

## **MASTER 2 Fundamental and Clinical Neurosciences**

### **Internship proposal 2025-2026**

*(internship from January to June 2026)*

**Host laboratory:** Institut des Sciences Cognitives, UMR 5229 CNRS/UCBL, 67 Bd Pinel, 69675 Bron, France (<http://isc.cnrs.fr>)

**Host team :** Decision, Action, and Neural Computation (DANC) team  
(<https://www.danclab.com/>)

#### **Internship supervisors :**

James Bonaiuto, Chargé de recherche  
University / Institution: CNRS/ University Lyon 1  
E-mail address : james.bonaiuto@isc.cnrs.fr

Holly Rayson, Postdoctoral researcher  
University / Institution: CNRS/ University Lyon 1  
E-mail address : holly.rayson@isc.cnrs.fr

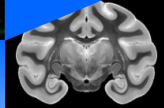
**Project title : Effects of early parent-infant interactions on neural development across the first year of life**

#### **Project summary :**

Early parent- infant interactions provide essential social inputs that shape many aspects of neurocognitive development. Disruptions in these interactions, as in the context of parental psychopathology (e.g. postnatal depression and anxiety), have been linked to negative outcomes in many domains, including increased risk for psychopathology in later childhood. However, the neurocognitive mechanisms through which such risk pathways emerge remain unclear, impeding the design of interventions to prevent long-term poor outcomes after such adverse early social experience. The internship will be part of a larger project examining the longitudinal relationship between early social experience and brain development across the first year of life, including how symptoms of depression and anxiety may impact parenting. The project involves longitudinally assessing infants using MRI/DTI, questionnaires, and behavioral observation at 3, 6, and 12 months of age. The internship project will include the behavioural coding of video recordings of parent-infant interactions, and analyses linking this behavioral data to structural brain development and measures of parental psychopathology.

#### **3-5 recent publications:**

Rayson, H., Massera, A., Belluardo, M., Ben Hamed, S., & Ferrari, P.F. (2021). Early social adversity modulates the relationship between attention biases and socioemotional behaviour in juvenile macaques. *Scientific Reports*, 1(1), 1-11.



Rayson H, Bonaiuto JJ, Ferrari PF, Chakrabarti B, Murray L (2019) Building blocks of joint attention: Sensitivity to having one's own gaze followed in early infancy. *Developmental Cognitive Neuroscience*, 37: 100631.

Rayson H, Bonaiuto JJ, Ferrari PF, Murray L (2017) Early maternal mirroring predicts infant motor system activation during facial expression observation. *Scientific Reports*, 7: 11738.