

Pedro CARDOSO-LEITE

PhD, Experimental Psychology (Feb. 2009)

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Citizen of Luxembourg & Portugal

Born the 10th of July 1981 in Luxembourg

FPSE - University of Geneva

Brain and Learning Lab

Campus Biotech

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Current Position

Senior Researcher in the brain and learning laboratory of Prof. Daphne Bavelier, University of Geneva, Faculty of Psychology and Educational Sciences. *Main research topics:* Using technology to improve learning and transfer; Online data collection; games and learning; Hierarchical Learning, Learning trajectories & Decision Making;

Teaching Assistant ("Maître Assistant"; equivalent to non-tenured ass. Prof.), *Teaching course:* Learning: brain, behavior and computational models, graduate level; Cognitive Neuroscience, undergraduate level (co-instructor with Prof. Bavelier);

Consultant in cognitive sciences, data analysis and experimental design for mobile games.

Past Positions

- 2011-2015** Post Doc at the University of Geneva (Switzerland), working with Prof. Daphne Bavelier
- 2009-2011** Post Doc at the Max Planck Institute for Human Cognitive and Brain Sciences (Leipzig, Germany), working with Dr. Jöran Lepsien and Dr. Florian Waszak.
- 2008-2009** Post Doc in psychophysics at the Laboratoire Psychologie de la Perception, Université Paris Descartes & CNRS (Paris, France), working with Dr. Pascal Mamassian and Dr. Florian Waszak.
- 2005-2006** Research assistant at the Laboratoire de Psychologie Expérimentale, CNRS (Paris, France), working with Dr. Pascal Mamassian.
- 2004-2005** Masters internship at the University of Luxembourg (EMACS), working with Prof. Claude Houssemand and Prof. Romain Martin.

Education

- 2008** **PhD in Experimental Psychology, University of Paris Descartes.**
Highest rank; best thesis of 2008 by the Doctoral School. Université Paris Descartes, France. PhD under the supervision of Dr. Andrei Gorea and in collaboration with Dr. Florian Waszak and Dr. Pascal Mamassian.
- 2005** **Master in Cognitive Sciences and in Psychology**
M1: double major in computer science and in differential and developmental psychology at the Université Nancy 2, France, supervised by Prof. Houssemand and Prof. Martin;
M2 in Cognitive Science jointly organized by Université Paris 5, Université Paris 6, Ecole Normale Supérieure, Ecole des Hautes Etudes en Sciences Sociales, Paris, France, under the supervision of Dr. Pouthas and Dr. Gorea.
- 2003** **Bachelor in Cognitive Sciences and in Psychology.**
Double major, Université Nancy 2, France.
- 2000** **High School diploma.** Major in biology. Lycée Classique de Diekirch, Luxembourg.

Grants & Awards

- Participated in writing the FNS research grant (PI: Prof. Daphne Bavelier, 2015-2018)
- Travel award by the Schwarz foundation for the "Cold Spring Harbor Symposium: Cognition." (2014)
- Travel award by the University of Geneva in support of the 2014 "The Learning to Attend, Attending to Learn" workshop and the 43th annual meeting of "the Society for Neuroscience". (2014)
- Post-doctoral fellowship by the Fyssen Foundation (2009-20011)
- Prix d'excellence for doctoral thesis (2008)
- Participated in writing ANR research grant (PI: Dr. Andrei Gorea, 2006-2009)
- Participated in writing BQR research grant (PI: Dr. Andrei Gorea, 2006)
- Doctoral fellowship by the Luxembourgish Ministry of Education (2005-2008)
- Pre-doctoral fellowship "bourse du mérite" by the University Paris Descartes (2004-2005)

Teaching

- 2016** **Learning: brain, behavior and computational models.** This course is being designed from scratch mainly for master students in neuroscience. It is covering the fundamentals of programming in R, introduces modeling human behavior and is attempting to present a cross-disciplinary approach to learning. It also introduces the use of games for cognitive assessment and to foster learning.
- 2013-2016** **Cognitive Neuroscience.** This course is co-taught with Prof. Bavelier to c.a. 180 Psychology Bachelor students per year at the university of Geneva. In this course I cover Attention, Learning and Memory, Motor control and Visual Perception. I'm responsible for organizing and correcting the exams (4 per year) as well as the online questionnaires about the required reading material.
- 2013** **The development of human vision.** Lecture (2h) on to c.a. 30 Psychology and Neuroscience Master students at the university of Geneva.
- 2011** **Introductory statistics.** This 8h course was given to c.a. 10 Psychology Master students at the University of Luxembourg.
- 2001** **Mathematics.** High School students at the Lycée Michel Lucius in Luxembourg.
- 1997-1999** **Afterschool Help.** Children with minor learning difficulties, Luxembourg

Ad-hoc reviewer

Current Biology, Nature Neuroscience, Trends in Cognitive Sciences, Cerebral Cortex, Journal of Experimental Psychology, Psychonomic Bulletin & Review, European Journal of Cognitive Psychology, Journal of Vision, Seeing and Perceiving, Attention, Perception and Psychophysics, Plos One, Journal of Physical Education and Sport Management, Neuropsychologia, Maternal and Child Health Journal, Transactions on Neural Systems & Rehabilitation Engineering, Neural Plasticity.

Publications

Work in preparation

1. **Cardoso-Leite, P.**, Schrater, P., Goldstone, R., Green, C. S., & Bavelier, D. (in prep). Using online data collection to investigate individual differences in learning and transfer of learning.
2. **Cardoso-Leite, P.**, Schrater, P., & Bavelier, D. (in prep). A computational model of structure learning: using a sequential prediction task to assess learning and transfer on a trial-by-trial basis.
3. **Cardoso-Leite, P.**, Schrater, P., Tissieres, I., M., **Martin, R.**, & Bavelier, D. (in prep). The development of learning abilities and their determinants in 7 to 12 year old children.

Articles (selected)

1. **Cardoso-Leite, P.**, Kludt, R., Vignola, G., Ma, W. J., Green, C. S., & Bavelier, D. (2015). Technology consumption and cognitive control: Contrasting action video game experience with media multitasking. *Attention, Perception & Psychophysics*.
2. **Cardoso-Leite, P.**, Green, C. S., & Bavelier, D. (2015). On the impact of new technologies on multi-tasking. *Developmental Review*, 35, 98-112.
3. Yung, A., **Cardoso-Leite, P.**, Dale, G., Bavelier, D., & Green, C. S. (2015). Methods to Test Visual Attention Online. *Journal of Visualized Experiments*, 96, e52470, doi: 10.3791/52470.
4. **Cardoso-Leite, P.**, & Bavelier, D. (2014). Video game play, attention, and learning: how to shape the development of attention and influence learning? *Current Opinion in Neurology*, Special Issue on Developmental Disorders, 27(2), 185–91.
5. **Cardoso-Leite, P.**, & Waszak, F. (2014). Summation versus suppression in metacontrast masking: On the potential pitfalls of using metacontrast masking to assess perceptual-motor dissociation. *Attention, Perception & Psychophysics*, 76(5), 1403–13. doi:10.3758/s13414-014-0670-y
6. **Cardoso-Leite, P.**, Waszak, F., & Lepsien, J. (2013). Human perceptual decision making: Disentangling task onset and stimulus onset. *Human Brain Mapping*. doi:10.1002/hbm.22393
7. Waszak, F., **Cardoso-Leite, P.**, & Hughes, G. (2012). Action effect anticipation: neurophysiological basis and functional consequences. *Neuroscience & Biobehavioral Reviews*, 36(2), 943-59.
8. **Cardoso-Leite, P.**, Ascher, P. & Bavelier, D. (2012). Brain plasticity: Paradoxical case of a neurodegenerative disease? Commentary in *Current Biology*. 22(20):R884-6. doi: 10.1016/j.cub.2012.09.017.

9. **Cardoso-Leite, P.**, Mamassian, P., Schütz-Bosbach, S., & Waszak, F. (2010). A new look at sensory attenuation: action-effect anticipation affects sensitivity, not response bias. *Psychological Science*, 21(12), 1740-1745.
10. **Cardoso-Leite, P.**, & Gorea, A. (2010). On the Perceptual/Motor dissociation: a Review of Concepts, Theory, Experimental Paradigms and Data interpretations. *Seeing & Perceiving*, 23, 89-151.
11. **Cardoso-Leite, P.**, & Gorea, A. (2009). Comparison of perceptual and motor decisions via confidence judgements and saccade curvature. *Journal of Neurophysiology*, 101(6), 2822-36.
12. Waszak, F., **Cardoso-Leite, P.**, & Gorea, A. (2007). Perceptual criterion and motor threshold: A signal detection analysis of the relationship between perception and action. *Experimental Brain Research*, 182(2), 179–188.
13. **Cardoso-Leite, P.**, Gorea, A., & Mamassian, P. (2007). Temporal Order Judgment and simple Reaction Times: Evidence for a common processing system. *Journal of Vision*, 7(6), 1-14.

Conference Presentations (selected)

1. **Cardoso-Leite, P.**, Schrater, P., Goldstone, R., Green, C. S. & Bavelier, D. (2015) Using online experiments to investigate individual differences in learning. Talk given at the International Convention of Psychological Science. March 12-14; Amsterdam, The Netherlands.
2. **Cardoso-Leite, P.**, Schrater, P., Goldstone, R., Green, C. S. & Bavelier, D. (2015) Cognitive mechanisms underlying performance improvements after videogame-based training. Talk given at the 59th Scientific Annual Meeting of the German Society for Clinical Neurophysiology and Functional Imaging (DGKN). March 18-21; Tübingen, Germany.
3. **Cardoso-Leite, P.**, Green, C. S., & Bavelier, D. (2014). Videogame factors that promote learning and transfer. Talk given at the ONR “Cognitive Science of Learning” program review. July 15-16; Arlington, VA.
4. **Cardoso-Leite, P.**, Goldstone, R., & Bavelier, D. (2014). Probing the link between attentional control and learning. Poster presented at: 79th CSHL Symposium: Cognition. May28-June2, 2014; Cold Spring Harbor, NY.
5. **Cardoso-Leite, P.**, & Bavelier, D. (2014). New Technologies Impact Cognition: The Surprising Case of Action Video Games. Talk given at: Tech conference LOGIN, April 10-11, 2014; Vilnius, Lithuania
6. **Cardoso-Leite, P.**, Vignola, G., Kludt, R., Green, C. S. & Bavelier, D. (2013). How technology use shapes attentional control. Poster presented at: Learning to Attend, attending to learn: neurological, behavioral, and computational perspectives. Nov 6-7, 2013; San Diego, CA.

Dissemination of work/outreach in the media

1. Interview given to Žaismo DNR at the LOGIN conference (2014): <https://www.youtube.com/watch?v=RchWoKVyC24>
2. Interview given to Technotopija at the LOGIN conference (2014): <https://www.youtube.com/watch?v=DtCeaE3zQX0>
3. **Cardoso-Leite, P.**, & Bavelier, D. (2013) “Quand le jeu vidéo d’action rend le cerveau plastique”. Catalogue Exposition Cité des Sciences.
4. **Cardoso-Leite, P.**, & Bavelier, D. (2013) “When video games turn brains plastic”. Digital Art Criticism (English and Chinese).
5. **Cardoso-Leite, P.**, & Bavelier, D. (2012) “Le jeu vidéo est l’avenir de l’homme cognitif?” <http://www.lesgrandsdebats.fr/Debats/Faut-il-rehabiliter-le-jeu-video/Le-jeu-video-est-l-avenir-de-l-homme-cognitif-395> ; http://www.lepoint.fr/jeux-video/jeu-video-l-avenir-de-l-homme-05-12-2012-1539599_485.php

Skills

Domains: Learning, Cognition, Computational modeling, psychophysics

Techniques: Behavioral assessment (psychophysics, eye tracking, online assessments); fMRI

Programming: MATLAB, R, Processing, PHP, MySQL, HTML5, JavaScript, Python, ERTS, Presentation

Languages: Luxembourgish, Portuguese, French, English, German, Spanish

Teaching software & other: Chamilo; Limesurvey, Photography, Photoshop, Visual Design