

Stefano Ghirlanda – Curriculum vitæ

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Phone: +39 051 2091338 Fax: +39 051 243086

Dipartimento di Psicologia, Viale Berti-Pichat 5, 40127 Bologna, Italy

Born in Rome 22 dec 1972

stefano.ghirlanda@unibo.it

<http://www.intercult.su.se/~stefano>

Academic curriculum

Current positions:

- Tenured researcher of General Psychology at the University of Bologna, since January 2004.
- Member of the Centre for the Study of Cultural Evolution, Stockholm University, since April 2007.

Past positions:

- July–December 2006. Visiting researcher at the Program for Evolutionary Dynamics, Harvard University (MA Nowak).
- April–December 2004. Consultant for neural modeling at the Institute of Neurology, Catholic University of Rome, Italy (V Di Lazzaro).
- September–December 2003. Post-doctoral research at the Department of Experimental Medicine, University of L'Aquila, Italy (EA Jannini).
- 2002–2004, on various occasions. Post-doctoral research at the Institute for the Science and Technologies of Cognition, National Research Council, Rome (D Parisi, S Nolfi).
- Summer 2002. Post-doctoral research at the Department of Psychology, University of Toronto (JA Hogan).
- 2001–2003. Researcher at the Group for Interdisciplinary Cultural Studies, a joint project of the History and Zoology Institutions at Stockholm University.

Education:

- 1996–2001. PhD in theoretical ethology at the Zoology Institution of Stockholm University, supervised by M Enquist. Final thesis *Towards a theory of stimulus control* (papers 28, 32, 33, 35, 36).
- 1991–1996. Degree in mathematical physics *cum laude* at the University of Rome “La Sapienza”. Final thesis on the statistical mechanics of disordered spin systems, supervised by F Guerra (paper 37).

References

- **Magnus Enquist.** Professor of Ethology, Department of Zoology, and Head, Centre for the Study of Cultural Evolution, Stockholm University.

Mailing address: Wallenberglaboratoriet, Lilla frescativägen 7B, 106 91 Stockholm Sweden. **Email:** magnus.enquist@intercult.su.se.
Phone: +46 8 164055.

- **Rob Boyd.** Professor, Department of Anthropology, University of California, Los Angeles.

Mailing address: UCLA Department of Anthropology, 375 Portola Plaza, 341 Haines Hall, Box 951553 Los Angeles, CA 90095-1553.
Email: rboyd@anthro.ucla.edu. **Phone:** +1 310 825-2055.

- **Ian PL McLaren.** Professor of Cognitive Psychology, School of Psychology, University of Exeter.

Mailing address: University of Exeter, School of Psychology, Washington Singer Laboratories, Perry Road, Exeter EX4 4QG, United Kingdom. **Email:** I.P.L.McLaren@exeter.ac.uk. **Phone:** +44 1392 264626.

- **Domenico Parisi.** Institute for the Science and Technologies of Cognition, National Research Council.

Mailing address: ISTC, Via San Martino della Battaglia 44, 00185 Roma, Italy. **Email:** domenico.parusi@istc.cnr.it. **Phone:** +39 06 44595333.

Grants

- 2007–2009. European Commission grant for the project “CULTAPTATION: Dynamics and adaptation in human cumulative culture”, contract FP6-2004-NEST-PATH-043434 (300 k€).
- 2007–2009. Grant from the University of Bologna for the project “Cultural contact and adaptation in immigration and integration phenomena” (75 k€).

Awards

- October 2003. IgNobel Prize for interdisciplinary research, for paper 30.

Peer reviews

I have reviewed papers for *Adaptive Behavior* (1), *Animal Behaviour* (2), *Animal Cognition* (2), *American Naturalist* (2), *Behavioral Ecology and Sociobiology* (1), *Behavioral Processes* (1), *Current Anthropology* (1), *Evolutionary Ecology* (1), *Journal of the Experimental Analysis of Behavior* (1), *Journal of Human Evolution* (1), *Journal of Experimental Psychology: Animal Behavior Processes* (1), *Journal of Theoretical Biology* (3), *Interface* (3), *Laterality* (2), *Learning & Motivation* (2), *Proceedings of the Royal Society of London B* (3), *Psychonomic Bulletin and Review* (1), *Mathematical Models and Methods in Applied Science* (1), *Ornis Svecica* (1), *Philosophical Transactions of the Royal Society B* (2), *Theoretical Population Biology* (1), *Trends in Ecology & Evolution* (1).

I have evaluated research proposals for the Austrian Science Fund (1), the Biotechnology and Biological Sciences Research Council of the U.K. (1), the Catholic University of Leuven (2), the Netherlands Organization for Scientific Research (1).

I have evaluated books for publication by Princeton University Press (1), Oxford University Press (1).

Publications*

1. Enquist M, Ghirlanda S, Lind J. A new theory of thinking. Princeton University Press (in preparation, projected 2011).
2. Rendell L, Boyd R, Cownden D, Enquist M, Eriksson K, Feldman MW, Fogarty L, Ghirlanda S, Lillicrap T, Laland KN. Why copy others? Insights from the Social Learning Strategies Tournament. *Science*, in press.
3. Enquist M, Ghirlanda S, Eriksson, K. Modeling the evolution and diversity of complex cumulative culture. *Philosophical Transactions of the Royal Society B*, in press.
4. Ghirlanda S, Enquist M, Perc M. Sustainability of culture-driven population dynamics. *Theoretical Population Biology*, in press.
5. Ghirlanda S, Acerbi A, Enquist M, Nakamaru M. Reply to Xue & Costopoulos, “The evitable route to zealotry - on Ghirlanda et al. (2006).” *Current Anthropology*, in press.
6. Enquist M, Ghirlanda S, Hurd PL. Signaling. In Westneat DF, Fox CW (eds) *Evolutionary Behavioral Ecology*. Oxford University Press, in press.

*“Times cited” from ISI Web of Knowledge or from Google Scholar when not available (items marked with *). Bibliometrics: $h = 12$, $m = 1$ (h is the number of papers cited at least h times; m is h/n , where n is years since first published paper, see <http://arxiv.org/abs/physics/0508025>). Total citations: 346+40*.

7. De Sanctis L, Ghirlanda S. Shared culture needs large social networks. In D'Amore B, Contucci P, Buscema M (eds), *Applications of Mathematics in Models, Artificial Neural Networks and Arts*. Berlin: Springer, in press.
8. Contucci P, Gallo I, Ghirlanda S. Equilibria of culture contact derived from ingroup and outgroup attitudes. In D'Amore B, Contucci P, Buscema M (eds), *Applications of Mathematics in Models, Artificial Neural Networks and Arts*. Berlin: Springer, in press.
9. Acerbi A, Enquist M, Ghirlanda S. Cultural evolution and individual development of openness and conservatism. *Proceedings of the National Academy of Sciences of the USA* **106**, 18931–18935 (2009). doi
10. Lind J, Ghirlanda S, Enquist M. Insight learning or shaping? *Proceedings of the National Academy of Sciences of the USA* **106**, E76 (2009). doi
11. Ghirlanda S, Frasnelli E, Vallortigara G. Intraspecific competition and coordination in the evolution of lateralization. *Philosophical Transactions of the Royal Society*, **B364**, 861–866 (2009).
Times cited: 7 doi
12. Bruzzo A, Borghi A, Ghirlanda S. Hand-object interaction in perspective. *Neuroscience Letters* **441**, 61–65 (2008). doi
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13. Enquist M, Ghirlanda S, Jarrick A, Wachtmeister C-A. Why does human culture increase exponentially? *Theoretical Population Biology* **74**, 46–55 (2008). doi
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14. Enquist M, Eriksson K, Ghirlanda S. Critical social learning: A solution to Rogers' paradox of non-adaptive culture. *American Anthropologist* **109**, 727–734 (2007). doi
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15. Contucci P, Ghirlanda S. Modeling society with statistical mechanics: an application to cultural contact and immigration. *Quality & Quantity* **41**, 569–578 (2007). doi
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16. Ghirlanda S, Enquist M. Cumulative culture and explosive demographic transitions. *Quality & Quantity* **41**, 581–600 (2007). doi
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17. Eriksson K, Enquist M, Ghirlanda S. Critical points in current theory of conformist social learning. *Journal of Evolutionary Psychology* **5**, 67–88 (2007).
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18. Scorolli C, Ghirlanda S, Enquist M, Zattoni S, Jannini EA. Relative prevalence of different fetishes. *International Journal of Impotence Research* **19**, 432–437 (2007). doi
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19. Enquist M, Ghirlanda S. Evolution of social learning does not explain the origin of human cumulative culture. *Journal of Theoretical Biology* **246**, 129–135 (2007). doi
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20. Ghirlanda S, Enquist M. How training and testing histories affect generalization: a test of simple neural networks. *Philosophical Transactions of the Royal Society* **B362**, 449–454 (2007). doi
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21. Ghirlanda S, Nakamaru M, Enquist M, Cultural evolution develops its own rules - The rise of conservatism and persuasion, *Current Anthropology* **47**, 1027–1034 (2006).
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22. Enquist M, Ghirlanda S, Neural networks and animal behavior. Princeton University Press (2005).
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23. Di Lazzaro V, Oliviero A, Pilato F, Saturno E, Dileone M, Marra C, Ghirlanda S, Ranieri F, Gainotti G, Tonali P, Neurophysiological predictors of long term response to AChE inhibitors in AD patients, *Journal of Neurology, Neurosurgery and Psychiatry* **76(8)**, 1064–1069 (2005). doi
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24. Ghirlanda S, Retrospective revaluation as simple associative learning, *Journal of Experimental Psychology: Animal Behavior Processes* **31(1)**, 107–111 (2005). doi
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25. Kenward B, Wachtmeister C-A, Ghirlanda S, Enquist M, Spots and stripes: the evolution of repetition in visual signal form, *Journal of Theoretical Biology* **230**, 407–419 (2004). doi
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26. Ghirlanda S, Vallortigara G, The evolution of brain lateralization: a game theoretical analysis of population structure, *Proceedings of The Royal Society of London* **B271**, 853–857 (2004). doi
Times cited: 55
27. Di Lazzaro V, Oliviero A, Pilato F, Saturno E, Dileone M, Marra C, Daniele A, Ghirlanda S, Gainotti G, Tonali PA, Motor cortex hyperexcitability to transcranial magnetic stimulation in Alzheimer's disease, *Journal of Neurology, Neurosurgery and Psychiatry* **75(4)**, 555–559 (2004).
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28. Ghirlanda S, Enquist M, A century of generalization, *Animal Behaviour* **66**, 15–36 (2003). doi
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29. Arak A, Enquist M, Ghirlanda S, Wachtmeister C-A, Spectacular phenomena and limits to rationality in genetic and cultural evolution, *Philosophical Transactions of the Royal Society* **B357**, 1585–1594 (2002). doi
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30. Ghirlanda S, Jansson L, Enquist M, Chickens prefer beautiful humans, *Human Nature* **13**, 383–389 (2002).
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31. Kamo M, Ghirlanda S, Enquist M, The evolution of signal form: effects of learned versus inherited recognition, *Proceedings of the Royal Society of London* **B269**, 1765–1771 (2002). doi
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32. Ghirlanda S, Intensity generalisation: physiology and modelling of a neglected topic, *Journal of Theoretical Biology* **214**, 389–404 (2002). doi
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33. Enquist M, Ghirlanda S, Wachtmeister C-A, Lundqvist D, An ethological theory of attractiveness, in *Advances in visual cognition: Facial attractiveness*, edited by Leslie A. Zebrowitz and Gillian Rhodes, Westport, CT: Ablex (2002).
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34. Ghirlanda S, Towards a theory of stimulus control, PhD thesis, Stockholm University, ISBN 91-87272-87-3 (2001).

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36. Ghirlanda S, Enquist M, Artificial neural networks as models of stimulus control, *Animal Behaviour* **56**, 1383–1389 (1998). doi
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37. Ghirlanda S, Guerra F, General properties of overlap probability distributions in disordered spin systems. Towards Parisi Ultrametricity, *Journal of Physics A: Mathematical and General* **31**, 9149–9155 (1998).
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38. Enquist M, Ghirlanda S, Hurd PL, Discrete conventional signalling of a continuous variable, *Animal Behaviour* **56**, 749–754 (1998). doi
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39. Enquist M, Ghirlanda S, The secrets of faces, *Nature* **394**, 826–827 (1998). doi
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Teaching

Courses:

- “Neural models of behavior”, master course at the School of Psychology, University of Bologna (2007–).
- “Intelligent Systems”, master course at the School of Psychology, University of Trieste (2005–2008).
- “Introduction to the history of psychology”, undergraduate course at the School of Psychology, University of Bologna (2004–2007).
- “Mathematics and modelling in biology”, graduate course at the Department of Zoology, Stockholm University (1998).

Invited lectures:

- “Generalization”, lectures at the School of Psychology, University of Newcastle (2007).
- “Sexual selection”, lectures within MA Nowak’s Math 153 course, Harvard University (2006).
- “Sexual preferences and fetishism”, lectures at the School of Specialization in Psychiatry, Catholic University of Rome, Rome (2002).
- “Human Ethology”, lectures at Department of Zoology, Stockholm University (2000, 2007–2009).

Student supervision

I have assisted in the supervision of graduate students and research assistants, resulting in the publication of papers 11, 12, 18, 25, 31.

I have supervised about 10 undergraduate theses at the School of Psychology, University of Bologna.

Selected seminars

- Conference ◇ Invited seminar

1. *Sexual preferences, culture, and evolution.* ◇ Institute of Philosophy, Catholic University of Leuven, May 18, 2009.
2. *Evolution of social learning does not explain the origin of human cumulative culture.* Max Planck Institute for Evolutionary Anthropology, Leipzig, May 2, 2008.
3. *Effects of training and testing procedures on generalization.* • XII Symposium on Associative Learning, Gregynog, Wales, April 22, 2008.
4. *Automated design of crucial learning experiments.* • XI Symposium on Associative Learning, Gregynog, Wales, April 5, 2007.
5. *Human sexual imprinting.* ◇ Cognitive Evolution Lab, Harvard University, December 5, 2006. ◇ Department of Neuroscience, Newcastle University, October 17, 2007.
6. *The logic of cumulative culture.* • Cultural Evolution Symposium, Archaeological Research Laboratory, Stockholm University, October 23, 2006.
7. *Atypical sexual stimuli on the Internet.* ◇ IgNobel Prize informal lecture, MIT, Cambridge (MA), October 7, 2006.
8. *Simple neural network model of latent inhibition.* • X Symposium on Associative Learning, Gregynog, Wales, April 12, 2006.
9. *Retrospective revaluation as simple associative learning: a general analysis.* • IX Symposium on Associative Learning, Gregynog, Wales, March 23, 2005.
10. *The need for a theory of stimuli.* • Department of Experimental Psychology, University of Cambridge, May 28, 2004.
11. *Rationality and irrationality in evolved behavior.* • Department of Zoology, University of Oxford, May 27, 2004. ◇ Program for Evolutionary Dynamics, Harvard University, September 22, 2006.
12. *Beauty: noble or ignoble?* ◇ IgNobel Prize informal lecture, MIT, Cambridge (MA), October 4, 2003.
13. *Neural network models of animal behavior.* • Adaptive Signal Processing Laboratory, McMaster University, Hamilton, Ontario, September 5, 2002. ◇ Institute for Theoretical Computer Science, Technical University, Graz, Austria, November 24, 2005.
14. *Sexual preferences and fetishism: biology and culture in interaction.* ◇ Conference of the Association of European Psychiatrists, Stockholm, May 5, 2002.
15. *Artificial neural networks as models of stimulus control.* • Scandinavian Ethology Conference. Varmaland, Iceland, May, 3, 1999.
16. *Stimulus geometry and the perception of human faces* ◇ Royal Polytechnic, Stockholm, Sweden, June 17, 1998.