



Francesco Ceccarelli

Oscurato ai sensi delle linee guida
del garante della privacy

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WORK EXPERIENCE

[01/08/2022 – 31/07/2024]

Research Fellow (Assegnista di ricerca)

Department of Physiology and Pharmacology Vittorio Erspamer, La Sapienza University of Rome

City: Rome | **Country:** Italy

Supervisor: Prof. Aldo Genovesio

Research Project HUMO ERC 2016 (2014) Grant Agreement 648734 titled "What is everybody doing? Social prediction, categorization, and monitoring in the Prefrontal Cortex of the Macaque adopting a new human monkey (H M) interactive paradigm"

[31/10/2018 – 31/01/2022]

Phd in Behavioral Neuroscience

Department of Physiology and Pharmacology Vittorio Erspamer, La Sapienza University of Rome

City: Roma | **Country:** Italy

Thesis: Mixed and flexible temporal dynamic in macaque prefrontal cortex during strategy and associative tasks: contribution of putative pyramidal cells and interneurons

Supervisor: Prof. Aldo Genovesio

- Cortical extracellular recording in macaques
- Training and design of behavioral tasks of social interaction, associative learning, and home cage training for macaques.
- Management of stabled macaques
- Single cell and population analysis

[26/03/2017 – 30/10/2018]

INTERNSHIP Behavioural Neurophysiology

City: Rome | **Country:** Italy

Behavioral Neurophysiology Lab, Department of Physiology and Pharmacology "Vittorio Erspamer", University of Rome "Sapienza", Supervisor Prof. Aldo Genovesio

During the period of my internship, I perform behavioural and electrophysiology experiments with human and non-human primates. I acquired the following skills and experiences for research:

- Programming skills with MATLAB for data analysis, the organisation of data, data mining, statistical analysis and data plotting.
- Programming skills with C language to develop, design and execution of neurophysiological and behavioural tasks with CORTEX.
- I develop a learning task (with Cortex) to study the different cognitive strategies in the individual and social learning. I enrolled the participants, collected and analysed the data.
- I contributed to building a new experimental set up composed by a touchscreen monitor, a reward system and Monkey Logic a MATLAB-based software tool used for the design and execution of psychophysical tasks.

EDUCATION AND TRAINING

[12/05/2019 – 16/05/2019]

Researcher qualified to work with non-human primates

**FELASA: Laboratory Animal Course on Primates Accredited Course 057/17
German Primate Center**

City: Gottinga | **Country:** Germany |

Primate Handling and Training

[24/03/2014 – 30/09/2015]

INTERNSHIP Psychobiology and Psychopharmacology

City: Rome | **Country:** Italy |

**Laboratory of 'Developmental Psychobiology' Department of Psychology,
University of Rome "Sapienza", Supervisor Prof.ssa Simona Cabib.**

I have worked on animal models to develop my master's thesis. I acquired the following research skills:

- Gathering behavioural data with video tracking software EthoVision.
- Statistical analysis with SPSS and R software.

And I used the following Staining Techniques and Behavioral Tests:

- Porsolt Test (Forced Swim Test)
- Morris Water T-Maze
- Immunohistochemistry

[30/09/2012 – 02/03/2017]

Master's Degree in "Cognitive Neuroscience and Psychological Rehabilitation"

City: Rome | **Country:** Italy | | **Level in EQF:** EQF level 7

Faculty of Medicine and Psychology "La Sapienza" of Rome.

Thesis: "*A chronic stress condition produces a reversal learning deficit in mice characterised by genetic impulsivity*", Supervisor Prof.ssa Simona Cabib, Sapienza University.

Final Grade: 110/110

[30/09/2008 – 17/09/2012]

Bachelor's Degree in "Scienze e tecniche psicologiche per l'analisi dei processi cognitivi normali e patologici"

City: Rome | **Country:** Italy | | **Level in EQF:** EQF level 6

Faculty of Medicine and Psychology "La Sapienza" of Rome.

Thesis: "*Genetic polymorphisms and Cognition*", Supervisor Prof.ssa Maria Teresa Fiorenza, Sapienza University.

Final Grade: 103/110

[2021 – 2021]

Seminars On Laboratory Animal Welfare And Science

Sapienza University of Rome

City: Rome |

Training course (D.M 5 agosto 2021) accredited by the Italian Ministry of Health 0024495-12/10/2022-DGSAF-MDS-P, Preclinical Testing and

[2022 – 2022]

Animal Welfare

Sapienza University of Rome

City: Rome | **Country:** Italy |

- 1- National legislation
- 2- Ethics, animal welfare and the Three Rs (level 1)
- 3- Basic and appropriate biology – Mice; Non-human primates
- 4- Animal care, health and management – Mice; Rats; Non-human primates
- 5 -Recognition of pain, suffering and distress - Mice; Rats; Non-human primates
- 6- Humane methods of killing
- 7- Procedure minimamente invasive senza anestesia – Topi; Non-human primates
- 8 - Anaesthesia for minor procedures

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

RESEARCH-RELATED SKILLS

Experimental-related skills

- Software for Neurophysiology Monkey Logic and Cortex
- Training and extracellular recording with non-human primates
- Spike sorting
- Design and implementation of cognitive tasks (social, associative learning, home cage) for animal models

Data analysis-related skills

- Matlab languages (excellent knowledge)
- Python languages (basic knowledge)
- C/C++ languages (basic knowledge)
- SPSS (good knowledge) and R (basic knowledge)
- Machine learning decoding algorithms
- Classification of cell types via cell waveform analysis
- bootstrap statistic
- Analysis of Variance (ANOVA)
- Data visualization
- Data organization and curation for electrophysiology

General skills

- Office package (excellent knowledge)
- Adobe Illustrator (good knowledge)
- Window system (excellent knowledge)
- Ubuntu/Linux system (basic knowledge)
- ChatGPT

PUBLICATIONS

- [2021] [**Macaque monkeys learn and perform a non-match-to-goal task using an automated home cage training procedure**](#)
Stefano Sacchetti , Francesco Ceccarelli , Lorenzo Ferrucci , Danilo Benozzo, Emiliano Brunamonti, Simon Nougaret, Aldo Genovesio; *Scientific reports*.
- [2022] [**Dedicated representation of others in the macaque frontal cortex: from action monitoring and prediction to outcome evaluation**](#)
Lorenzo Ferrucci Simon Nougaret, Rossella Falcone, Rossella Cirillo, Francesco Ceccarelli, Aldo Genovesio; *Cerebral Cortex*.
- [2022] [**Neural Representation of Others during Action Observation in Posterior Medial Prefrontal Cortex**](#)
Rossella Falcone, Rossella Cirillo, Francesco Ceccarelli, Aldo Genovesio; *Cerebral Cortex*.
- [2022] [**Social monitoring of actions in the macaque frontopolar cortex**](#)
Lorenzo Ferrucci, Simon Nougaret, Francesco Ceccarelli, Stefano Sacchetti, Valeria Fascianelli, Danilo Benozzo, Aldo Genovesio; *Progress in Neurobiology*.
- [2023] [**The transitive inference task to study the neuronal correlates of memory-driven decision making: A monkey neurophysiology perspective**](#)
Surabhi Ramawat, Isabel Beatrice Marc, Francesco Ceccarelli, Lorenzo Ferrucci, Giampiero Bardella, Stefano Ferraina, Pierpaolo Pani, Emiliano Brunamonti; *Neuroscience and Biobehavioral Reviews*.
- [2023] [**Disentangling the identity of the Zona Incerta: a review of the known connections and latest implications**](#)
Giulia Arena, Fabrizio Londei, Francesco Ceccarelli, Lorenzo Ferrucci, Elena Borra, Aldo Genovesio; *Ageing Research Reviews*
- [2023] [**Static and dynamic coding in distinct cell types during associative learning in the prefrontal cortex**](#)
Francesco Ceccarelli, Lorenzo Ferrucci, Fabrizio Londei, Surabhi Ramawat, Emiliano Brunamonti, Aldo Genovesio; *Nature Communications*.
- [2024] [**Connecting the dots in the zona incerta: a study of neural assemblies and motifs of inter-area coordination in mice**](#)
Fabrizio Londei, Giulia Arena, Lorenzo Ferrucci, Eleonora Russo, **Francesco Ceccarelli , Aldo Genovesio**; *iScience*
- [2024] [**Neurons in the monkey frontopolar cortex encode learning stage and goal during a fast learning task**](#)
Simon Nougaret, Lorenzo Ferrucci, Francesco Ceccarelli, Stefano Sacchetti, Danilo Benozzo, Valeria Fascianelli, Richard C. Saunders, Luc Renaud, Aldo Genovesio; *Plos Biology*

[2020 – 2020] **Stable and dynamic coding in dorsolateral and frontal pole prefrontal cortex**
Società italiana di neuroscienze (Sins)
F. CECCARELLI, L. FERRUCCI, S. NOUGARET, A. GENOVESIO

[2021 – 2021] **STABLE AND DYNAMIC RESPONSE POPULATION CODING IN PREFRONTAL
CORTEX**
Società italiana di fisiologia (SIF)
Francesco Ceccarelli, F. Londei, F. Di Bello, S. Ramawat, I. B. Marc, E. Brunamonti, A. Genovesio

[2021 – 2021] **MAPPING OF STIMULUS-RESPONSE ASSOCIATIONS IN THE MACAQUE
PREFRONTAL CORTEX: CONTRIBUTION OF PUTATIVE PYRAMIDAL CELLS AND
INTERNEURONS**
Society for neuroscience (Sfn)
F. Ceccarelli, A. Genovesio

[2023 – 2023] **Neural Correlates of Observational Learning in the Macaque Dorsal Premotor
Cortex during a Human-Monkey Interactive Associative Task**
F. Ceccarelli, L. Ferrucci, S. Nougaret, F. Londei, G. Arena, A. Genovesio

[23/09/2024 – 25/09/2024] **Understanding Memory: Implications from neuronal to clinical populations**
Noto (SR), Sicily
Francesco Ceccarelli, Symposium chair at XXX Congresso dell'Associazione Italiana di Psicologia - Sezione Sperimentale

[23/09/2024 – 25/09/2024] **Neural correlates of observational learning in the macaque dorsal premotor
cortex during a human-monkey interactive associative task**
Noto (SR), Sicily
Francesco Ceccarelli, speaker in Symposium titled: "Interacting with the world: from neurons to social behavior" at XXX Congresso dell'Associazione Italiana di Psicologia - Sezione Sperimentale