

Professoressa Associata (Associate Professor)

University of Rome Tor Vergata – Rome, Italy

RESEARCH INTERESTS

- Cognitive and cerebral bases of learning
- Learning trajectories (modelling) and individual differences therein
- Socio-economic background and reading/maths learning outcomes
- Learning disorders (e.g. developmental dyslexia)

EDUCATION AND PROFESSIONAL EXPERIENCE

2024 – present	Professoressa Associata (Associate Professor, full-time, tenured). SSD: M-PSI/02, GSD: PSIC-01/B University of Rome Tor Vergata Rome, Italy
2024 – present	Chercheuse associée (Affiliated researcher). LaPsyDÉ, UMR CNRS 8240, La Sorbonne Paris, France
2018 – 2024	Maitresse de Conférences (Associate Professor, full-time, tenured). Université Paris Cité LaPsyDÉ, - UMR CNRS 8240, La Sorbonne
2015 – 2018	Marie Skłodowska-Curie Post-doctoral Fellow, Univ. of Geneva and Neurospin, Paris. Supervisors: Daphné Bavelier, University of Geneva (Switzerland) Ghislaine Dehaene-Lambertz, Neurospin, Paris (France)
August – Sept 2016	Visiting fellow at Princeton University (USA), Nick Turk-Browne lab.
2014 – 2015	Post-doctoral fellow, Brain and Learning Lab, University of Geneva (Switzerland). Supervisor: Daphné Bavelier
2013	PhD (“mention très honorable”), Ecole Normale Supérieure, Paris (France). Supervisors: Franck Ramus and Ghislaine Dehaene-Lambertz Thesis: Neuroanatomical correlates of developmental dyslexia
2009	Master in Research, with distinction, University College London (UK). Supervisor: Sophie Scott Thesis: Sensory and linguistic influences on speech comprehension investigated with fMRI.
2008	Graduate Degree (MSc) in Neurobiology, <i>cum laude</i> . University of Pavia (Italy).
2006	Undergraduate Degree (BSc) in Biology, <i>cum laude</i> . University of Pavia (Italy).

GRANTS

2024-2026: **Progetto di ricerca scientifica di Ateneo**, U. of Rome Tor Vergata. *Associated researcher*.
 2023-2027: **Jacobs Foundation Research Fellowship**. *Principal Investigator*.
 2022-2024: **Institut Universitaire de France, Chaire Junior**. *Principal Investigator*.
 2022-2024: **“Emergence en Recherche”, IDEX funding**, U. Paris Cité. *Principal Investigator*.
 2015-2018: **Geneva-Princeton collaborative grant**. *Associated researcher*.
 2015-2018: **Marie Skłodowska-Curie Grant (Global Fellowship, EU)**. *Principal Investigator*.
 2009-2012: **PhD grant**, Ecole des Neurosciences de Paris.

INVITED ORAL PRESENTATIONS – SELECTED

- **Altarelli I.** "Reading acquisition: lessons from inter-individual differences". DEPP Research Day, French Ministry of Education, Paris, December 2024.
- **Altarelli I.** "Digital tools and school learning: friends or foes?". "Chaire of Neuroeducation and Creativity Day", Paris, France, November 2024.
- **Altarelli I.** "Learning to read in the lab: audiovisual associative learning processes". "International one-day conference on reading: empirical data and models", Rome, Italy, October 2024.
- **Altarelli I.** "Learning to read: what can individual variability teach us?". "Institute for Neuroscience and Cognition kickoff conference", Paris, France, June 2023.
- **Altarelli I.** "Cognitive correlates of audio-visual associative learning". "Current Opinion on Audiovisual Integration and Reading (CO-AIR) Webinar", May 2023.
- **Altarelli I.** "Digital tools and learning to read: friends or foes?". "Psychology Learning Technology Conference", Foggia, Italy, November 2022.
- **Altarelli I.** "Lecture: apprentissage et troubles". "Encéphale" conference, Paris, France, January 2022.
- **Altarelli I.** "Tailored approaches to education: the case of poor reading". "UNESCO IBE Webinar, Education and COVID-19: How can the neuroscience of learning help to build back better?", June 2021.
- **Altarelli I.** "Determinants of structure learning in the auditory and the visual domains". "The Rank Prize Funds Symposium", Grasmere, UK, March 2017.
- **Altarelli I.** "Bases neuroanatomiques de la dyslexie développementale". "Colloque de l'Association des Sciences du Langage", Paris, France, November 2015.
- **Altarelli I.,** Dehaene-Lambertz G, Ramus F. "A Functionally Guided Approach to Morphometry". "Bio-Imaging Poland Annual Conference", Warsaw, Poland, November 2013.

INVITED SEMINARS – SELECTED

- **Altarelli I.** "Screen exposure: are there developmental effects in childhood and adolescence?". JODI webinar series, Italy, April 2025.
- **Altarelli I.** "Learning in the lab: examining audiovisual associative learning processes". KU Leuven, Belgium, December 2024.
- **Altarelli I.** "Learning: cerebral correlates and cognitive processes at play". Neurowebinars series, University of Rome Tor Vergata, Italy, May 2024.
- **Altarelli I.** "Learning to read: new remediation strategies using video games". LIEPP seminar series, Sciences Po Paris, France, January 2024.
- **Altarelli I.** "Audiovisual associative learning: underlying cognitive mechanisms". Department of Psychology, Università La Sapienza, Italy, October 2022.
- **Altarelli I.** "Learning to read: remediation strategies". CorrS team, LSCP, Ecole Normale Supérieure, France, July 2022.
- **Altarelli I.** "Determinants of learning and transfer". Laboratoire Psychologie Cognitive, Marseille, France, December 2017.
- **Altarelli I.** "Neuroanatomical correlates of developmental dyslexia – what lies ahead?". L2C2 Lab, Lyon, France, November 2017.
- **Altarelli I.** "Investigation of the cognitive determinants of structure learning". Nick Turk-Browne Lab, Princeton University, September 2016.
- **Altarelli I.,** Dehaene-Lambertz G, Ramus F. "Neuroanatomical correlates of developmental dyslexia". Functional Brain Mapping Lab, Switzerland, March 2014.

POSTER PRESENTATIONS – SELECTED

- Brem S, Cohen M, Pasqualotto A, **Altarelli I,** Bochud M, et al. "Multilingual Evaluation of Executive Functions and Reading Predictors in Italian and French: Insights from a Sample of 7-8-Year-Olds". 31st Annual Meeting of the Society for the Scientific Study of Reading (SSSR), Copenhagen, Denmark, 2024.

- Taieb E, Borst G, Houdé O, **Altarelli I***, Iuculano T*. "Cognitive sources of poor academic achievement: A comparison of isolated and concurrent difficulties in reading and math". **Equal contributors*. International Mind, Brain and Education Society meeting (IMBES), Leuven, Belgium, 2024.
- Andreola C, Borst G, **Altarelli I**. "Examining the association between executive functions and decoding in French school-aged children". Society for the Scientific Study of Reading Annual Meeting, Newport Beach, USA, 2022.
- Guibert F, Pirondini E, Bavelier D, **Altarelli I**. "Decoding unfamiliar visual shapes from brain activity in human visual cortices". Society for Neuroscience, Chicago, USA, 2021.
- Pasqualotto A, Cochrane A, Bavelier D, **Altarelli I**. "A novel non-linguistic audio-visual learning paradigm to test the cognitive correlates of learning rate". CogSci Conference, 2021. *Poster selected for oral presentation*.
- **Altarelli I**, Dehaene-Lambertz G, Bavelier D. "Individual differences in the acquisition of non-linguistic audio-visual associations in kindergartners." Flux Conference, New York, USA, 2019.
- Pasqualotto A, **Altarelli I**, Bavelier D. "Amélioration des capacités de lecture suite à l'entraînement au jeu vidéo SoM chez des enfants de 7 à 14 ans". SOFTAL congress, France, 2018. *Poster selected for oral presentation*.
- **Altarelli I**, Dubois J, Ramus F. "Relationship between cortical thickness and myelination in developmental dyslexia". The Dyslexia Foundation Extraordinary Brain Symposium XV, US, 2016.
- **Altarelli I**, Monzalvo K, Fluss J, Billard C, Dehaene-Lambertz G, Ramus F. "Structural differences between dyslexic and normal reading children in ventral occipito-temporal regions". European Workshop on Cognitive Neuropsychology, Italy, 2012. *Poster selected for oral presentation*.

TEACHING AND TUTORING EXPERIENCE

2025-present: ~150h of teaching yearly, at Bachelor and Master's level, in Psychobiology and Cognitive Neuroscience, University of Rome Tor Vergata.

2023-2027: Co-supervision of a PhD thesis (Belen Azofra-Macarron), ANR funding, Université Paris Cité (France).

2021-2025: Co-supervision of a PhD thesis (Elora Taieb), CNRS funding, Université Paris Cité (France).

2019-2022: Co-supervision of a PhD thesis (Chiara Andreola), IDEX funding, Université Paris Cité (France).

2019-2024 : ~200h of teaching yearly, at Bachelor and Master's level, Psychology, Université Paris Cité.

2018-2025 : Supervision of M1 and M2 students « Master de Psychologie de l'Education et de la Formation », Université Paris Cité (approx. 5/year).

SERVICE

- Reviewer for: Plos Biology, J. of Neuroscience, Cortex, Human Brain Mapping, Ann NY Acad Sci and others
- **2025/2026:** Co-organizer of the **monthly Psychology Seminar Series**, University of Rome Tor Vergata (Scientific and Organizational Committee).
- **2025:** Co-organizer of the "**Human Trajectories: Models and Applications**" workshop, Paris, France. (Scientific and Organizational Committee)
- **2020-2025:** Expert member for the French National Agency for Sanitary Safety (ANSES, France).
- **2021:** Co-organizer of the "**CoDys workshop**", Paris, France. (Scientific and Organizational Committee)
- **2021:** Expert member for United Nations consultation on the health impacts of the digitalisation of education.
- **2021:** Co-organizer of the "**Chaire of Neuroeducation and Creativity Day**", Paris, France. (Scientific Committee)
- **2017:** Co-organizer of the [Geneva-Princeton Learning Workshop](#), Switzerland. (Scientific Committee)

PUBLICATIONS – RESEARCH ARTICLES (H INDEX: 15, CITATIONS: 1931, SOURCE GOOGLE SCHOLAR)

1. Taieb E, Le Stanc L, Borst G, Houdé O, **Altarelli I***, Iuculano T*. (2026) Domain-general and domain-specific cognitive factors mediating the relationship between math anxiety and mathematical performance in primary school children. *Scientific reports*. *Equal contributors. <https://doi.org/10.1038/s41598-025-30898-2>
2. Pasqualotto A*, Cochrane A*, Venuti P, Bavelier D, **Altarelli I**. (2025). Impaired Audio-Visual Associations in Dyslexia: Evidence Beyond Linguistic Processing. *npj Science of Learning*. *Equal contributors. <https://doi.org/10.1038/s41539-025-00382-7>

3. Pasqualotto A*, Cochrane A*, Bavelier D, **Altarelli I**. (2024). A novel task and methods to evaluate inter-individual variation in audio-visual associative learning. *Cognition*. *Equal contributors. <https://doi.org/10.1016/j.cognition.2023.105658>
4. Zhao J, Zhao Y, Song Z, Thiebaut de Schotten M, **Altarelli I**, Ramus F. (2023). Adaptive compensation of arcuate fasciculus lateralization in developmental dyslexia. *Cortex* 167, 1-11. <https://doi.org/10.1016/j.cortex.2023.05.017>
5. Zhao J, Song Z, Zhao Y, Thiebaut de Schotten M, **Altarelli I**, Ramus F (2022) White matter connectivity in uncinate fasciculus accounts for visual attention span in developmental dyslexia. *Neuropsychologia*, 177, 108414. <https://doi.org/10.1016/j.neuropsychologia.2022.108414>
6. Liu T, Thiebaut de Schotten M, **Altarelli I**, Ramus F, Zhao J (2022). Neural dissociation of visual attention span and phonological deficits in developmental dyslexia: A hub-based white matter network analysis. *Human Brain Mapping*, 43(17), 5210-5219. <https://doi.org/10.1002/hbm.25997>
7. Pasqualotto A, **Altarelli I**, De Angeli A, Menestrina Z, Bavelier D, Venuti P (2022). Enhancing reading skills through a novel video game mixing action mechanics and cognitive training. *Nature Human Behaviour*, 6(4), 545-554. <https://doi.org/10.1038/s41562-021-01254-x>
8. Liu T, de Schotten MT, **Altarelli I**, Ramus F, Zhao J (2021). Maladaptive compensation of right fusiform gyrus in developmental dyslexia: a hub-based white matter network analysis. *Cortex*. <https://doi.org/10.1016/j.cortex.2021.07.016>
9. Pasqualotto A*, Cochrane A*, Bavelier D, **Altarelli I** (2021). A novel non-linguistic audio-visual learning paradigm to test the cognitive correlates of learning rate. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 43(43). *Equal contributors
10. Feng X, **Altarelli I**, Monzalvo K, Ding G, Ramus F, Shu H, Dehaene S, Meng X & Dehaene-Lambertz G (2020). A universal reading network and its modulation by writing system and reading ability in French and Chinese children. *Elife*, 9, e54591. <https://doi.org/10.7554/eLife.54591>
11. Peyre H, Mohanpuria N, Jednoróg K, Heim S, Grande M, van Ermingen-Marbach M, **Altarelli I**, Monzalvo K, Williams C, Germanaud D, Toro R, Ramus F (2020). Neuroanatomy of dyslexia: an allometric approach. *European Journal of Neuroscience*. 52(6):3595-3609. <https://doi.org/10.1111/ejn.14690>
12. **Altarelli I**, Dehaene-Lambertz G, Bavelier D (2019). Individual differences in the acquisition of non-linguistic audio-visual associations in 5 year-olds. *Developmental Science*. e12913. <https://doi.org/10.1111/desc.12913>
13. **Altarelli I**, Bavelier D (2019). Les jeux vidéo d'action: des effets sur la cognition et sur le cerveau aux applications potentielles à l'éducation. *Approche Neuropsychologique des Apprentissages chez l'Enfant - Revue francophone*.
14. Lou C, Duan X, **Altarelli I**, Sweeney JA, Ramus F, Zhao J (2018). White matter network connectivity deficits in developmental dyslexia. *Human brain mapping*. <https://doi.org/10.1002/hbm.24390>
15. Ramus F, **Altarelli I**, Jednoróg K, Zhao J, di Covella LS (2018) Neuroanatomy of developmental dyslexia: pitfalls and promise. *Neuroscience & Biobehavioral Reviews*. 84:434-452. <https://doi.org/10.1016/j.neubiorev.2017.08.001>
16. Vanderauwera J, **Altarelli I**, Vandermosten M, De Vos A, Wouters J, Ghesquière P (2016) Atypical structural asymmetry of the planum temporale is related to family history of dyslexia. *Cerebral Cortex*. 28(1):63-72. <https://doi.org/10.1093/cercor/bhw348>
17. Płonski P, Gradkowski W, **Altarelli I**, Monzalvo K, van Ermingen-Marbach M, Grande M, Heim S, Marchewka A, Bogorodzki P, Ramus F, Jednorog K (2016) Multi-Parameter Machine Learning Approach to the Neuroanatomical Basis of Developmental Dyslexia. *Human Brain Mapping*, 38:900-908. <https://doi.org/10.1002/hbm.23426>
18. Zhao J, de Schotten MT, **Altarelli I**, Dubois J, Ramus F (2016) Altered hemispheric lateralization of white matter pathways in developmental dyslexia: evidence from spherical deconvolution tractography. *Cortex*, 76:51-62. <http://dx.doi.org/10.1016/j.cortex.2015.12.004>
19. Martinaud O, Pouliquen D, Parain D, Goldenberg A, Gérardin E, Hannequin D, **Altarelli I**, Ramus F, Hertz-Pannier L, Dehaene-Lambertz G, Cohen L (2015) Impaired functional differentiation for categories of objects in the ventral visual stream: A case of developmental visual impairment. *Neuropsychologia*, 77:52-61. <https://doi.org/10.1016/j.neuropsychologia.2015.08.009>

20. Jednoróg K, Marchewka A, **Altarelli I**, Monzalvo K, van Ermingen-Marbach M, Grande M, Grabowska A, Heim S, Ramus F (2015) How reliable are grey matter disruptions in developmental dyslexia? Insights from a large-scale voxel-based morphometry study. *Human Brain Mapping*, 36(5):1741-54.
<https://doi.org/10.1002/hbm.22734>
21. **Altarelli I**, Leroy F, Monzalvo K, Fluss J, Billard C, Dehaene-Lambertz G, Galaburda A, Ramus F (2014) Planum temporale asymmetry in developmental dyslexia: revisiting an old question. *Human Brain Mapping* 35(12):5717-35. <https://doi.org/10.1002/hbm.22579>
22. **Altarelli I**, Monzalvo K, Iannuzzi S, Fluss J, Billard C, Ramus F, Dehaene-Lambertz G (2013) A functionally guided approach to the morphometry of occipito-temporal regions in developmental dyslexia: evidence for differential effects in boys and girls. *Journal of Neuroscience* 33(27):11296-301.
<https://doi.org/10.1523/JNEUROSCI.5854-12.2013>
23. Jednorog K*, **Altarelli I***, Monzalvo K, Fluss J, Dubois J, Billard C, Dehaene-Lambertz G, Ramus F (2012) The influence of socioeconomic status on children's brain structure. *PLoS ONE* 7:e42486. *Equal contributors
<https://doi.org/10.1371/annotation/47661de2-2c53-4396-9f88-06b5ad233566>
24. McGettigan C, Faulkner A, **Altarelli I**, Obleser J, Baverstock H, Scott SK (2012) Speech comprehension aided by multiple modalities: behavioural and neural interactions. *Neuropsychologia* 50(5):762-776.
[10.1016/j.neuropsychologia.2012.01.010](https://doi.org/10.1016/j.neuropsychologia.2012.01.010)

PUBLICATIONS – BOOK CHAPTERS

- Aite A, **Altarelli I**, Borst G, Knops A (in press) "The learning brain: a new perspective for education" In A. O'Donnell (Ed), *Oxford Handbook of Educational Psychology*. NY, NY: Oxford University Press.
- **Altarelli I**, Viarouge A (2021) "Les troubles des apprentissages: dyslexie et dyscalculie". In *Apprendre à enseigner*. Paris, France: Bréal.
- **Altarelli I**, Green CS, Bavelier D (2020) "Action video games: from effects on cognition and the brain to potential educational applications". In D. Mareschal, I. Dumontheil & M. Thomas (Eds.), *Educational Neuroscience*. Psychology Press (Taylor & Francis).
- **Altarelli I**, Borst G, Houdé O (2019) "Les fondements cognitifs de la lecture". In A. Bentolila & B. Germain (Eds.), *L'apprentissage de la lecture*. Paris, France: Nathan.
- Ramus F, **Altarelli I**, Jednoróg K, Zhao J, Scotto di Covella L (2016) Brain asymmetries and sex differences in developmental dyslexia. "The Geschwind-Galaburda hypothesis 30 years later", The Dyslexia Foundation.
- **Altarelli I**, Ramus F (2014) Developmental Dyslexia. In P. Brooks & V. Kempe (Eds.), *Encyclopedia of Language Development*. Thousand Oaks, CA: Sage.

PUBLICATIONS – DISSEMINATION OF WORK

- Pasqualotto A, **Altarelli I** (2024) Évaluation des interventions numériques pour l'amélioration des fonctions domaine-générales dans l'acquisition de la lecture : progrès et défis. *Rééducation Orthophonique*, 298.
- **Altarelli I**, Bavelier D (2016) Technologie et apprentissage de la lecture : alliés ou ennemis? *Langage et pratiques*, 57:27-37.
- **Altarelli I** (2016) Etudes d'imagerie anatomique de la dyslexie développementale. *Actes du colloque de l'Association des Sciences du Langage Paris 2015*.