


BIOGRAPHICAL SKETCH

	NAME		POSITION TITLE	
	Luca Bonini		Associate Professor of Psychobiology and Physiological Psychology, University of Parma	
INSTITUTION AND LOCATION		DEGREE	Completion date	FIELD OF STUDY
University of Parma		Master	07/2003	Psychology
University of Parma		PhD	03/2008	Neuroscience
Italian Institute of Technology		Post-doc	08/2016	Neurophysiology

A. Personal Statement

My main research interests consist in the application of neurophysiological, behavioral and neuroanatomical techniques to investigate at the local and system level the neural mechanisms underlying the encoding of self and others' actions in primates. Ongoing studies extend from parieto-frontal cortical circuits to cortico-basal ganglia networks during motor, spatial and socio-cognitive processes, in addition to collaborative projects on the neural basis of unconscious visual processing in V1-lesioned monkeys. Thanks to the collaboration with EU partners, my group is involved in designing, prototyping and testing novel devices for multi-channel recordings and in piloting novel approaches for wireless recording of neuronal signals in freely-moving monkeys monitored with multi-camera systems. Our studies received support, among others, from the European Research Council and the Italian Ministry of University. In particular, with a recently awarded ERC consolidator grant, future research will explore the neural bases of emotional behavior in deep-brain structures during unconstrained social interactions. I am (and/or have been) member of different Italian and international advocacy groups and strives to refine experimental procedures, increase transparency and spread new findings of biomedical research to the public.

B. Positions and Honors

▪ Positions and Employment

- 01/09/2016 Associate Professor of Psychobiology and Physiological Psychology, Dept of Medicine and Surgery – University of Parma, Italy.
- 2009 – 2016 Post-doctoral fellow at the Italian Institute of Technology (IIT), Brain Center for Social and Motor Cognition, Parma, Italy.
- 2008 – 2009 Post-doctoral fellow at the Dept of Neuroscience, Univ of Parma.
- 2008 – 2010 Contract professor of Neuroscience and Psychobiology at the Universities Carlo Bo (Urbino) and Parma.
- 2004 – 2008 PhD in Neuroscience, Univ of Parma, Director prof. Giacomo Rizzolatti, Supervisor prof. Leonardo Fogassi.
- 2003 – 2004 Internship at the Dept of Neurology, Univ of Modena, Supervisor Prof. Paolo Nichelli.

▪ Other Experience and Professional Memberships

- Reference person for animal welfare of the nonhuman primate facility of the University of Parma
- Delegate of the Director of the Dept of Medicine and Surgery for EU Research
- Member of the Advisory Board of the PhD School in Neuroscience, University of Parma
- Tutoring of more than 50 undergraduate students for their final dissertation and 13 graduate students (PhD and post-doctoral fellows).

- Various training courses on the use of animals in biomedical research (among others: FELASA, ISS, Surgical workshops).
- Member of the Editorial Board of Scientific Reports
- Reviewer for several international peer-reviewed journals, national, EU and international funding agencies
- Member of the Society for Neuroscience (SfN), Società Italiana di Neuroscienze (SINS), Società Italiana di Fisiologia (SIF).

- Honors

- 2018 Italian National Scientific Habilitation to the role of Full Professor of “Psychobiology and Physiological Psychology”.
- 2017 Italian National Scientific Habilitation to the role of Full Professor of “Physiology”.
- 2013 Travel award of the Federation of the European Neuroscience Society (FENS).
- 1999-2003 Prize money as Best Student of the year (for three years) of the course in Psychology.

C. Selected Peer-reviewed Publications (15 best peer-reviewed recent publications)

1. Ferroni, C.G., Albertini, A., Lanzilotto, M., Livi, A., Maranesi, M., **Bonini, L.** (2021). Local and system mechanisms for action execution and observation in parietal and premotor cortices. *Curr Biol* 6:S0960-9822(21)00547-9.
2. Orban, G.A., Lanzilotto, M., **Bonini, L.** (2021). From observed action identity to social affordances. *Trends Cogn Sci* 25(6):493-505.
3. Lanzilotto, M., Maranesi, M., Livi, A., Ferroni, C.G., Orban, G.A., **Bonini, L.** (2020). Stable readout of observed actions from format-dependent activity of monkey’s anterior intraparietal neurons. *Proceedings of the National Academy of Sciences* 117(28):16596-16605.
4. Albertini, D., Gerbella, M., Lanzilotto, M., Livi, A., Maranesi, M., Ferroni, C.G., **Bonini, L.** (2020). Connectional gradients underlie functional transitions in monkey pre-supplementary motor area. *Progress in Neurobiology*, 184; 101699.
5. Lanzilotto, M., Giulia Ferroni, C., Livi, A., Gerbella, M., Maranesi, M., Borra, E., Passarelli, L., Gamberini, M., Fogassi, L., **Bonini, L.***, Orban, G.A.* (2019). Anterior intraparietal area: a hub in the observed manipulative action network. *Cereb Cortex* 29(4):1816-1833. *Co-senior authors
6. Livi, A., Lanzilotto, M., Maranesi, M., Fogassi, L., Rizzolatti, G., **Bonini, L.** (2019). Agent-based representations of objects and actions in the monkey pre-supplementary motor area. *Proceedings of the National Academy of Sciences* 116(7):2691-2700.
7. Bruni, S., Gerbella, M., **Bonini, L.**, Borra, E., Coudé, G., Ferrari, P.F., Fogassi, L., Maranesi, M., Rodà, F., Simone, L., Serventi, F.U., Rozzi, S. (2018). Cortical and subcortical connections of parietal and premotor nodes of the monkey hand mirror neuron network. *Brain Struct Funct* 223(4):1713-1729.
8. Maranesi, M., Livi, A., **Bonini, L.** (2017) Spatial and viewpoint selectivity for others' observed actions in monkey ventral premotor mirror neurons. *Sci Rep.* 7(1):8231
9. **Bonini, L.** (2017) The extended mirror neuron network: anatomy, origin, and functions. *Neuroscientist* 23(1):56-57.
10. Lanzilotto, M., Livi, A., Maranesi, M., Gerbella, M., Barz, F., Ruther, P., Fogassi, L., Rizzolatti, G., **Bonini, L.** (2016) Extending the cortical grasping network: pre-supplementary motor neuron activity during vision and grasping of objects. *Cereb Cortex* 26(12):4435-4449.
11. Pothof, F., **Bonini, L.**, Lanzilotto, M., Livi, A., Fogassi, L., Orban, G.A., Paul, O., Ruther, P. (2016) Chronic neural probe for simultaneous recording of single-unit, multi-unit, and local field potential activity from multiple brain sites. *J Neural Eng.* 13(4):046006.

12. Bruni, S., Giorgetti, V., **Bonini, L.**, Fogassi, L. (2015) Processing and integration of contextual information in monkey ventrolateral prefrontal neurons during selection and execution of goal-directed manipulative actions. *J Neurosci* 35(34):11877-11890.
13. Maranesi, M., Livi, A., Fogassi, L., Rizzolatti, G., **Bonini, L.** (2014) Mirror neuron activation prior to action observation in a predictable context. *J Neurosci.* 34(45):14827-32.
14. **Bonini, L.**, Maranesi, M., Livi, A., Fogassi, L., Rizzolatti, G. (2014) Ventral premotor neurons encoding representations of action during self and others' inaction. *Curr Biol.* 24(14):1611-1614.
15. **Bonini, L.**, Maranesi, M., Livi, A., Fogassi, L., Rizzolatti, G. (2014) Space-dependent representation of objects and other's action in monkey ventral premotor grasping neurons. *J. Neurosci.* 34(11):4108-4119.

D. Research Support

As Principal Investigator

- 2020- ERC consolidator grant (101002704) 5 years (start date 1/04/2022)
- 01/09/2020 ERC Proof of Concept grant (957538) € 150,000 for 2 years.
- 31/01/2019 Scientific Responsible of a convention between the Universities of Turin and Parma to carry on a research project within an ERC consolidator grant (G.A. 772953, PI: Prof. Marco Tamietto).
- 8/01/2018 FARE Grant (R16PWSFBPL) € 239,840 for 5 years. Italian Ministry of University and Research (MIUR).
- 1/10/2016 ERC starting grant (678307) € 1,499,338 for 5 years.

Major participations to funded projects as a team member

- 2010 – 2015 ERC AdG (FP7-250013) € 1,992,000 for 5 years. PI: Prof. Giacomo Rizzolatti. Role: Team Leader of the monkey neurophysiology group.
- 2013 – 2017 FET Project "NeuroSeeker" (600925), budget € 6,187,000 for 4 years, of which € 544,000 for the unit in Parma. PI: Prof. Guy Orban. Role: Researcher for in-vivo probe validation and testing.