V.**, Saavedra, S.L., & Woollacott, M.H. (2015, June). The Development of Trunk Control and its Relation to Reaching: A Longitudinal Study. International Society for Posture and Gait Research, Seville, Spain.
- Santamaria, V.**, Rachwani, J., Manselle, W., Saavedra, S.L., & Woollacott, M.H. (2014, November). The impact of segmental trunk support on a reach-to-grasp task while sitting. Society for Neuroscience, Washington DC, WA.

- Rachwani, J., **Santamaria, V.**, Saavedra, S.L., & Woollacott, M.H. (2014, July). The development of trunk control and its relation to reaching: A longitudinal study. The International Society on Infant Studies, Berlin, Germany.
- Rachwani, J., **Santamaria, V.**, Saavedra, S.L., Wood, S.*, Porter, F.*, & Woollacott, M.H. (2013, October) Segmental trunk control acquisition and reaching in typically developing infants. American Academy for Cerebral Palsy and Developmental Medicine, Milwaukee, USA.
- Santamaria, V.**, Riobos, A., Heredia, M., Rachwani, J., de la Fuente, J., Criado, J., Nava, M., & Yajeya, J. (2012, October). Motor recovery after a frontal cortex lesion in adult rats applying a short-term rehabilitation protocol in a critical period of time. Society for Neuroscience, New Orleans, LA.
- Riobos, A., **Santamaria, V.**, de la Fuente, J., Criado, J., Nava, M., Yajeya, J., & Heredia, M. (2011, September). Short-term rehabilitation post-injury is able to improve the deficit in motor ability produced by frontal cortex lesion in adult rats. International Conference of TFBD & FEPS, Istanbul, Turkey.
- Rachwani, J., **Santamaria, V.**, & De Ru, E. (2010, May). Functional effects of strengthening programmes in spastic diplegia. National Conference of the Spanish Society in Pediatric Physical Therapy, Valladolid, Spain.
- Rachwani, J., **Santamaria, V.**, & De Ru, E. (2009, June). Functional effects of strengthening programmes in spastic diplegia. Annual Meeting of the of the European Academy of Childhood Disability: From Myth to Evidence, Lithuania, Vilnius.
- Santamaria, V.**, & Rachwani, J. (2009, April). Physiotherapy in haemophilic children. XII National Conference in Pediatric Physical Therapy, Murcia, Spain.

INVITED COLLOQUIA

- (2020) PT Course. Evidence-based Seated Postural and Reaching Control: Evaluation and Treatment. Physical Therapy Department, International University of Catalunya (UIC), Barcelona, Spain.
- (2018) Grad Student Seminar. Robotics & Rehab. Department of Biobehavioral Sciences, Teachers College, Columbia University, New York, NY.
- (2016) Conference. Evidencia Cientifica e Implicaciones Terapeuticas del Control de Tronco en Sedestacion y Durante las Actividades de Alcance y Manipulacion. Spanish Society of Pediatric Physical Therapy (SEFIP), Seville, Spain.
- (2015) Research Seminar. Segmental Trunk Control and Reaching in Typically Developing Infants, Children with Cerebral Palsy and Patients with Stroke Rusk Rehabilitation Center, NYU School of Medicine, New York, NY.
- (2014) Conference. Segmental Trunk Acquisition and Control: Implications in Typical Development and Cerebral Palsy, Therapy in Educational Settings, Eugene, OR.

INVITED WORKSHOPS

- (2015) Lab instructor in postural control workshop, University of Alcala de Henares, Madrid Spain.
- (2015) Pediatric physical therapist and researcher in the cerebral palsy camp, Teachers College, Columbia University, New York, NY.
- (2013) Organizer of DAFOS cascade workshop, Spanish Society in Pediatric Physical Therapy, Malaga, Spain.

BOOK COLLABORATIONS

(2017) Clinical case in cerebral palsy. *Motor control: Translating research into clinical practice* (5th edition). In A. Shumway-Cook & M.H. Woollacott (Eds.). Baltimore, MD: Lippincott Williams & Wilkins.

SELECTED RESEARCH FEATURED IN RESEARCH MEDIA

(2017) The impact of segmental trunk support on posture and reaching in children with moderate and severe cerebral palsy, *Pediatric Physical Therapy Journal*.

CERTIFICATIONS

CPR & AED

Basic First AID

ADDITIONAL SKILLS

Spanish: native language

English: fluent (speaking, reading, & writing)