

Luca Rinaldi

Date and place of birth: June 18, 1986 - Como (Italy)
Family: 1 son (2017)
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University of Milano-Bicocca
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Education

January 2012 – January 2016

Ph.D. in *Experimental Psychology, Linguistics and Cognitive Neurosciences* at the University of Milano-Bicocca (Italy).

Thesis entitled: "Sensorimotor experience biases human attention through space and time".

Supervisor: Prof. Luisa Girelli, Ph.D.

September 2008 – October 2010

Master's degree in *Developmental Psychology and Neuropsychology* at the University of Milano-Bicocca (Italy).

Thesis entitled: "The role of number-space associations in preschoolers' numerical competence".

Supervisor: Prof. Luisa Girelli, Ph.D.

September 2005 – July 2008

Bachelor's degree in *Psychological Sciences* at the University of Milano-Bicocca (Italy).

Research positions

January 2017 – present (2 year grant)

Post-doctoral research fellow

Department of Psychology, University of Milano-Bicocca (Italy).

Main theme of research: "Grounding time through sensorimotor integration".

Supervisor: Prof. Luisa Girelli, Ph.D.

January 2016 – December 2016

Post-doctoral research fellow

Department of Brain and Behavioral Sciences, University of Pavia (Italy).

Main theme of research: "The role of the human cerebellum in memory processing".

Supervisor: Prof. Tomaso Vecchi, Ph.D.

June 2016 – September 2016

Visiting fellow

Centre for Brain and Cognitive Development of the Birkbeck University, London (UK).

Main theme of research: "Sensorimotor involvement in serial order processing over developmental time".

Supervisor: Prof. Annette Karmiloff-Smith, Ph.D.

Research and clinical experience

January 2013 – September 2013

Visiting research student at the Department of Neurology, University Hospital Zürich, Zürich (Switzerland).
Supervisor: Prof. Peter Brugger, Ph.D.

January 2012 – June 2012

Visiting research student at the Cognitive Neuropsychology Laboratory of the Ben-Gurion University of the Negev, Beer Sheva (Israel).
Supervisor: Prof. Avishai Henik, Ph.D.

February 2011 – July 2011

Visiting research student at the Cognitive Neuropsychology Laboratory of the Ben-Gurion University of the Negev, Beer Sheva (Israel).
Supervisor: Prof. Avishai Henik, Ph.D.

October 2010 – March 2011

Clinical practice at UONPIA (Operative Unite of Child and Adolescent Neuropsychiatry), Sant'Anna Hospital, Olgiate Comasco, Como (Italy).
Supervisor: Grazia Manerchia, M.D.

March 2008 – July 2008

Clinical practice at UONPIA (Operative Unite of Child and Adolescent Neuropsychiatry), Busto Arsizio Hospital, Tradate, Varese (Italy).
Supervisor: Roberta Urbinati, M.D.

Grants

June 2016 – August 2016

Study Visit Grant funded by the Experimental Psychology Society (£ 2.000).
Research project: "A view from the top of the cascade: sensorimotor processing constrains serial order abilities over developmental time".
Host institution: Birkbeck, University of London. Supervisor: Prof. Annette Karmiloff-Smith.

January 2016 – October 2016

Research Grant funded by the University of Pavia (€ 12.000).
Research project: "The role of the human cerebellum in memory processing".
Host institution: University of Pavia. Supervisor: Prof. Tomaso Vecchi.

December 2013 – December 2015

Two-years grant ("Fondo Cariplo") funded by Fondazione Cariplo (€ 4.000).
Research project: "Pitch and grasp the sound! Action planning dances on pitch dimension".
Host institution: University of Milano-Bicocca. Principal investigator.

January 2012 – January 2016

Four-years Ph.D. scholarship co-funded by Fondazione Cariplo (€ 15.336/year).
Main theme of research: "Sensorimotor experience biases human attention through space and time".
Supervisor: Prof. Luisa Girelli.

February 2011 – August 2011

Eight-months scholarship (\$ 6.400) from the Ministry of Foreign Affairs (Israel), Cultural and Scientific Affairs Department.

Research project: “The role of reading direction in number-space associations”.

Host institution: Ben-Gurion University of the Negev. Supervisor: Prof. Avishai Henik.

Honours and Awards

September 2017

Best Italian PhD Thesis (€ 500).

Sessione di Psicologia Sperimentale, AIP (Italian Psychological Association).

September 2017

Travel Grant (€ 250).

Sessione di Psicologia Sperimentale, AIP (Italian Psychological Association), Bari (Italy).

May 2016

Expert Evaluator, France National Research Agency, ANR (Agence Nationale de la Recherche).

May 2016

Article “Walking on a mental time line” selected for the journal cover page of *Cortex*, volume 78.

November 2013

The Patrizia Tabossi Price (€ 300) for the best oral presentation.

Title of the presentation: “Pitch and grasp the sound! Action planning dances on pitch dimension.”

The Trieste Symposium on Perception and Cognition, Trieste (Italy).

September 2012

Best oral presentation price (€ 500).

Title of the presentation: “Influenza contestuale dei sistemi di letto-scrittura nei processi di attenzione visuo-spaziale.”

Sessione di Psicologia Sperimentale, AIP (Italian Psychological Association), Chieti (Italy).

Academic Teaching

Academic Year: 2017 – 2018

- *Methods in Neurosciences: Motion Capture and 3D Kinematic Analyses* (Language: Italian)

Doctorate School in Psychology, Linguistics and Cognitive Neuroscience.

University of Milano-Bicocca (Italy).

- *Cognitive and Behavioral Measures* (Language: English)

Master’s Program in Applied Experimental Psychological Sciences, Department of Psychology.

University of Milano-Bicocca (Italy).

- *Cognition, Multisensoriality and Emotion* (Language: Italian)

Master’s Program in Experimental Psychology. Department of Brain and Behavioral Sciences.

University of Pavia (Italy).

Publications

1. **Rinaldi, L.**, Vecchi, T., Fantino, M., Merabet, L., & Cattaneo, Z. (2017). The ego-moving metaphor of time relies on visual experience: no representation of time along the sagittal space in the blind. *Journal of Experimental Psychology: General*. <http://dx.doi.org/10.1037/xge0000373>
2. **Rinaldi, L.**, Maggioni, E., Olivero, N., Maravita, A., & Girelli, L. (2017). Smelling the space around us: Odor pleasantness shifts visuospatial attention in humans. *Emotion*. <http://dx.doi.org/10.1037/emo0000335>
3. Nava, E., **Rinaldi, L.**, Bulf, H., & Macchi Cassia, V. (2017). Visual and proprioceptive feedback differently modulate the spatial representation of number and time in children. *Journal of Experimental Child Psychology*, *161*, 161-177. <http://dx.doi.org/10.1016/j.jecp.2017.04.012>
4. **Rinaldi, L.**, & Karmiloff-Smith, A. (2017). Intelligence as a Developing Function: A Neuroconstructivist Approach. *Journal of Intelligence*, *5*, 1-26. [10.3390/jintelligence5020018](https://doi.org/10.3390/jintelligence5020018)
5. **Rinaldi, L.**, & Girelli, L. (2017). A bodily sense of magnitude. Commentary: From 'sense of number' to 'sense of magnitude' – The role of continuous magnitudes in numerical cognition. *Frontiers in Psychology*, *8*, 652. <https://doi.org/10.3389/fpsyg.2017.00652>
6. **Rinaldi, L.**, Locati, F., Parolin, L., & Girelli, L. (2017). Distancing the present self from the past and future: Psychological distance in anxiety and depression. *The Quarterly Journal of Experimental Psychology*, *70*, 1106-113. <http://dx.doi.org/10.1080/17470218.2016.1271443>
7. Tobia, V., **Rinaldi, L.**, & Marzocchi, G.M. (2017). Time processing impairments in preschoolers at risk of developing difficulties in mathematics. *Developmental Science*. [doi/10.1111/desc.12526/full](https://doi.org/10.1111/desc.12526/full)
8. **Rinaldi, L.** (2016). Rescuing my time from science. *Science*, *354*, 1666. [doi/10.1126/science.354.6319.1666](https://doi.org/10.1126/science.354.6319.1666)
9. **Rinaldi, L.**, & Girelli, L. (2016). A Place for Zero in the Brain. *Trends in Cognitive Sciences*, *8*, 563-564. <http://dx.doi.org/10.1016/j.tics.2016.06.006>
10. Girelli, L., Perrone, G., Croccolo, F., Roman, E.H., Bricolo, E., Mancin, M., & **Rinaldi, L.** (2016). Manual actions cover symbolic distances at different speed. *Acta Psychologica*, *169*, 56-60. [doi:10.1016/j.actpsy.2016.05.002](https://doi.org/10.1016/j.actpsy.2016.05.002)
11. **Rinaldi, L.**, Di Luca, S., Henik, A., & Girelli, L. (2016). A helping hand putting in order: Visuomotor routines organize numerical and non-numerical sequences in space. *Cognition*, *152*, 40-52. <http://dx.doi.org/10.1016/j.cognition.2016.03.003>
12. **Rinaldi, L.**, Locati, F., Bernardi, N.F., Parolin, L., & Girelli, L. (2016)*. Walking on a mental time line: Temporal processing affects step movements along the sagittal space. *Cortex*, *78*, 170-173. <http://dx.doi.org/10.1016/j.cortex.2016.02.013>
* Publication selected for the journal cover page
13. **Rinaldi, L.**, Gallucci, M., & Girelli, L. (2016). Spatial-numerical consistency impacts on preschoolers' numerical representation: children can count on both peripersonal and personal space. *Cognitive Development*, *37*, 9-17. <http://dx.doi.org/10.1016/j.cogdev.2015.10.006>
14. **Rinaldi, L.**, Lega, C., Cattaneo, Z., Girelli, L. & Bernardi, N.F. (2016). Grasping the sound: Auditory pitch influences size processing in motor planning. *Journal of Experimental Psychology: Human Perception and Performance*, *42*, 11-22. <http://dx.doi.org/10.1037/xhp0000120>

15. **Rinaldi, L.**, Vecchi, T., Fantino, M., Merabet, L., & Cattaneo, Z. (2015). The effect of hand movements on numerical bisection judgments in early blind and sighted individuals. *Cortex*, *71*, 76-84. <http://dx.doi.org/10.1016/j.cortex.2015.06.005>
16. **Rinaldi, L.**, Brugger, P., Bockisch, C. J., Bertolini, G., & Girelli, L. (2015). Keeping an eye on serial order: ocular movements bind space and time. *Cognition*, *142*, 291-298. <http://dx.doi.org/10.1016/j.cognition.2015.05.022>
17. **Rinaldi, L.**, Di Luca, S., Henik, A. & Girelli, L. (2014). Reading direction shifts visuo-spatial attention: an Interactive Account of attentional biases. *Acta Psychologica*, *151*, 98-105. <http://dx.doi.org/10.1016/j.actpsy.2014.05.018>
18. **Rinaldi, L.**, & Girelli, L. (2012). Il ruolo dell'Associazione Numeri-Spazio nella competenza numerica prescolare [The role of Number-Space Association in preschoolers' numerical competence]. *Giornale Italiano di Psicologia*, *4*, 931-940. <http://dx.doi.org/10.1421/73149>
19. Previtali, P., **Rinaldi, L.**, & Girelli, L. (2011). Nature or Nurture in finger counting: a review on the determinants of the direction of number-finger mapping. *Frontiers in Cognition*, doi: 10.3389/fpsyg.2011.00363. <http://dx.doi.org/10.3389/fpsyg.2011.00363>

Articles submitted

1. Cattaneo, Z., Lega, C., **Rinaldi, L.**, Merabet, L., Ferrari, C., & Vecchi, T. The Spatial Musical Association of Response Codes does not depend on a normal visual experience: a study with early blind individuals.
2. **Rinaldi, L.**, Bertolini, G., Bockisch, C.J., Maravita, A., Girelli, L., & Brugger, P. Asymmetries in near and far space: A manual and ocular study of simple line bisection and Judd illusion.
3. Cattaneo, Z., **Rinaldi, L.**, Geraci, C., Cecchetto, C., & Papagno, C. Spatial biases in deaf, blind and deafblind individuals as revealed by a haptic line bisection task.
4. Lega, C., Cattaneo, Z., Ancona, N., Vecchi, T., & **Rinaldi, L.** Musical expertise modulates the spatial organization of pitch representation.
5. Trisolini, D., Petilli, M.A., **Rinaldi, L.**, Girelli, L., Vecchio, L.P. & Daini, R. Playing sports or videogames? A choice of adolescents deserving attention.
6. **Rinaldi, L.**, Vecchi, T., Merabet, L., & Cattaneo, Z. The spatial representation of number, time, and serial order following sensory deprivation: a systematic review.
7. Nava, E., **Rinaldi, L.**, Bulf, H., & Macchi Cassia, V. The developmental progress of the spatial representation of numbers and time towards an adult-like pattern: a study in 6- and 10-year old children.

Articles in preparation

1. **Rinaldi, L.**, Ramponi, F., & Luzzatti, C. (in preparation). Pointing to sound sources: auditory pitch biases motor localization of visual information in musicians and non-musicians.
2. **Rinaldi, L.**, & Girelli, L. (in preparation). Psychological distance across the life-span.

3. **Rinaldi, L., & Marelli, M.** (in preparation). The semantics of numerical symbols in natural language obeys to Weber's law.
4. **Rinaldi, L., Di Luca, S., Toneatto, C., & Girelli, L.** (in preparation). The effects of hemispheric dominance, literacy acquisition and handedness on the control of visuospatial attention: a study in preschoolers and second graders.
5. **Rinaldi, L., Di Luca, S., Henik, A., & Girelli, L.** (in preparation). Situating visuospatial attention on cultural factors: Situational requirements reorient attentional resources during cancellation tasks.
6. **Rinaldi, L., & Girelli, L.** (in preparation). Emotions wrap the self in time: a life-span study on the impact of emotions in temporal estimation.
7. **Rinaldi, L., & Girelli, L.** (in preparation). Pitch-space and pitch-size correspondence: a study with primary school children.

Invited lectures

1. **Rinaldi, L.** (2017). Il tempo scorre: Il contributo del sistema sensorimotorio alla rappresentazione spaziale del tempo. *Congresso Annuale della Sessione di Psicologia Sperimentale (AIP)*, September 2017, Bari (Italy).
2. **Rinaldi, L.** (2016). Sensorimotor experience binds space and time in the human mind. *Festival della Luce*. May 2017, Como.
3. **Rinaldi, L.** (2016). The role of sensorimotor experience in the representation of time. *University of Sussex, Invited seminar by Dr. Marianna Obrist*. August 2016, Brighton.
4. **Rinaldi, L.** (2016). The development of temporal concepts: a sensorimotor perspective. *Birkbeck, University of London, Centre for Brain and Cognitive Development*. August 2016, London.
5. **Rinaldi, L.** (2016). Sensorimotor experience constrains serial and temporal order processing. *Learning, grouping, chunking, restructuring symposium*. July 2016, Nice (French).
6. **Rinaldi, L.** (2016). Sensorimotor experience biases human attention through space and time. *Birkbeck, University of London, Invited seminar by Prof. Matthew Longo*. July 2016, London.
7. **Rinaldi, L.** (2015). Situating numbers on an experienced space. *6th International Conference on Spatial Cognition: "Space and Situated Cognition"*. September 2015, Rome (Italy).
8. **Rinaldi, L.** (2015). When crossmodal correspondences reach the motor system. *Improvers' Course on Music Cognition*. June 2015, Pavia (Italy).
9. **Rinaldi, L.** (2014). Experience biases our attention through space and time. *Université Du Luxembourg, Invited seminar by Prof. Christine Schiltz*. November 2014, Luxembourg.
10. **Rinaldi, L., Lega, C., Cattaneo, Z., Girelli, L. & Bernardi, N.F.** (2014). Prendi il suono! Influenza dell'altezza del suono nel controllo motorio. *Congresso Annuale della Sessione di Psicologia Sperimentale (AIP)*, September 2014, Pavia (Italy).

11. **Rinaldi, L., & Girelli, L.** (2013). Organizzare i numeri nello spazio aiuta: evidenze in età prescolare. *Congresso Annuale della Sessione di Psicologia dello Sviluppo (AIP)*. September 2013, Milan (Italy).

Oral presentations at conferences/meetings

1. Tobia, V., **Rinaldi, L.**, & Marzocchi, G.M. (2016). Time processing impairments in preschoolers at risk of developing difficulties in mathematics. *EDA: 5th All European Dyslexia Conference*. September 2016, Modena (Italy).
2. **Rinaldi, L.**, & Girelli, L. (2015). Mind the Space in Time: The Role of Sensorimotor Experience in Temporal Order Processing. *The Cognitive and Neural Basis for the Development of Numerical Understanding*. April 2015, Beer Sheva and Haifa (Israel).
3. **Rinaldi, L.**, & Girelli, L. (2014). Back to the future or forward to the past? Mind the space in time. *Embodiment of abstract concepts: what's special about space*. June 2014, Milan (Italy).
4. **Rinaldi, L.**, Lega, C., Cattaneo, Z., Girelli, L., & Bernardi, N.F. (2014). Pitch and grasp the sound! Action planning dances on pitch dimension. *Cognitive Science Arena for Beginners II*. February 2014, Brixen (Italy).
5. **Rinaldi, L.**, Bertolini, G., Bockisch, C.J., Maravita, A., Girelli, L., & Brugger, P. (2014). Asymmetries in near and far space: commonalities and differences between manual and ocular bisection. *Thirty-Two European Workshop on Cognitive Neuropsychology*. January 2014, Brixen (Italy).
6. **Rinaldi, L.**, Lega, C., Cattaneo, Z., Girelli, L., & Bernardi, N.F. (2013). Pitch and grasp the sound! Action planning dances on pitch dimension. *The Trieste Symposium on Perception and Cognition*. November 2013, Trieste (Italy).
7. **Rinaldi, L.**, Di Luca, S., Henik, A., & Girelli, L. (2013). An Interactive Account of visuo-spatial asymmetries: visuo-motor exploration is situated between biological and cultural determinants. *Embodied & Situated Language Processing Conference*. July 2013, Potsdam (Germany).
8. **Rinaldi, L.**, Di Luca, S., Henik, A., & Girelli, L. (2013). A helping hand putting in order? Language dependent constraints underlying order-fingers mapping. *Cognitive Science Arena for Beginners*. February 2013, Brixen (Italy).
9. Girelli, L., & **Rinaldi, L.** (2013). L'associazione numeri-spazio nello sviluppo della competenza numerica. October 2012, *AIRIPA*, Bari (Italia).
10. **Rinaldi, L.**, Di Luca, S., Henik, A., & Girelli, L. (2012). Influenza contestuale dei sistemi di letto-scrittura nei processi di attenzione visuo-spaziale. *Congresso Nazionale dell'Associazione Italiana di Psicologia (AIP)*, Sessione di Psicologia Sperimentale. September 2012, Chieti (Italy).

Poster presentations at conferences/meetings

1. Mazzanti, S., Sacco, E., **Rinaldi, L.**, & Girelli, L. (2017). "Mani abili per menti abili"? L'importanza della valutazione delle abilità fine-motorie in età prescolare. *Developmental Neuropsychology Workshop*. February, 2017, Brixen (Italy).

2. **Rinaldi, L.**, Maggioni, E., Olivero, N., Maravita, A., & Girelli, L. (2015). Pleasantness smells like a spatial boundary: Odor pleasantness shifts visuospatial attention in humans. *International Convention of Psychological Science*. March 2015, Amsterdam (Netherlands).
3. **Rinaldi, L.**, Lega, C., Cattaneo, Z., Girelli, L., & Bernardi, N.F. (2015). Pitch and grasp the sound! Action planning dances on pitch dimension. *Thirty-Three European Workshop on Cognitive Neuropsychology*. January 2015, Brixen (Italy).
4. **Rinaldi, L.**, Brugger, P., Bertolini, G., Bockisch, C.J., & Girelli, L. (2014). Keeping an eye on temporal order: ocular movements bind space and time. *14th European Workshop of Imagery and Cognition (EWIC)*, June 2014, Cyprus.
5. Lega, C., Bernardi, N.F., Ancona, N., Cattaneo, Z., Girelli, L., & **Rinaldi, L.** (2014). Musical expertise modulates the spatial organization of pitch representation. *The Neurosciences and Music-V*. May 2014, Dijon (France).
6. **Rinaldi, L.**, Lega, C., Cattaneo, Z., Girelli, L., & Bernardi, N.F. (2014). Pitch and grasp the sound! Action planning dances on pitch dimension. *The Neurosciences and Music-V*. May 2014, Dijon (France).
7. **Rinaldi, L.**, Di Luca, S., Henik, A., & Girelli, L. (2013). An Interactive Account of visuo-spatial asymmetries: developmental and cross-cultural impact of reading and writing systems. *Eighteenth Conference of the European Society for Cognitive Psychology (ES COP)*. August 2013, Budapest (Hungary).
8. **Rinaldi, L.**, Di Luca, S., Henik, A., & Girelli, L. (2013). A helping hand putting in order? Language dependent constraints underlying order-fingers mapping. *Thirty-First European Workshop on Cognitive Neuropsychology*. January 2013, Brixen (Italy).
9. **Rinaldi, L.**, Di Luca, S., Henik, A., & Girelli, L. (2012). Reading direction shifts visuo-spatial attention: when attentional biases are cultural based. *5th International Conference on Spatial Cognition: "Space and Embodied Cognition"*. September 2012, Rome (Italy).
10. **Rinaldi L.**, & Girelli, L. (2011). The role of number-space associations in preschoolers' numerical competence. *Typical and Atypical Neurocognitive Aspects of Numerical Processing*. April 2011, Beer Sheva and Haifa (Israel).

Journal reviewing

Acta Psychologica; Attention, Perception & Psychophysics; Brain and Cognition; Cognitive Development; Cortex; Current Directions in Psychological Science; Experimental Brain Research; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory and Cognition; Journal of Intelligence; Laterality; Multisensory Research; Psychological Research; Psychology of Language and Communication; Psychonomic Bulletin & Review; Scientific Reports; The Quarterly Journal of Experimental Psychology.

Grant reviewing

French National Research Agency (ANR)

Society Membership

European Society of Cognitive Psychology (ESCP), Associazione Italiana di Psicologia: Sezione Sperimentale.

Media coverage (International and top 20 most read Italian online newspapers)

1. Rinaldi et al., Walking on a mental time line, *Cortex* (2016):

- **Scientific American** - 1/11/16

<https://www.scientificamerican.com/article/how-we-make-sense-of-time/>

- **Focus** - 20/04/16

<http://www.focus.it/scienza/scienze/il-futuro-e-davanti-a-noi-il-passato-dietro>

- **Panorama** - 20/04/16

<http://www.panorama.it/scienza/salute/il-nostro-corpo-e-una-macchina-del-tempo-la-scoperta-degli-scientziati-italiani/>

- **Le Scienze** - 19/04/16

http://www.lescienze.it/lanci/2016/04/19/news/universita_milano-bicocca_il_nostro_corpo_e_una_macchina_del_tempo-3058377/

- **OK Salute e Benessere**- 20/04/16

<http://www.ok-salute.it/psiche-e-cervello/corpo-macchina-del-tempo/>

2. Rinaldi et al., Keeping an eye on serial order, *Cognition* (2015):

- **La Repubblica** - 09/07/15

http://www.repubblica.it/scienze/2015/07/09/news/gli_occhi_si_muovono_da_sinistra_a_destra_la_direzione_per_ricordare-118706583/

- **TGCOM 24** - 09/07/15

http://www.tgcom24.mediaset.it/salute/memoria-davvero-visiva-muovendo-gli-occhi-ricordiamo-meglio_2121568-201502a.shtml

- **Il Secolo XIX** - 10/07/15

http://www.ilsecoloxix.it/p/magazine/2015/07/10/ARd77e4E-aiutano_memoria_muovendosi.shtml

- **Panorama** - 09/07/15

<http://www.panorama.it/scienza/salute/gli-occhi-funzionano-come-un-laser-per-cercare-tra-ricordi/>

- **Focus** - 09/07/15

<http://www.focus.it/scienza/salute/gli-occhi-funzionano-come-un-laser-per-cercare-tra-ricordi>