

PhD fellow in Emotional Multibrain Dynamics.

IIT invites excellent candidates to apply to its PhD program organized in collaboration with the Open University; this international PhD program confers Doctorates in *Health, Sustainable and Human Technologies*.

In order to be admitted into the ARC program, the minimum requirements are

- i. a Masters-level degree, which broadly corresponds to a 4/5-year undergraduate MSc/MChem/Meng-style degree or to a postgraduate Masters in the British system, or to a second level University degree in Italy;
- ii. a grade corresponding to an upper second class (2.1) or a merit in the UK system or 100/110 in the Italian system. Candidates with lower grades but redeeming features (publications, specific expertise) are requested to contact the potential supervisors before applying;
- iii. where English is not the applicant's first language, a valid IELTS (International English Language Testing System) certificate. The minimum acceptable score is an overall 6.5, with no less than 6.0 in any of the four categories

One PhD fellow position **will be available from April 1st 2025** in the [Genetics of Cognition](#) Research Line led by Dr. [Francesco Papaleo](#).

Title of the project: Brain Circuits of Social Cognition and Neurodevelopmental Disorders.

Background: Social behavior refers to several processes associated with interactions of the individual with others. Dysfunctions in these abilities are hallmark of neurodevelopmental disorders such as schizophrenia and autism. But are all social interactions qualitatively the same? Does 'social interaction' have the same meaning for different subjects? What are the brain mechanisms underlying social interactions, social choices and the perception/reaction to different emotions in others? Are there multibrain cell- and circuit-specific mechanisms that are critically involved in clinically relevant alterations of emotion recognition?

We are a multicultural and multi-disciplinary group carrying out common research on the social brain to advance our knowledge on these questions.

Description: The research project aims to evaluate cortical circuits subtending the developmental trajectories of higher order social cognitive functions, in normal condition and genetic conditions characterized by aberrant social behaviors. A special focus will be on elucidating the cellular-level mechanisms underlying multibrain dynamics in different social contexts. To achieve this goal, using a variety of genetically modified mice, you will employ a combined approach strictly linking advanced behavioral outputs (complex socio-cognitive tasks including emotion recognition, cooperation, altruism, hierarchy, social reward etc.) with circuit-level manipulations with in vivo chemo- and optogenetics, in vivo miniscopes, in vivo fiberphotometry, and in vivo electrophysiology. You will be part of an exciting and international working environment.

External Reference

Maltese et al., Nature Neuroscience 2024;
Dautan et al., Nature Neuroscience 2024;
Scheggia et al., Nature Neuroscience 2022;
Scheggia et al., Nature Neuroscience 2020;
Ferretti et al., Current Biology 2019.

Main Supervisor: [Francesco Papaleo](#) ([Genetics of Cognition](#))

Essential expertise:

- i. A master degree in biology, neuroscience, pharmacology, medicine, bio-engineering, computational sciences, mathematics or a related discipline.;
- ii. Experience with in vivo preclinical studies;
- iii. Excellent communication and writing skills in English.;

Desirable expertise:

- i. Experimental experience in working with in vivo preclinical studies

- ii. Experience in coding.
- iii. Licences in experimental animal research.
- iv. Experience in social processes and neurodevelopmental disorders.

How to apply. Prospective students must submit using [the online form](#) the following documents

- 1) 2-page CV, which includes studies, expertise and achievements.
- 2) 1-page research statement, which includes the choice of a project from the list above and a justification of the choice. Only if robustly justified, the student may signal their interest also for a second project, but there is no guarantee that this will be taken into account by the selection panel.
- 3) A transcript of undergraduate and postgraduate studies.
- 4) A valid IELTS certificate, obtained no more than two years before the proposed registration date.
- 5) Contact details of two referees.

Deadline for application: January 25th 2025.

Istituto Italiano di Tecnologia, with its headquarters in Genoa, Italy, is a non-profit institution with the primary goal of creating and disseminating scientific knowledge and strengthening Italy's technological competitiveness. IIT's research endeavour focuses on high-tech and innovation, representing the forefront of technology with possible application from medicine to industry, computer science, robotics, life sciences and nanobiotechnologies.

Istituto Italiano di Tecnologia is an Equal Opportunity Employer that actively seeks diversity in the workforce.

Please note that the data that you provide will be used exclusively for the purpose of professional profiles' evaluation and selection, and in order to meet the requirements of Istituto Italiano di Tecnologia. Your data will be processed by Istituto Italiano di Tecnologia, based in Genoa, Via Morego 30, acting as Data Controller, in compliance with the rules on protection of personal data, including those related to data security.