



SEMINAR CYCLE

of the PhD in Neuroscience of Turin

4th Appointment

Dr. Chiara Bulgarelli

ToddlerLab, Birkbeck, University of London, UK

“Using fNIRS to investigate the development of functional connectivity and its relationship with social development and early adversity”

16th April, 2024 h 2:00 PM-3:00 PM

The lecture will last 1 hour and it will be followed by discussion

Host: Prof. Francesca Garbarini



Graduation Room, Palazzo Badini
Via Verdi 10, Turin

Link: <https://bit.ly/3TqcqCd>

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DR. CHIARA BULGARELLI

Dr. Bulgarelli is an Early Career Leverhulme Trust Research Fellow at the world's first ToddlerLab at Birkbeck where she pioneers the use of cutting-edge technologies to naturalistically study the development of empathy in toddlers.

Prior to this, she gained a PhD in Developmental Neuroscience in 2018 at Birkbeck after which she moved to UCL to work within the Brain Imaging for Global Health Project (BRIGHT).

She has a strong passion in understanding social development, which has always gone hand-in-hand with her interest in advancing data-analysis methods for functional near-infrared spectroscopy (fNIRS).

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ABSTRACT

Functional near-infrared spectroscopy (fNIRS) is a relatively new tool widely used in developmental research. Its primary strength lies in its applicability to awake infants and children, enabling the investigation of neural markers of social development and providing a more precise estimation of network development, which is not feasible with standard fMRI designs. Moreover, fNIRS can be easily implemented in resource-limited settings, facilitating the study of neurodevelopment in populations that might otherwise be inaccessible to research.

During this talk, I will present my PhD work aimed at advancing fNIRS data collection and analysis for estimating functional connectivity in infants and toddlers. I will then discuss my work as part of the Brain Imaging for Global Health (BRIGHT) project, where I conducted the first investigation of functional connectivity development in 200 infants aged 5 to 24 months in The Gambia, and how we related these findings to early growth and later cognitive outcomes. Lastly, I will present my more recent work, which involves using wearable fNIRS technology in combination with a virtual reality setup to assess empathy development in freely moving toddlers.

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