

MATTEO BERTUCCO

Professore Associato

Dipartimento di Neuroscienze, Biomedicina e Movimento

Università di Verona

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Studi

Dottorato di Ricerca (Ph.D.)

Università di Verona

Scienze dell'Esercizio Fisico e Movimento Umano, 2010

Laurea Magistrale

Università di Verona

Laurea Magistrale in Scienze Motorie Preventive ed Adattate, 2006

Laurea Triennale

Università di Verona

Laurea in Scienze delle Attività Motorie e Sportive, 2003

Posizione attuale

2019-presente

Professore Associato

Università di Verona

Formazione Professionale e Scientifica

2017-2019

Ricercatore a tempo determinato Senior (tipo b)

Università di Verona

2018 (febbraio – maggio)

Professore in Visita

Northwestern University e AbilityLab

2017 (marzo – maggio)

Professore in Visita

University of Harford

2016

Assistant Professor

University of Harford

2010 - 2016

Postdoctoral Research Associate

University of Southern California

Aree di Ricerca

Controllo motorio, apprendimento motorio, biomeccanica, controllo posturale, locomozione, neuroriabilitazione, sviluppo motorio, disordini del movimento.

Pubblicazioni

Peer-Reviewed Journal Papers

1. Piras A, **Bertuccio M**, Del Santo F, Meoni A, Raffi M. (2024). Postural stability assessment in expert versus amateur basketball players during optic flow stimulation. *J Electromyogr Kinesiol.* 2024; 74, 102855.
2. Pascucci F, Cesari P, **Bertuccio M**, Latash ML. Postural adjustments to self-triggered perturbations under conditions of changes in body orientation. *Exp Brain Res.* 2023; 241(8), 2163–2177.
3. Tam E, Nardon M, **Bertuccio M**, Capelli C. The mechanisms underpinning the slow component of VO₂ in humans. *Eur J Appl Physiol.* 2023; 0123456789. *Online ahead of print* 03/02/2024 11:01:00
4. Martini E, Boldo M, Aldegheri S, De Marchi M, Vale N, Filippetti M, Smania N, **Bertuccio M**, Picelli A, Bombieri N. Real-time Human Pose Estimation at the Edge for Gait Analysis at a Distance. In: 2022 18th International Conference on Distributed Computing in Sensor Systems (DCOSS), pp 45–48.
5. Martini E, Boldo M, Aldegheri S, Vale N, Filippetti M, Smania N, **Bertuccio M**, Picelli A, Bombieri N. Preserving Data Privacy and Accuracy of Human Pose Estimation Software Based on CNN s for Remote Gait Analysis. In: 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), pp 3468–3471.
6. Nardon M, Venturelli M, Ruzzante F, Longo V, **Bertuccio M**. Response to: Dealing with menstrual cycle in sport: stop finding excuses to exclude women from research. *Eur J Appl Physiol.* 2022; 122:2491–2492.
7. **Bertuccio M**, Nardon M, Mueske N, Sandhu S, Rethlefsen SA, Wren TAL, Sanger TD. The Effects of Prolonged Vibrotactile EMG-Based Biofeedback on Ankle Joint Range of Motion During Gait in Children with Spastic Cerebral Palsy: A Case Series. *Phys Occup Ther Pediatr.* 2002; 0:1–16. <https://doi.org/10.1080/01942638.2022.2151391>.
8. Martini E, Boldo M, Aldegheri S, Valè N, Filippetti M, Smania N, **Bertuccio M**, Picelli A, Bombieri N. Enabling Gait Analysis in the Telemedicine Practice through Portable and Accurate 3D Human Pose Estimation. *Comput Methods Programs Biomed.* 2022; 225:107016.
9. Nardon M, Pascucci F, Cesari P, **Bertuccio M**, Latash ML. Synergies Stabilizing Vertical Posture in Spaces of Control Variables. *Neuroscience.* 2022; 500:79–94.
10. Cesari P, Piscitelli F, Pascucci F, **Bertuccio M**. Postural Threat Influences the Coupling Between Anticipatory and Compensatory Postural Adjustments in Response to an External Perturbation. *Neuroscience.* 2022; 490:25–35.

11. Zandonai T*, **Bertuccio M***, Graziani N, Montani V, Cesari P (2022) Transcranial direct current stimulation (tDCS) modulates motor execution in a limb reaching task. *Eur J Neurosci.* 2022; 56:4445–4454. *Equal contribution
12. Nardon M, Venturelli M, Ruzzante F, Longo VD, **Bertuccio M.** Fasting-Mimicking-Diet does not reduce skeletal muscle function in healthy young adults: a randomized control trial. *Eur J Appl Physiol.* 2022; 122(3): 651-661.
13. Nardon M, Ruzzante F, O'Donnell L, Adami A, Dayanidhi S, **Bertuccio M.** Energetics of walking in individuals with cerebral palsy and typical development, across severity and age: A systematic review and meta-analysis. *Gait & Posture.* 2021; 90:388–407.
14. Monte A*, **Bertuccio M***, Magris R, Zamparo P. Muscle Belly Gearing Positively Affects the Force–Velocity and Power–Velocity Relationships During Explosive Dynamic Contractions. *Front Physiol.* 2021;12:683931. *Equal contribution
15. Nardello F, **Bertuccio M**, Cesari P. Anticipatory and pre-planned actions: A comparison between young soccer players and swimmers. *PLoS One.* 2021;16(4):e0249635.
16. Borish CN*, **Bertuccio M***, Berger DJ, D'Avella A, Sanger TD. Can spatial filtering separate voluntary and involuntary components in children with dyskinetic cerebral palsy? *PLoS One.* 2021;16(4):e0250001. *Equal contribution
17. **Bertuccio M**, Nardello F, Magris R, Cesari P, Latash ML. Postural Adjustments during Interactions with an Active Partner. *Neuroscience.* 2021;463:14-29.
18. Nardello N, Bertoli E, Bombieri F, **Bertuccio M**, Monte A. The Effect of a Secondary Task on Kinematics during Turning in Parkinson's Disease with Mild to Moderate Impairment, Symmetry (Basel). 2020; 12: 1284.
19. **Bertuccio M**, Dunning A, Sanger TD. Tuning of Standing Postural Responses to Instability and Cost Function. *Neuroscience.* 2020; 428; 100–110.
20. Borish CN, **Bertuccio M**, Sanger TD. Effect of target distance on controllability for myocontrol. *Int. J. Hum. Comput. Stud.* 140 (2020) 102432.
21. **Bertuccio M**, Lunardini F, Nardon M, Casellato C, Pedrocchi A, Sanger TD. Vibro-tactile EMG-based biofeedback induces changes of muscle activity patterns in childhood dystonia. 9th Int. IEEE/EMBS Conf. Neural Eng., IEEE, 2019: 53–56.
22. **Bertuccio M**, Sanger TD. A model to estimate the optimal layout for assistive communication touchscreen devices in children with dyskinetic cerebral palsy. *IEEE Trans Neural Syst Rehabil Eng.* 2018; 26(7):1371-1380.
23. Borish CN, Feinman A, **Bertuccio M**, Ramsy NG, Sanger TD. Comparison of speed-accuracy tradeoff between linear and non-linear filtering algorithms for myocontrol. *J Neurophysiol.* 2018; 119(6): 2030-2035.
24. Veneri D, Gannotti M, **Bertuccio M**, Fournier Hillman SE. Using the ICF model to gain perspective of the benefits of yoga in stroke, MS and children to inform practice for children with CP: A meta-analysis". *J Alternat Compl Med.* 2018; 24(5): 439:457.
25. Lunardini F, Casellato C, **Bertuccio M**, Sanger TD, and Pedrocchi A. Children With and Without Dystonia Share Common Muscle Synergies While Performing Writing Tasks. *Ann Biomed Eng.* 2017; 45(8):1949-1962.

26. Liyanagamage SA, **Bertuccio M**, Bhanpuri NH, Sanger TD. Scaled vibratory feedback can bias muscle use in children with dystonia without changing overall performance in a redundant one-dimensional myocontrol task. *J Child Neurol*. 2017;32:161-169
27. Lunardini F, Casellato C, **Bertuccio M**, Sanger TD, Pedrocchi A. Muscle synergies in children with dystonia capture healthy patterns regardless the altered motor performance. *Conf Proc IEEE Eng Med Biol Soc* 2015. 2015; 2099-2102.
28. **Bertuccio M**, Bhanpuri NH, Sanger TD. Perceived Cost and Intrinsic Motor Variability Modulate the Speed-Accuracy Trade-Off. *PLoS One*. 2015;10(10): e0139988.
29. Lunardini F, Maggioni S, Casellato C, **Bertuccio M**, Pedrocchi A, Sanger TD. Increased task-irrelevant components of muscle activity in childhood dystonia. *J Neuroeng Rehabil*. 2015; 12: 52.
30. Lunardini F, **Bertuccio M**, Casellato C, Bhanpuri NH, 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.
31. Dunning A, Ghoreyshi A, **Bertuccio M**, Sanger TD. The Tuning of Human Motor Response to Risk in a Dynamic Environment Task. *PLoS One*. 2015;10(4):e0125461.
32. Bhanpuri NH, **Bertuccio M**, Young SJ, Lee A, Sanger TD. Multiday transcranial direct current stimulation causes clinically insignificant changes in childhood dystonia: A pilot study. *J Child Neurol*. 2015; 30(12): 1604-15.
33. **Bertuccio M**, Sanger TD. Current and emerging strategies for childhood dystonia. *Journal of Hand Therapy*. 2015; 28(2):185-93.
34. **Bertuccio M**, Dayanidhi S. Can the period of postnatal co-development of the rubrospinal and corticospinal systems provide new insights into refinement of limb movement? *J Neurophysiol*. 2015; 113: 681–683.
35. Bhanpuri NH*, **Bertuccio M***, Ferman D, Young SJ, Liker MA, Krieger MD, Sanger TD. Deep brain stimulation evoked potentials may relate to clinical benefit in childhood dystonia. *Brain Stimulation*. *Equal contribution. *Brain Stimul*. 2014; 7(5): 718-726.
36. Milanese C, **Bertuccio M**, Zancanaro C. The effects of three different rear knee angles on kinematics and kinetics in sprint start. *Biology of Sport*. 2014; 31: 209-215.
37. Casellato C, Maggioni S, Lunardini F, **Bertuccio M**, Pedrocchi A, Sanger TD. Dystonia: Altered Sensorimotor Control and Vibro-tactile EMG-Based Biofeedback Effects. XIII Mediterranean Conference on Medical and Biological Engineering and Computing 2013. *IFMBE Proceedings*. 2014; 41: 1742-1746.
38. Young SJ, **Bertuccio M**, Sanger TD. Cathodal transcranial direct current stimulation in children with dystonia: a sham-controlled study. *J Child Neurol*. 2014; 29(2): 232-239.
39. **Bertuccio M**, Sanger TD. Speed-accuracy testing on the Apple iPad® provides a quantitative test of upper extremity motor performance in children with dystonia. *J Child Neurol*. 2014; 29:1460-1466.
40. **Bertuccio M**, Cesari P, Latash ML. Fitts' Law in early postural adjustments. *Neuroscience*. 2013; 213: 61-69.

41. Young SJ, **Bertuccio M**, Sheehan-Stross R, Sanger TD. Cathodal transcranial direct current stimulation in children with dystonia: a pilot open-label trial. *J Child Neurol*. 2013; 28(10): 1238-1234.
42. **Bertuccio M**, Cesari P. Does movement planning follow Fitts' law? Scaling anticipatory postural adjustments with movement speed and accuracy. *Neuroscience*. 2010; 171(1): 205-213.
43. Milanese C, Bortolami O, **Bertuccio M**, Verlato G, Zancanaro C. Anthropometry and motor fitness in children aged 6-12 years. *Journal of Human Sport and Exercise*. 2010; 5(2) 265-279.
44. **Bertuccio M**, Cesari P. Dimensional analysis and ground reaction forces for stair climbing: effects of age and task difficulty. *Gait and Posture*. 2009; 29(2): 326-331.
45. Cesari P, **Bertuccio M**. Coupling between punch efficacy and body stability for elite karate. *Journal of Science and Medicine in Sport*. 2008; 11(3): 353-356.

Didattica

“Biomechanics and motor control” (Corso in inglese), Laurea Magistrale in Scienze motorie preventive ed adattate;

“Apprendimento delle abilità motorie nello sport” (all’interno dell’insegnamento di Programmazione e conduzione dell’allenamento), Laurea Magistrale Scienze dello sport e della prestazione fisica;

“Sviluppo motorio” (all’interno dell’insegnamento di Attività motoria in età evolutiva), Laurea in Scienze delle attività motorie e sportive;

“Controllo e apprendimento motorio”, Laurea in Scienze delle attività motorie e sportive

Finanziamenti, Premi e Borse di Studio

2023

1. PRIN 2022 (Progetti di Rilevante Interesse Nazionale). €280798. Co-Principal Investigator.

2019

2. Brain Research Foundation Verona ONLUS. €7000

2018

3. UBI Banca. €5000
4. Create Cures Foundation. €6000

2017

5. Create Cures Foundation. €6000
6. Finanziamento Cooperint per mobilità in uscita Università di Verona. €3725

2016

7. Emerging Researcher Travel Award. ISAAC Conference 2016.

2015

8. USC Postdoc Association travel award.

2014

9. California Community Foundation. \$50000. Co-Principal Investigator.
10. Southern California Clinical and Translational Science Institute. Co-Principal Investigator.
11. ISSNAF Awards 2014. Finalist selected.

2013

12. USC Postdoc Association travel award.

2008

13. Research Visiting Scholar Sponsor Funds. Pennsylvania State University. \$2917
14. Young Researchers Award for Poster Presentation". 5th Scientific Conference on Kinesiology in Zagreb, Croatia, September 10th- 14th, 2008.

2007

15. Borsa di Studio "CooperInt Ateneo 2007" per mobilità Junior Researchers by the Università di Verona. € 5000.

2005

16. Borsa di Studio Progetto Erasmus, Università di Verona. €1500.

Seminari ad invito

1. Department of Kinesiology, University of Rhode Island, 26 ottobre, 2023.
2. IRCCS Centro Neurolesi Bonino Pulejo, Messina, 26 giugno, 2023.
3. Department of Kinesiology, University of Rhode Island, 5 marzo, 2018.
4. Rehabilitation Institute of Chicago (RIC), Chicago, USA, 16 maggio 2016.
5. Center for Mind/Brain Sciences (CIMEC), Università di Trento, Italia, 29 luglio 2015.
6. Department of Exercise Science, University of South Carolina, Columbia, SC, USA, 17 aprile 2015.
7. Physical Therapy Program, School of Medicine, Washington University in St. Louis, St. Louis, MO, USA, 24 febbraio 2015.
8. School of Biological and Health Systems Engineering, Arizona State University, Tempe, AZ, USA, 16 febbraio 2015.
9. Department of Kinesiology and Community Health, University of Illinois at Urbana-Champaign, Urbana-Champaign, IL, USA, 22 gennaio, 2015.
10. Children's Hospital of Los Angeles, Los Angeles, CA, USA, 26 agosto, 2014.
11. Department of Kinesiology, Michigan State University, East Lansing, USA, 15 gennaio, 2014.
12. Dipartimento di Neuroscienze, Biomedicina e Movimento, Università di Verona, 5 giugno 2013.
13. Dipartimento di Neuroscienze, Biomedicina e Movimento, Università di Verona, 15 maggio 2012.
14. Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles, USA, 18 febbraio, 2011.

15. Facoltà di Scienze Motorie e Facoltà di Medicina e Chirurgia, Università di Verona, 6 marzo, 2010.
16. Rehabilitation Institute of Chicago (RIC), Chicago, USA, 13 marzo 2010.

Collaborazioni scientifiche

- Mark L. Latash, Pennsylvania State University
- Tarkeshwar Sing, Pennsylvania State University
- Sudarshan Dayanidhi, Northwestern University
- Francisco Valero-Cuevas, University of Southern California
- Alaa A. Ahmed, University of Colorado Boulder
- Alessandra Adami, University of Rhode Island
- Valter Longo, University of Southern California
- Andrea D'Avella, Università di Roma Tor Vergata
- Alessandro Piras, University of Bologna
- Cristiano Alessandro, University of Milan Bicocca

Esperienza editoriale - Reviewer

- Frontiers in Human Neuroscience
- Gait and Posture
- Human Movement Science
- Journal of Child Neurology
- Journal of Sports Sciences
- Journal of Neurophysiology

Affiliazioni a Società Scientifiche

- Society for the Neural Control of Movement
- International Society of Motor Control
- Società Italiana delle Scienze Motorie e Sportive

Licenze

2022

1. Licenza di paracadutista (ENAC)

2001

2. Istruttore di nuoto 2° livello, FIN (Federazione Italiana di Nuoto)

1999

3. Certificato di Paracadutista Militare, Esercito Italiano

Servizio Militare

1° Reggimento Carabinieri Paracadutisti "Tuscania", 1998-1999

Principali risultati agonistici di karate

2009

1° posto, Campionati Mondiali 2009 WUKO, Guadalajara, Messico, gara individuale.

1° posto, Campionati Mondiali 2009 WUKO, Guadalajara, Messico, gara a squadre.

2007

1° posto, Campionati Mondiali 2007 WUKO, Valencia, Spagna, gara a squadre.

2006

1° posto, Campionati Europei 2006 WUKO, St. Polten, Austria gara a squadre.

3° posto, Campionati Europei 2006 WUKO, St. Polten, Austria gara individuale.

2005

2° posto, Campionato Mondiali 2005 WKC, Fortaleza, Brasile gara individuale.

E più di 100 premi in gare nazionali ed internazionali.

Verona, 2 febbraio 2024



Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base al D. Lgs. 196/2003, coordinato con il D. Lgs. 101/2018, e al Regolamento UE 2016/679.