



# Manuela Piazza, PhD

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Email: manuela.piazza@unitn.it

## EDUCATION

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### **PhD in Cognitive Neuroscience**

Institute of Cognitive Neuroscience, University College London 2003, UK

### **European Diploma in Cognitive and Brain Sciences**

The Max Planck-Institute for Psychological Research, München 2002, Germany

### **Laurea (Bachelor + MSc) in Experimental Psychology**

University of Padova 1997, Italy

## ACADEMIC/RESEARCH POSITIONS (CURRENT)

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### **Member of the UNITN Recruiting Committee**

University of Trento 2023 – present, Italy

### **Vice-Director of the CIMeC Master in Cognitive Science**

Center for Mind/Brain Sciences, University of Trento 2022 – present, Italy

### **Full Professor in Cognitive Neuroscience**

Center for Mind/Brain Sciences, University of Trento 2020 – present, Italy

### **University Delegate for Gender Medicine**

Autonomous Province of Trento 2018 – present, Italy

## ACADEMIC/RESEARCH POSITIONS (PAST)

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### **Fellow of the Italian Academy for advanced studies**

Columbia University, New York 2020 (spring term), USA

### **Director of the CIMeC Master in Cognitive Science**

Center for Mind/Brain Sciences, University of Trento 2019 – 2022, Italy

### **Associate Professor in Cognitive Neuroscience**

Center for Mind/Brain Sciences, University of Trento 2015 – 2020, Italy

### **Senior Researcher (Chargé des Recherches CR1)**

Cognitive Neuroimaging Unit, INSERM 2005 – 2014, France

### **Post-Doctoral Fellow (European Marie Curie Individual Fellow)**

Cognitive Neuroimaging Unit, INSERM 2003 – 2005, France

## PROFESSIONAL EXPERIENCE

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### Scientific Advisory Boards

Fondation Fyssen · Paris	2023 – present, France
Paris Institut du Cerveau de l'Enfant · Paris	2023 – present, France

### Selection Panels

ICREA Academia (Social & Behavioural Sciences) · Barcelona	2023 – present, Spain
Schwab Center for Dyslexia and Cognitive Diversity · San Francisco	2021 – present, USA
ERC Starting Grants ( <i>SH4; chair and panel member</i> ) · Bruxelles	2016-2020, Belgium

### Scientific Societies

Elected member of International Neuropsychological Symposium	2019-present, Italy
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### Editorial responsibilities

- Regular Ad-hoc reviewer for scientific journals:

Science, Nature Neuroscience, Nature Communications, PLoS Biology, Current Biology, PNAS, Journal of Neuroscience, Journal of Cognitive Neuroscience, Cerebral Cortex, NeuroImage, Psychological Science, Cortex, Psychological Review, Cognition, Cognitive Neuropsychology, Journal of Experimental Psychology:HPP, Animal Cognition, Laterality, Neuropsychology, Neuropsychologia, Perception & Psychophysics, Vision research, Journal of Vision...

### Clinical-related activity

Permanent education courses for pediatricians/speech therapists	2010-2018, Italy, Belgium, UK
Conception of a computer-based educational video-game for learning number processing and calculation ("The number catcher").	2012, France
Conception of a diagnostic test for developmental dyscalculia ("Dyscalculia Screener", by B. Butterworth, nferNelson Publisher).	2000, UK

### Popularization of science

- Articles/interviews in newspapers, TV, radio programs and popular scientific magazines in Italy (« La Stampa », « Il Trentino », « L'Adige », « Vita dell'Infanzia, rivista dell'Opera Nazionale Montessori », « Radio3scienza », « RAI radio1»), and France (« Telerama », « Pour La Science », « Science et Vie », « La clef », « Le magazine de la santé », « Icarus »).
- Installation of experiments for visitors at the science museum in Bristol (UK) ("science@bristol science museum") on basic number abilities.

## ACADEMIC ACTIVITIES

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### Teaching (120 h/year)

#### Undergraduate

“Psychobiology of cultural acquisitions”

“Current debates in cognitive neurosciences” [in English].

University of Trento · Bachelor in Cognitive Science

2005 - present, Italy

#### Graduate

“Foundations of cognitive psychology and neuroscience” [in English]

University of Trento · CIMeC Master in Cognitive Science

2017 - present, Italy

École Normale Supérieure · CogMaster

2011 - 2017, France

### PhD Theses commettee

University of Szeged, H; University of Padova, IT; University of Louvain-La-Neuve, Be; University of Louven, Be; University of Florence, IT; University Paris Descartes, FR, Amsterdam University, NL

### Mentoring

#### Post-Docs

- I. Petrizzo (PRIN fellow) 2024-present
- P. Maldonado (EUREGIO fellow) 2022-present
- M. Amalric (Marie Skłodowska-Curie Global fellow) 2022-present
- S. Vigano' (CIMeC fellowship) 2018-2020. Now Post-Doc @Max Planck Institute for Human Cognitive and Brain Sciences. Leipzig, DE.
- L. De Hevia (Marie Skłodowska-Curie fellowship) 2012-2014. Now researcher @CNRS Paris, FR.
- Q. Cai (Fondation de France fellowship) 2011-2013. Now professor @NYU Shanghai, Cina.
- M. Andres (Université catholique de Louvain fellowship) 2009-2010. Now researcher @UCL, Louvain-La-Neuve, BE.
- A. Knops (CIMeC fellowship) 2009-2010. Now researcher @ Université La Sorbonne, Paris, FR.

#### PhD Students

- V. Rubino, 2023-present.
- E. Eccher 2020-present (with G. Vallortigara)
- A. Karami. 2019-2023. Now Post-Doc @UNICOG, NeuroSpin, Paris, FR.
- S. Vigano'. 2015-2018. Now Post-Doc @Max Planck Institute for Human Cognitive and Brain Sciences. Leipzig, DE.
- G. Decarli. 2015-2018. Now Post-Doc @DIPSCo, UNITN, IT.
- P. Pinero Chagas. 2013-2018 (with S. Dehaene). Now Assistant Professor in Cognitive Neuroscience @UCSF, USA.
- V. Borghesani. 2013-2017. Now Assistant Professor in Cognitive Neuroscience @University of Geneva, CH.
- A. Chinello. 2007-2010. Now neuropsychologist @Fondazione IRCCS Cà Granda, Ospedale Maggiore Policlinico, Milano, IT.

- S.K. Revkin. 2005-2008 (with S.Dehaene). *Now neuropsychologist @FH-Campus, Wien University, A.*

## GRANTS/SCHOLARSHIPS

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Italian Ministry of Research (PRIN)	2023 – 2025, Italy
Euregio Region Science Fund	2021-2024, Italy-Austria
Italian Institute for Advanced Studies, Columbia University	2020-2020, USA
EU Marie-Curie Global Fellowship to M. Amalric	2019-2024, EU
Center for Mind/Brain Sciences for Post-Doc	2018-2020, Italy
Vinci Program for PhD co-tutoring	2015-2016, France
Fondation Bettencourt (sub-project “numeracy”)	2012-2014, France
College de France for basic research	2013-2014, France
EU Marie-Curie Fellowship to L. DeHevia	2012-2014, EU
Fondation de France for Post-Doc	2011-2013, France
Fondazione Iprase for Post-Doc	2009-2010, Italy

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Post-Doc Marie Curie Individual Fellowship	2003-2005, EU
Fellowship EDCBS	1999-2000, EU
Studentship UCL	1998-1999, UK
Studentship Università La Sapienza	1998-1999, Italy
Prize for best Undergraduate Thesis	1997, Italy
Erasumus scholarship to UCL	1996, EU

## PUBLICATIONS

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From Google Scholar, May 2024

Citations: 15867

h-index: 41

i10-index: 53

### Articles under revision

5. J. Thompson, H. Sheahan, T. Dumbalska, J. Sandbrink, M. Piazza, C. Summerfield. "Zero-shot counting with a dual-stream network models". *Neuron*. **Under revision**.
4. A. Karami, E. Castaldi, E. Eger, and M. Piazza. "Neural codes for visual numerosity in the dorsal and ventral stream of the human brain". *The Journal of Neuroscience*. **Under revision**.
3. E. Eccher, M. Josserand, S. Caparos, M. Buiatti, M. Piazza\*, and G. Vallortigara\*. "A universal left-to-right bias in number-space mapping across ages and cultures". *Nature Communications*. **Under revision**. \*Last shared authorship in alphabetical order.
2. S. Viganò, M. Gironimi, J. Sagoe, G. Barresi, & M. Piazza. "Learning to categorize objects with language fosters generalization and alters the perception of novel exemplars". **Under revision**.
1. M. Amalric, E. Spelke, & M. Piazza (2023). "Do school-age children learn that  $2 \times 3 = 3 \times 2$  relying on previous intuitions?". *Developmental Science*. **Under revision**.

### Articles published/in press

59. C.C. Chen, S. Jang, M. Piazza, & D.C. Hyde (2023). Characterizing exact arithmetic abilities before formal schooling. *Cognition*, 238, 105481.
58. G. Decarli, D. Zingaro, L. Surian, and M. Piazza (2023). "Number sense at 12 months predicts 4-year-olds' maths skills". *Developmental Science*, e13386.
57. G. Decarli, M. Piazza, and V. Izard (2023). "Are infants' preferences in the number change detection paradigm driven by sequence patterns?". *Infancy*, 28 (2), 206-217
56. A. Guez, M. Piazza, P. Pinheiro-Chagas, H. Peyre, B. Heude, and F. Ramus (2022). "Preschool language and visuospatial skills respectively predict multiplication and addition/subtraction skills in middle school children". *Developmental Science*, e13316.
55. D.C. Hyde, Y. Mou, I. Bertelli, E.S. Spelke, S. Dehaene, & M. Piazza (2022). "Testing the role of symbols in training preschool numeracy: An experimental, computer-based intervention study". *PLoS ONE*, 16 (11), e0259775.
54. S. Viganò, V. Rubino, M. Buiatti, & M. Piazza (2021). "The neural representation of absolute direction during mental navigation in conceptual spaces". *Communications Biology*, 4 (1), 1-7.
53. E. Castaldi, M. Piazza, and E. Eger (2021). "Resources underlying visuo-spatial working memory enable veridical large numerosity perception". *Frontiers in Human Neuroscience*, 683.
52. S. Vigano', V. Borghesani, and M. Piazza (2021). "Symbolic categorization of novel multisensory stimuli in the human brain". *NeuroImage*, 235, 118016.
51. S. Viganò & M. Piazza (2021). "The hippocampal-entorhinal system represents nested hierarchical relations between words during concept learning". *Hippocampus*, 31 (6), 557-568.
50. S. Viganò, V. Rubino, A. Di Soccio, M. Buiatti, & M. Piazza (2021). "Grid-like and distance codes for representing word meaning in the human brain". *NeuroImage*, 232, 117876.

49. Y. Mou, B. Zhang, M. Piazza, & D. C. Hyde (2021). "Comparing set-to-number and number-to-set measures of cardinal number knowledge in preschool children using latent variable modelling". *Early Childhood Research Quarterly*, 54, 125-135.
48. G. Decarli, E. Paris, C. Tencati, C. Nardelli, M. Vescovi, L. Surian, & M. Piazza (2020). "Impaired large numerosity estimation but not subitizing in developmental dyscalculia". *PlosONE*, 15 (12), e0244578.
47. Pinho, A. L., Amadon, A., Gauthier, B., Clairis, N., Knops, A., Genon, S., ... & Roger, S (2020). Individual Brain Charting dataset extension, second release of high-resolution fMRI data for cognitive mapping. *Scientific Data*, 7(1), 1-16.
46. E. Castaldi, M. Turi, S. Gassama, M. Piazza, & E. Eger (2020). "Excessive visual crowding effects in developmental dyscalculia". *Journal of Vision*, 20(8):7.
45. G. Decarli, L. Franchin, M. Piazza, and L. Surian (2020). "Infants' use of motion cues in object individuation processes". *Journal of Experimental Child Psychology*. 197, 104868.
44. S. Vigano' & M. Piazza (2020). "Distance and direction codes underlie navigation of a novel semantic space in the human brain". *The Journal of Neuroscience*, 40(13), 2727-2736.
- Commented by Bokeria et al. (2021). *Frontiers in human neuroscience* 15, 2.
43. E. Castaldi, M. Piazza, S. Dehaene, A. Vignaud, & E. Eger (2019). "Attentional amplification of neural codes for number independent of other quantities along the dorsal visual stream". *eLife*. 8, e45160.
42. P. Pinhero, M. Piazza, and S. Dehaene (2019). "Decoding the processing stages of mental arithmetic with magnetoencephalography". *Cortex*. 114, 124-139.
41. V. Borghesani, M. de Hevia, A. Viarouge, P. Pinheiro Chagas, E. Eger, and M. Piazza (2019). "Processing number and length in the parietal cortex: sharing resources, not a common code". *Cortex*. 114, 17-27.
40. M. Buiatti, E. Di Giorgio, M. Piazza, C. Polloni, G. Menna, F. Taddei, E. Baldo, and G. Vallortigara (2019). "A cortical route for face-like pattern processing in human newborns". *PNAS*, 116 (10), 4625-4630.
39. V. Borghesani, M. Buiatti, E. Eger, and M. Piazza (2019). "Conceptual and perceptual dimensions of word meaning are recovered rapidly and in parallel during reading". *Journal of Cognitive Neuroscience*. 31(1), 95-108.
38. G. Lasne, M. Piazza, S. Dehaene, A. Kleinschmidt, and E. Eger. (2019). "Discriminability of numerosity-evoked fMRI activity patterns in human intra-parietal cortex reflects behavioral numerical acuity". *Cortex*, 114, 90-101.
37. E. Castaldi, A. Mirassou, S. Dehaene, M. Piazza, and E. Eger (2018). "Asymmetrical interference between number and item size perception provide evidence for a domain specific impairment in dyscalculia". *PlosONE*, 13 (12), e0209256.
36. S. Pezzelle, R. Bernardi, and M. Piazza (2018). "Probing the mental representation of quantifiers". *Cognition*. 181, 117-126.
35. M. Piazza, V. De Feo, S. Panzeri, and S. Dehaene (2018). "Learning to focus on number". *Cognition*. 181, 35-45.
34. Borghesani, V. & Piazza, M. (2017). "The neuro-cognitive representations of symbols: the case of concrete words. *Neuropsychologia*. 105, 4-17.
33. P. Pinero Chagas, D. Dotan, M. Piazza, and S. Dehaene (2017). "Finger tracking reveals the covert stages of mental arithmetic". *Open Mind: Discoveries in Cognitive Science*. 1, 30-41.

32. A. Gomez, Alice, M. Piazza, A. Jobert, G. Dehaene-Lambertz, & C. Huron. (2017). Numerical abilities of school-age children with Developmental Coordination Disorder (DCD): A behavioral and eye-tracking study. *Human Movement Science*. 55, 315-326.
31. V. Borghesani, M.D. de Hevia, A. Viarouge, P. Pinheiro Chagas, E. Eger, & M. Piazza. (2016). Comparing magnitudes across dimensions: a univariate and multivariate approach. *2016 International Workshop on Pattern Recognition in Neuroimaging (PRNI)*. IEEE, 2-4.
30. V. Borghesani, F. Pedregosa, A. Amadon, E. Eger, M. Buiatti, & M. Piazza. (2016). "Word meaning in the ventral visual path: a perceptual to conceptual gradient of semantic coding". *NeuroImage*. 143, 128-140.
29. M. Piazza & E. Eger (2016). "Neural foundations and functional specificity of number representations" *Neuropsychologia*. 83, 257-273.
28. A Gomez, M. Piazza, A Jobert, G Dehaene-Lambertz, S Dehaene, and C. Huron (2015). "Mathematical difficulties in developmental coordination disorder: Symbolic and non-symbolic number processing". *Research in developmental disabilities*. 43, 167-178.
27. E. Pasquinelli, T. Zalla, K. Gvodzic, C. Potier-Watkins, and M. Piazza (2015). "Mind, brain, and teaching. Some directions for future research". *Behavioral and Brain Sciences*. 38, e54.
26. M. Andres, M. Buiatti, C. Finocchiaro, and M. Piazza (2015). "Contribution of motor representations to action verb processing". *Cognition*. 134, 174-184.
25. V. Borghesani, F. Pedregosa, E. Eger, M. Buiatti, and M. Piazza (2014). "A perceptual-to-conceptual gradient of word coding along the ventral path". *4th International Workshop on Pattern Recognition in NeuroImaging (PRNI)1-4*, IEEE.
24. A. Knops, M.Piazza\*, R. Sengupta, E.Eger, and D. Melcher\*. (\* equal contribution). (2014). "A shared, flexible neural map architecture underlies capacity limits in both working memory and enumeration". *The Journal of Neuroscience*. 34 (30), 9857-9866.
23. M.Piazza, V. Izard, E.Spelke, P.Pica, and S. Dehaene. (2013) "Education enhances the acuity of the pre-verbal approximate number system". *Psychological Science*, 24(6): 1037-1043.  
- Hihglighted in the APS Observer ("Psychological science in the news").
22. A. Chinello, V. Cattani, C. Bonfiglioli, S. Dehaene, and M. Piazza. (2013) "Objects, numbers, fingers, space: clustering of ventral and dorsal functions in young children and adults". *Developmental Science*, 16(3): 377-93.
21. M. Piazza. (2012). "How culture shapes the brain: neuronal mechanisms of reading and calculation". *Neuropsychiatrie de l'Enfance et de l'Adolescence* 60 (5): S6.
20. D. Melcher and M. Piazza. (2011) "The role of attentional priority and saliency in determining capacity limits in enumeration and visual working memory". *PLoS ONE*. 6(12):e29296.
19. M. Piazza, A. Fumarola, A. Chinello, and D. Melcher. (2011) "Subitizing reflects visuo-spatial object indexing capacity". *Cognition*, 121(1): 147-153.
18. M.Piazza (2010) "Neurocognitive start-up tools for symbolic number representations". *Trends in Cognitive Science*, Special issue: Space, Time, and Number. 14(12): 542-551.
17. M. Piazza, A. Facoetti, A.N. Trussardi, I. Berteletti, S. Conte, D. Lucangeli, S.Dehaene, and M. Zorzi (2010) " Developmental trajectory of number acuity reveals a severe impairment in developmental dyscalculia". *Cognition*, 116(1): 33-41.
16. I. Berteletti, D. Lucangeli, M. Piazza, S. Dehaene, ad M. Zorzi (2010) "Numerical representations in preschoolers". *Developmental Psychology*, 46(2): 545-551.
15. M. Piazza and V. Izard (2009) "What is an (abstract) neural representation of quantity?". *Behavioral and Brain Sciences*, 32: 348-349.

14. M. Ranzini, S. Dehaene, M. Piazza, and E. Hubbard (2009) "Neural mechanisms of attentional shifts due to irrelevant spatial and numerical cues". *Neuropsychologia*, 47(12): 2615-2624.
13. E.M. Hubbard, M Ranzini, M. Piazza, and S. Dehaene (2009) "What information is critical to elicit interference in number-form synesthesia?". *Cortex*, 45(10): 1200-1216.
12. M. Piazza & V. Izard. (2009) "How humans count: numerosity and the parietal cortex". *The Neuroscientist*. 15(3):261-73.
11. S.K. Revkin, M. Piazza, V. Izard, L. Zamarian; E. Karner, and M. Delazer (2008). "Verbal numerosity estimation deficit in the context of spared semantic representation of numbers: A neuropsychological study of a patient with frontal lesions". *Neuropsychologia*, 46(10): 2459-2471.
10. S.K. Revkin, M. Piazza, V. Izard, L. Cohen, and S. Dehaene (2008). "Does subitizing reflect numerical estimation?". *Psychological Science*, 19(6): 606-613.
9. M. Piazza, P. Pinel, D. LeBihan, and S. Dehaene (2007). "A magnitude code common to numerosity and number symbols in human intraparietal cortex". *Neuron*. 53(2): 293-305.
- Commented by Ansari (2007). *Neuron* 53, 165-167.
  - Commented by Welberg (2007). *Nature Reviews Neuroscience* 8, 168-169.
8. M. Piazza, A. Mechelli, C. Price, and B. Butterworth (2006). "Exact and approximate judgments of visual and auditory numerosity: an fMRI study". *Brain Research*, 1106(1): 177-188.
7. M. Piazza, P. Pinel, and S. Dehaene (2006). "Objective correlates of an unusual subjective experience: a single-case study of number-form synesthesia". *Cognitive Neuropsychology*. 23(8): 1162–1173.
6. E.M. Hubbard, M. Piazza, P. Pinel, and S. Dehaene (2005). "Interactions between number and space in parietal cortex". *Nature Reviews Neuroscience*, 6(6): 435-48.
5. M. Piazza, V. Izard, P. Pinel, D. LeBihan, and S. Dehaene (2004). "Tuning curves for approximate numerosity in the human parietal cortex". *Neuron*, 44(3): 547-555.
- Commented by Nieder (2004). *Neuron* 44:407-409.
4. P. Pinel, M. Piazza, D. Le Bihan, and S. Dehaene (2004). "Distributed and overlapping representations of number, size, and luminance in parietal cortex during comparative judgments". *Neuron*, 41(6): 983-993.
3. M. Piazza, E. Giacomini, D. Le Bihan, and S. Dehaene (2003). "Single-trial classification of parallel pre-attentive and serial attentive processes using fMRI". *Proceedings of the Royal Society of London: Biological sciences*, 270: 1237-1245.
2. S. Dehaene, M. Piazza, P. Pinel, and L. Cohen (2003). "Three parietal circuits for number processing". *Cognitive Neuropsychology*, 20(3): 487-506.
1. M. Piazza, A. Mechelli, B. Butterworth and C. Price (2002). "Are subitizing and counting implemented as separate or functionally overlapping processes?". *NeuroImage*, 15(2): 435-446.

### **Book chapters:**

9. P. Maldonado, A. Karami, and M. Piazza (2024). "Neurobiological underpinnings of developmental dyscalculia". In Y. Gliksman, L. Kaufmann & A. Henik (Eds) **Developmental dyscalculia**. Elsevier.
8. E. Castaldi, M. Piazza, T. Iuculano (2020). "Learning Disabilities: Developmental Dyscalculia". In **Neurodevelopmental and cognitive disabilities. Handbook of Clinical Neurology**. Vol. 174, Chapter 33. Elsevier.
7. M. Piazza (2014). "Comment la culture façonne le cerveau: mécanismes neuronaux de la lecture et du calcul". In C. Chiland et J.P. Raynaud. **Cerveau, psyché et développement**. Pages 109-117. Odile Jacob.

6. M. Piazza (2013). "Start-up neurocognitivi dell'apprendimento dei numeri e del calcolo". In Biancardi A., Mariani E. and Pieretti M. *Intervento logopedico nei DSA- La dyscalculia*. Pages 18-44. Erickson.
5. M. Piazza (2011). "Neurocognitive Start-upTools for symbolic number representations". In S. Dehaene and E. Brannon (Eds.). *Space time and number in the brain. Searching for the foundations of mathematical thoughts*. Pages 267-286. Academic Press.
4. E.M. Hubbard, M. Piazza, P. Pinel, and S. Dehaene. (2009). "Numerical and spatial intuitions: A role for posterior parietal cortex?". In L. Tommasi, L. Nadel and M.A. Peterson (Eds.) *Cognitive Biology: Evolutionary and Developmental Perspectives on Mind, Brain and Behavior*, pages 221-246. MIT Press, Cambridge, Mass.
3. M. Piazza and S. Dehaene (2004). "From number neurons to mental arithmetic: the cognitive neuroscience of number sense ". *The Cognitive Neuroscience, 3rd Ed.* by Gazzaniga et al. pp. 865-875.
2. S. Dehaene, M. Piazza, P. Pinel, and L. Cohen (2004). "Three parietal circuits for number processing". In *Handbook of Mathematical Cognition*. Psychological press, New York.
1. M. Piazza (2002). "Les processus de quantification: subitizing, estimation et dénombrement", Chapter 5; In "L'arithmétique cognitive". *Traité de Science Cognitive*. X. Seron & M. Pesenti Ed. Hermes, Bruxelles.

#### **Popularization of science articles:**

3. M. Piazza (2015). "Cervello e apprendimento: il punto di vista delle neuroscienze cognitive". **Vita dell'Infanzia**. Rivista mensile dell'Opera Nazionale Montessori. n° 1-4; 13-19.
2. M. Piazza (2015). "Start-up neurocognitivi nella cognizione matematica". **Vita dell'Infanzia**. Rivista mensile dell'Opera Nazionale Montessori. n° 1-4; 44-48.
1. M. Piazza (2014). "Dyscalculia, le sens perdu des nombres". **Clefs CEA** n° 62, Autumn 2014, on "Exploring the brain".

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#### **PLENARY TALKS**

- ECVP (European Conference of Visual Perception). Keynote Speaker (Perception Lecture). Paphos, Cyprus, **2023**.
- COSYNE meeting, Symposium on Navigation and Inference. Lisbon, Portugal, **2022**.
- International Neuropsychological Symposium. Crete, Greece, **2017**.
- Collège de France. Colloquium on "Interactions between Space, Time and Number: 20 Years of Research". Talk: "How do young children expand their number sense?". Paris, France. **2013**.
- International Association for Child and Adolescent Psychiatrists and Allied Professions World Congress (IACAPAP). Talk: "How culture shapes the brain". Paris, France. **2012**.
- Collège de France. Colloquium on "Cognitive Science and Education". Talk: "Le gout du nombre et comment l'acquerir". Paris, France. **2012**.
- Attention and Performance Symposium "Space, Time and Number in the Brain". Talk: "Neurocognitive Start-up-tool for symbolic number knowledge". Cernay, France. **2010**.
- Education, Cognition and Neuroscience: International workshop. Department of Cognitive and Education Sciences. Talk: "Neurocognitive Start-up-tool in Numerical Cognition". University of Trento, Italy. **2009**.
- Concepts, Actions, and Objects: International workshop. Center for Mind/Brain Sciences. Talk: "Number concepts: Quantity meets symbols in parietal cortex". Universitiy of Trento, Italy. **2007**.
- Cognitive Neuroscience Society Meeting. Talk: "Number sense: Quantity meets symbols in parietal cortex". New York, USA. **2007**.
- British Experimental Psychology Society Meeting. Talk: "The quantifying brain: cerebral correlates of numerosity estimation and counting". London, UK. **2001**.

## INVITED LECTURES (short selection)

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- Cradle of Cognition Lecture. Max Planck Institute for Human Cognitive and Brain Sciences. Germany, 2024.
- Annual conference of the AIP (Italian Psychology Association). Lucca, Italy, 2023.
- Dartmouth Center for Cognitive Neuroscience. Dartmouth College, Hanover, NH, USA, 2020.
- Pisa Vision Lab workshop: Sensory plasticity, Adaptation, and Development. Pisa, Italy, 2018.
- International Convention of Psychological Science. Vienna, Austria, 2017.
- Department of Cognitive Science. Central European University. Budapest, Hungary, 2017.
- Association Montessori International, Amsterdam, Netherland. 2016.
- International School on Mind, Brain, and Education. Erice, Italy, 2015.
- Humboldt University of Berlin, Germany. 2014.
- University of Louvain la Neuve, Belgium. 2014.
- MIUR (Italian Ministry of Education) on Montessori pedagogy. Rome, Italy. 2014.
- Symposium on dyscalculia. University of Cambridge, UK. 2013.
- Symposium on number processing. Pisa Vision Lab, CNR Pisa, Italy. 2012.
- National Dyscalculia and Maths Learning Difficulties Conference. London, UK. 2010.
- Symposium on developmental neuroscience. Neurospin, Saclay, France. 2010.
- Associazione Italiana Psicologia. Sciacca, Italy. 2004.
- International Workshop on number processing. Psychology Department, University of Gent, Belgium. 2002.

Rovereto, May 2024

A handwritten signature in black ink, appearing to read "Alessandro Aggi".