November 2019

Professor MARCO ZORZI - Short Curriculum Vitae

Personal information

Born 12 October 1967 in Bolzano (Italy), Italian citizenship
Dipartimento di Psicologia Generale, Università di Padova
via Venezia 8, 35131 Padova (Italy)
Email: marco.zorzi@unipd.it
Web: http://ccnl.psy.unipd.it (Computational Cognitive Neuroscience Lab)

Education

1999 - PhD Experimental Psychology - University of Trieste, Italy (supervisor: Patrizia Tabossi)
1997 - Postgraduate Diploma in Cognitive Science - International School for Advanced Studies (SISSA-ISAS), Trieste, Italy
1994 - Laurea "cum laude" (MSc) Experimental Psychology, University of Padova, Italy

Current positions

2006 - Full Professor - Department of General Psychology, University of Padova, Italy
2013 - Senior Researcher - IRCCS San Camillo Hospital, Venice-Lido, Italy

Previous position(s)

From 2007 to 2012 - Director – Interdepartmental Centre for Cognitive Science, University of Padova, Italy
From 2011 to 2011 - Invited Visiting Professor - CNRS Center for Brain and Cognition, Cognitive Psychology Laboratory, Aix-Marseille University, Marseille, France
From 2001 to 2006 - Associate Professor - Department of General Psychology, University of Padova, Italy
From 2000 to 2001 - Assistant Professor (Ricercatore Universitario) - Faculty of Psychology, San Raffaele University Milan, Italy
From 1999 to 2000 - Research Fellow - Department of General Psychology, University of Padova, Italy
From 1994 to 1998 - Research Fellow - Institute of Cognitive Neuroscience, University College London, London, UK

Research interests

Research in my laboratory (Computational Cognitive Neuroscience Lab, http://ccnl.psy.unipd.it) is focused on the computational bases of cognition, from development to skilled performance and to breakdowns of processing in atypical development or after brain damage. I developed state-of-the-art neural network (connectionist) models in a variety of cognitive domains (visual word recognition and reading aloud, numerosity perception and number processing, attention and spatial cognition) and pioneered the use of deep learning methods in cognitive science. Computational modeling is complemented by empirical research using behavioral methods (reaction times, psychophysics, neuropsychology) and functional neuroimaging (fMRI, fNIRS, EEG) on a variety of subject populations (healthy adults, neurological patients, children with typical development or learning disabilities).

Awards and grants

ERC laureate (2008, Starting Grant for Frontier Research from the European Research Council)
Best PhD Thesis in Psychology Award (1999) from the Italian Psychological Association (AIP)
Major resarch grants (current and past): Italian Ministry of Health; Cariparo Foundation; Lejeune Foundation; University of Padova Strategic Grant; European Research Council; European

Commission FP6 and FP7; McDonnell Foundation USA; Italian Ministry of Research; Compagnia di San Paolo Foundation.
Total funding > 3 Million Euro.

Supervision of graduate students and postdoctoral fellows

From 2002 to 2019 – 13 Postdocs / 9 PhD / >50 Master students – Department of General Psychology, University of Padova, Italy

Teaching

Courses taught yearly in the School of Psychology, University of Padova:
Artificial Intelligence (BSc)
Cognitive Psychology (MSc)
Learning Disabilities (MSc)
Computational Modeling in Psychology (PhD School)

Institutional responsibilities

2017-present – Executive Board Member of Padova Neuroscience Center
2014-present – Coordinator of Departmental Research Committee and Budget Committee
2013-2016 – Member of University Scientific Research Board (Commissione Scientifica di Ateneo), University of Padova
2013-2016 – Coordinator of the Research Board for the Scientific Area "Psychological Science", University of Padova
2007-2012 – Director of Interdepartmental Centre for Cognitive Science, University of Padova, Italy

Commissions of trust

Scientific Evaluation Panel – EC FLAG-ERA-HBP
Review panel member – National Science Foundation, USA
Evaluator – FRS/FNRS, Belgium
Evaluator, Israeli Science Foundation
Evaluator – ANR, France
Editorial Board member: Frontiers in Psychology, Cognitive Neuropsychology, Connection Science
Ad hoc reviewer for all major journals (including Nature, Science, PNAS, etc.)

Memberships of scientific societies

European Society for Cognitive Psychology
Cognitive Science Society
Associazione Italiana di Psicologia

Major collaborations

(international collaborations)
Johannes Ziegler, Computational and empirical studies of reading and dyslexia, CNRS & Aix Marseille University, France
Conrad Perry, Computational modelling of reading, Swinburne University of Technology, Melbourne Australia
Francesco Sella, Numerical development, University of Sheffield, UK

Publications

h-index=48 (Google Scholar, 11/2019)
Author of more than 120 publications in refereed journals, primarily top-tier (Q1) journals

(including Nature, Nature Neuroscience, Nature Human Behavior, PNAS, Psychological Review, Cognitive Psychology, Cognition, Brain, Cerebral Cortex, Neuroimage, Journal of Cognitive Neuroscience). Updated publications and citation metrics are available on Google Scholar: http://scholar.google.it/citations?user=MgF3uIMAAAAJ&hl=it

Selected publications in international peer-reviewed journals (past 5 years)

1. Chauhan, S., Vig, L., De Filippo De Grazia, M., Corbetta, M., Ahmad, S., & **Zorzi, M.** (2019). A comparison of shallow and deep learning methods for predicting cognitive performance of stroke patients from MRI lesion images. *Frontiers in Neuroinformatics, 13*:53. doi: 10.3389/fninf.2019.000.
2. Romeo, Z., Bonato, M., **Zorzi, M.**, Spironelli, C. (2019). Electrophysiological correlates of spatial processing during multitasking. *Neuropsychologia 133*, 107-152.
3. Bonato, M., Romeo, Z., Blini, E., Pitteri, M., Durgoni, E., Passarini, L., Meneghello, F., & **Zorzi, M.** (2019). Ipsilesional impairments of visual awareness after right-hemispheric stroke. *Frontiers in Psychology, 10*:697. doi: 10.3389/fpsyg.2019.00697
4. Perry, C., **Zorzi, M.**, & Ziegler, J.C. (2019). Understanding dyslexia through personalized large-scale computational models. *Psychological Science.* doi: 10.1177/0956797618823540.
5. Sella, F., Lucangeli, D., & **Zorzi, M.** (2019). Spatial order relates to the exact numerical magnitude of digits in young children. *Journal of Experimental Child Psychology, 178*, 385-404. doi: 10.1016/j.jecp.2018.09.001.
6. Blini, E., Pitteri, M., & **Zorzi, M.** (2018). Spatial grounding of symbolic arithmetic: an investigation with optokinetic stimulation. *Psychological Research* 83, 64–83. doi: 10.1007/s00426-018-1053-0
7. Sella, F., Lucangeli, D., & **Zorzi, M.** (2018). Spatial and verbal routes to number comparison in young children. *Frontiers in Psychology, 9*:776. doi: 10.3389/fpsyg.2018.00776
8. Tu, C., Rocha, R.P., Corbetta, M., Zampieri, S., **Zorzi, M.**, & Suweis, S. (2018). Warnings and caveats in brain controllability. *Neuroimage, 176*, 83-91. doi: 10.1016/j.neuroimage.2018.04.010
9. **Zorzi, M.**, & Testolin, A. (2018). An emergentist persepctive on the origin of number sense. *Philosphical Transactions of the Royal Society of London B, 373* (1740). 20170043. doi: 10.1098/rstb.2017.0043
10. De Filippo De Grazia, M., Zucchetto, D., Testolin, A., Zanella, A., **Zorzi, M.**, & Zorzi, M. (2018). QoE Multi-Stage Machine Learning for Dynamic Video Streaming. *IEEE Transactions on Cognitive Communications and Networking, 4*, 146-161. doi: 10.1109/TCCN.2017.2784449
11. Testolin, A., Stoianov, I., & **Zorzi, M.** (2017). Letter perception emerges from unsupervised learning and recycling of natural image features. *Nature Human Behaviour, 1*, 657–664. doi: 10.1038/s41562-017-0186-2
12. Testolin, A., De Filippo De Grazia, M., & **Zorzi, M.** (2017). The role of architectural and learning constraints in neural network models: A case study on visual space coding. *Frontiers in Computional Neuroscience, 11*:13. doi: 10.3389/fncom.2017.00013
13. Stoianov, I., & **Zorzi, M.** (2017). Computational foundations of the visual number sense. *Behavioral and Brain Sciences, 40*. doi: 10.1017/S0140525X16002326
14. Sella, F., Berteletti, I., Lucangeli, D., & **Zorzi, M.** (2017). Preschool children use space, rather than counting, to infer the numerical magnitude of digits: Evidence for a spatial mapping principle. *Cognition, 158*, 56-67 doi: 10.1016/j.cognition.2016.10.010.
15. Testolin., A & **Zorzi, M.** (2016). Probabilistic models and generative neural networks: Towards an unified framework for modeling normal and impaired neurocognitive functions. *Frontiers in Computational Neuroscience, 10*:73. doi: 10.3389/fncom.2016.000731.
16. Blini, E., Romeo, Z., Spironelli, C., Pitteri, M., Meneghello, F., Bonato, M., & **Zorzi, M.** (2016). Multi-tasking uncovers right spatial neglect and extinction in chronic left-hemisphere

stroke patients. *Neuropsychologia, 92,* 147-157. doi: 10.1016/j.neuropsychologia.2016.02.028
17. Ranzini, M., Lisi, M., & **Zorzi, M.** (2016). Smooth pursuit and saccades direct attention on the mental number space. *Psychological Research, 80,* 389-398. DOI: 10.1007/s00426-015-0741-2
18. Sella, F., Tressoldi, P., Lucangeli, D., & **Zorzi, M.** (2016). Training numerical skills with the adaptive videogame "The Number Race": A randomized controlled trial on preschoolers. *Trends in Neuroscience and Education, 5,* 20-29. doi: 10.1016/j.tine.2016.02.002
19. Sella, F., Berteletti, I., Lucangeli, D., & **Zorzi, M.** (2016). Spontaneous non-verbal counting in toddlers. *Developmental Science, 19,* 329-337. doi: 10.1111/desc.12299.
20. Testolin, A., Stoianov, I., Sperduti, A., & **Zorzi, M.** (2016). Learning orthographic structure with sequential generative neural networks. *Cognitive Science, 40,* 579–606. doi: 10.1111/cogs.12258
21. Di Bono, M.G., Begliomini, C., Castiello, U., **Zorzi, M.** (2015). Probing the reaching–grasping network in humans through multivoxel pattern decoding. *Brain and Behavior*, 5(11), e00412. doi: 10.1002/brb3.412
22. Zorzi, M., Zanella, A., Testolin, A., De Filippo De Grazia, M., & **Zorzi, M.** (2015). Cognition-based networks: A new perspective on network optimization using learning and distributed intelligence. IEEE Access 3, 1512-1530. doi: 10.1109/ACCESS.2015.2471178
23. Lisi, M., Bonato, M., & **Zorzi, M.** (2015). Pupil dilation reveals top-down attentional load during spatial monitoring. *Biological Psychology, 112,* 39–45. doi: 10.1016/j.biopsycho.2015.10.002
24. Bonato, M., Spironelli, C., Lisi, M., Prifits, K., & **Zorzi, M.** (2015). Effects of multimodal load on spatial monitoring as revealed by ERPs. *Plos ONE*, 10(9): e0136719. doi:10.1371/journal.pone.0136719
25. Sella, F., Berteletti, I., Lucangeli, D., & **Zorzi, M.** (2015). Varieties of quantity estimation. *Developmental Psychology, 51,* 758-770. doi: 10.1037/a0039183.
26. Lisi, M., Cavanagh, P., & **Zorzi, M.** (2015). Spatial constancy of attention across eye movements is mediated by the presence of visual objects. *Attention, Perception and Psychophysics, 77,* 1159–1169. doi: 10.3758/s13414-015-0861-1.
27. Lanfranchi, S., Berteletti, I., Torrisi, E., Vianello, R., & **Zorzi, M.** (2015). Numerical estimation in individuals with Down syndrome. *Research in developmental disabilities, 36,* 222-229.
28. Ranzini, M., Lisi, M., Blini, E., Pitteri, M., Treccani, B., Priftis, K., & **Zorzi, M.** (2015). Larger, smaller, odd or even? Task-specific effects of optokinetic stimulation on the mental number space. *Journal of Cognitive Psychology, 27*:4, 459-470. doi: 10.1080/20445911.2014.941847
29. Montani V., Facoetti, A., & **Zorzi, M.** (2015). The effect of decreased interletter spacing on orthographic processing. *Psychonomic Bulletin & Review, 22,* 824–832. doi: 10.3758/s13423-014-0728-9.
30. Montani, V., De Filippo De Grazia, M., & **Zorzi, M.** (2014). A new adptive videogame for training attention and executive functions. *Frontiers in Psychology 5*:409. doi: 10.3389/fpsyg.2014.00409
31. Perry, C., Ziegler, J. C., & **Zorzi, M**. (2014). CDP++.Italian: Modelling sublexical and supralexical inconsistency in a shallow orthography. *PLoS ONE 9*(4): e94291.
32. Knops, A., Dehaene, S., Berteletti, I., & **Zorzi, M.** (2014): Can approximate mental calculation account for operational momentum in addition and subtraction? *The Quarterly Journal of Experimental Psychology*, doi: 10.1080/17470218.2014.890234
33. Perry, C., Ziegler, J. C., & **Zorzi, M.** (2014). When silent letters say more than a thousand words: An implementation and evaluation of CDP++ in French. *Journal of Memory and Language, 72,* 98–115. doi: 10.1016/j.jml.2014.01.003.
34. Montani, V., Facoetti, A., & **Zorzi, M.** (2014). Spatial attention in written word perception. *Frontiers in Human Neuroscience, 8*:42. doi: 10.3389/fnhum.2014.00042

35. Cappelletti, M. Didino, D., Stoianov, I., & **Zorzi, M.** (2014). Number skills are maintained in healthy ageing. *Cognitive Psychology, 69*, 25-45. doi: 10.1016/j.cogpsych.2013.11.004
36. Ziegler, J. C., Perry, C., & **Zorzi, M.** (2014). Modelling reading development through phonological decoding and self-teaching: Implications for dyslexia. *Philosophical Transactions of the Royal Society B, 369*: 20120397. doi: 10.1098/rstb.2012.0397.
37. Cutini, S., Scatturin, P., Basso Moro, S., & **Zorzi, M.** (2014). Are the neural correlates of subitizing and estimation dissociable? An fNIRS investigation. *NeuroImage, 85*, 391–399. doi: 10.1016/j.neuroimage.2013.08.027
38. Cutini, S., Scarpa, F., Scatturin, P., Dell'Acqua, R., **Zorzi, M.** (2014). Number-space interactions in the human parietal cortex: Enlightening the SNARC effect with functional near-infrared spectroscopy. *Cerebral Cortex, 24*, 444–451. doi: 10.1093/cercor/bhs321