



Stefania Bruni

WORK EXPERIENCE

Postdoctoral Associate

New York University [29/12/2016 – 30/06/2021]

City: New York, NY

Country: United States

My research focused on neural dynamics and network coding of multi-sensory and multi-modal information at different stages of processing underlying diverse naturalistic and perceptual contexts related to navigation, planning, and perceptual decisions.

We investigated these domains by means of simultaneously electrophysiological recordings from several brain areas of macaque monkeys.

Postdoctoral Fellow

Istituto Italiano di Tecnologia (IIT) [01/07/2016 – 28/11/2016]

City: Genova

Country: Italy

My contribution mainly focused on behavioural cognitive analyses and relative neuronal correlates of social behaviour in wild type mice and genetically modified mice for genes relevant to schizophrenia. These analyses are aimed to provide new insights into the neural mechanisms of social interactions.

We achieved this goal by studying neuronal activity from the medial prefrontal cortex of awake and behaving mice in combination with other neural manipulations.

Postdoctoral Fellow

Università degli studi di Parma [01/08/2013 – 31/01/2016]

City: Parma

Country: Italy

Conducted research to investigate the role of monkeys' prefrontal cortex in the integration of contextual information for action selection and organization, and for understanding others' actions and goals.

EDUCATION AND TRAINING

Second-level Professional Master's Programme (Neuropsicologia clinica)

Università degli Studi di Padova [13/11/2021 – Current]

Address: Padova (Italy)

PhD in Neuroscience

Università degli Studi di Parma [01/01/2009 – 31/12/2012]

Address: Parma (Italy)

Final grade : Ottimo

Thesis: "The role of the monkey ventrolateral prefrontal cortex in the organization of intentional actions"

Monkeys training; electrophysiological recordings and statistical analysis.

M.D. in Psychology

Università degli Studi di Parma [01/10/2004 – 04/07/2006]

Address: Parma (Italy)

Final grade : 110 cum Laude

Thesis: "Trauma cranico e lesioni frontali: assessment, riabilitazione e follow up: tre casi clinici"

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING C2 READING C2 WRITING C2

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

TECHNICAL SKILLS

Behavioral training of macaque monkeys

Advanced

Chronic and acute extracellular recordings

Advanced

Spike sorting and signal processing

Advanced

Data management

Advanced

Project management

Advanced

MATLAB

Intermediate

Statistical analysis software (SPSS, Statistica)

Advanced

COMMUNICATION AND INTERPERSONAL SKILLS

Collaborating and working well together with others

I believe science will be increasingly collaborative in the future and I learned how to efficiently supervise a team on an everyday basis, through lab-work. I like, to strengthen the team spirit by organizing journal clubs, lab meetings and team- building sessions.

Cognitive

My previous work experiences allowed me developing critical thinking and problem-solving skill, which I can directly transfer to the team, resulting helpful in interpreting results, making assumptions and in handling complex challenges.

Networking and building relationships

So far, I have met several neuroscientists and computational neuroscientists. This allowed me creating new connections and cooperation between different teams.

Mentoring and coaching team members

During the last year of my PhD and all along my postdoc, I supervised a few of undergraduate and PhD students. I am also very good at encouraging and inspiring people to do their best.

DIGITAL SKILLS

Microsoft package

RESEARCH INTEREST

Decision making

Cognitive science

Neural circuits

Motor system

Computational neuroscience

Social behaviour

TEACHING EXPERIENCE

Teaching Assistant (distance teaching)

[03/2016 – 03/2020]

University of Modena and Reggio Emilia | Modena, Italy

● Honorary fellow in General Psychology

[2016 – 2016]

University of Parma | Parma, Italy

NETWORKS AND MEMBERSHIPS

SINS

[2017 – Current]

SFN

[2014 – Current]

Register of the Order of Psychologists of Emilia Romagna

[2009 – Current]

REVIEWING EXPERIENCES

Reviewer for International peer reviewed journals

Cerebral Cortex, The Neuroscientist, Scientific Reports, Psychology and Neuroscience, Journal of Neurophysiology, Bio-Protocol.

CONFERENCES AND SEMINARS

Presentations

- **Bruni S.**, Giorgetti V., Bonini L., Fogassi L. (2017). Coding of simple and complex goal-directed actions in the ventrolateral prefrontal cortex. XVII National Congress of the Italian Neuroscience Society, Lacco Ameno, Ischia – Naples, Italy, October 1 - 4, 2017.
- **Bruni S.**, Ugolotti Serventi F., Bonini L., Borra E., Ferrari P.F., Gerbella M., Rozzi S., Fogassi L. (2011). Cortical connections of parietal and premotor sectors containing mirror neurons in the monkey. 5° Meeting of Young Researchers in Physiology Sestri Levante (Ge) – June 2011.
- **Bruni S.**, Ugolotti Serventi F., Maranesi M., Bonini L., Rozzi S., Ferrari P.F., Fogassi L. (2010). Selectivity for grip type and action goal in monkey premotor and parietal grasping neurons. 61° National Congress SIF, September 2010.

PUBLICATIONS

Research articles

- Noel J.P., Balzani E., Avila E., Lakshminarasimhan K., **Bruni S.**, Alefantis P., Savin C., Angelaki D.E. (2021). Flexible neural coding in sensory, parietal, and frontal cortices during goal-directed virtual navigation. Preprint from bioRxiv. **DOI:** 10.1101/2021.10.22.465526
- Noel J.P., Caziot B., **Bruni S.**, Fitzgerald N.E., Avila E., Angelaki D.E. (2021). Supporting generalization in non-human primate behavior by tapping into structural knowledge: Examples from sensorimotor mappings, inference, and decision-making. *Prog Neurobiol.* **DOI:** 10.1016/j.pneurobio.2021.101996
- Scheggia D.*, Managò F.*, Maltese F., **Bruni S.**, Dautan D., Nigro M., Latuske P., Contarini G., Gomez-Gonzalo M., Reque L.M., Ferretti V., Castellani G., Mauro D., Bonavia A., Carmignoto G., Yizhar O., Papaleo F. (2020). Somatostatin interneurons in the prefrontal cortex control affective state discrimination in mice. *Nat. Neurosci.* 2020 Jan. 23(1):47-60. **DOI:** 10.1038/s41593-019-0551-8
- Maranesi M.*, **Bruni S.***, Livi A., Donnarumma F., Pezzulo G., Bonini L. (2019). Differential neural dynamics underlying pragmatic and semantic affordance processing in macaque ventral premotor cortex. *Sci. Rep.* 2019 Aug 12. 9(1):11700. **DOI:**10.1038/s41598-019-48216-y
- **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.* 2018 May. 223(4):1713-1729. **DOI:** 10.1007/s00429-017-1582-0
- **Bruni S.**, Giorgetti V., Fogassi L., Bonini L. (2015). Multimodal encoding of goal-directed actions in monkey ventral premotor grasping neurons. *Cereb Cortex.* 2015 Oct 22. 27(1):522-533. **DOI:** 10.1093/cercor/bhv246
- **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):11877-90. **DOI:** 10.1523/JNEUROSCI.1938-15.2015
- Bonini L., Maranesi M., Livi A., **Bruni S.**, Fogassi L., Holzhammer T., Paul O., Ruther P. (2014). Application of floating silicon-based linear multielectrode arrays for acute recording of single neuron activity in awake behaving monkeys. *Biomed Tech (Berl).* 59(4):273-81. **DOI:** 10.1515/bmt-2012-0099
- Maranesi M., Ugolotti Serventi F., **Bruni S.**, Bimbi M., Fogassi L., Bonini L. (2013). Monkey gaze behaviour during action observation and its relationship to mirror neuron activity. *Eur J Neurosci.* 38(12):3721-30. **DOI:** 10.1111/ejn.12376
- Bonini L., Ugolotti Serventi F., **Bruni S.**, Maranesi M., Bimbi M., Simone L., Rozzi S., Ferrari P.F., Fogassi L. (2012). Selectivity for grip type and action goal in macaque inferior parietal and ventral premotor grasping neurons. *J Neurophysiol.* 108(6):1607-19. **DOI:** 10.1152/jn.01158.2011

Paper conference

- Managò F., Scheggia D., Maltese F., Bonavia A., Nigro M., **Bruni S.**, Ferretti V., Huang H., Yizhar O., Papaleo F. (2018). Emotion recognition abilities rely on Somatostatin interneurons activity in mouse prefrontal cortex. FENS Abs.
- Nigro M., **Bruni S.**, Ferretti V., Papaleo, F. (2017). Oxytocin effects on social behavior are genetically modulated by cortical functioning. Neuroscience Abs.
- **Bruni S.**, Bonini L., Giorgetti V., Siracusa F., Barberini E., Fogassi L. (2014). Encoding of contextual affordances by monkey ventral premotor grasping neurons during goal-directed action sequences. Neuroscience Abs., 334.09.
- Maranesi M., **Bruni S.**, Livi A., Fogassi L., Rizzolatti G., Bonini L. (2014). Time course of affordances processing in macaque ventral premotor neurons. Neuroscience Abs., 334.08.
- **Bruni S.**, Giorgetti V., Siracusa F., Bonini L., Fogassi L. (2014). Activity of ventrolateral prefrontal neurons during the execution of goal directed action sequences. FENS Abs., 2230.
- **Bruni S.**, Barberini E., Bonini L., Fogassi L. (2013). Coding of goal-directed actions in ventrolateral prefrontal and ventral premotor cortex. SIF Abs.
- Maranesi M., Ugolotti Serventi F., Bimbi M., **Bruni S.**, Fogassi L., Bonini L. (2011). Monkey gaze behavior during action observation and its relationship with mirror neurons activity. Neuroscience Abs., 914.04.
- Ugolotti Serventi F., **Bruni S.**, Bonini L., Coudè G., Ferrari P.F., Rozzi S., Fogassi L. (2010). Functional anatomy of monkey parietal and premotor cortical sectors containing mirror neurons. FENS Abs., 020.6.

Parma, 18/05/2022

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