Title: I Overthink, therefore I'm not : Altered Self-Experiences in Depersonalisation

Bio: Dr Anna Ciaunica is Principal Investigator at the Instituto Superior Tecnico, University of Lisbon, Portugal; and Research Associate at the Institute of Cognitive Neuroscience, University College London, the UK. Before that she was Research Associate at the Department of Clinical, Educational and Health Psychology, University College London; and postdoctoral researcher at the Department of Philosophy, University of Fribourg, Switzerland. She obtained her PhD from the University of Burgundy, Dijon, France.

Anna is currently Lead Investigator on three interdisciplinary projects looking at the relationship between self-consciousness, embodiment and social interactions in humans and artificial agents. In her work, Anna combines conceptual and empirical tools using psychophysiological, behavioral and neural measures from experimental psychology, social neuroscience, Virtual Reality and robotics to advance our understanding of the fundamental question 'what is self-consciousness?' in humans, and how can we implement it in artificial agents.

Abstract : Human bodies are highly dynamic systems, constantly moving both inside (e.g. heart beats) and in the outside world (e.g. footsteps, walking) to secure survival. The mechanisms underlying the interplay between exteroceptive and interoceptive self-related sensory signals are key to understanding the sense of self and its disturbances (Park and Blanke 2009). Previous work showed that the bodily self is not fixed but constantly updated through dynamic sensory feedback, including sound feedback (Tajadura-Jiménez et al. 2012; 2015). Depersonalisation (DP) is a very common phenomenon that make people feel detached from their bodily self (Sierra & Berrios 1997). Here I will briefly present work investigating the dynamic coupling between bodily movements from the inside the body (i.e. cardiac signals) with bodily actions in the world (e.g. walking) in people with high and low occurrences of Depersonalisation.

I will then propose a novel conceptual model of disrupted sense of selfhood in DP through the lens of the Active Inference framework (Friston 2005). I suggest that failures of somatosensory attenuation and consequent abnormal percepts—and beliefs—may underwrite aberrant self-model in DP. This may lead to a disruption of agentive control over both perception (sensory attention) and action (sensory attenuation), triggering abnormal perceptions, and consequent aberrant beliefs of self-detachment.

Given that our bodily self is not a static and closed entity, but rather a dynamic and open system, literally constituted in relation to a proximal environment (Ciaunica & Fotopoulou 2017; Ciaunica et al. 2021c) then somatosensory attenuation becomes a key part of the story of understanding how the self emerges as differentiated and yet related to its surroundings.

If my hypotheses are correct, then depersonalisation symptoms, although typically couched as "losing" one's sense of self, may be the linked, on the contrary, to an inability to attenuate self-related inputs and hence to 'forget' the self in the background. Alterations in the ability to attenuate self-related information in order to optimally perceive, engage and act in the world may further lead to increased reflexivity or 'hyper-reflexivity' (Parnas & Sass, 2003; Fuchs 2005; Ciaunica et al. 2020). This hypothesis is consistent with subjective reports outlining feelings of being simultaneously trapped in one's head (mind) and outside one's body (disembodiment) (Ciaunica et al. 2020; Ciaunica et al. 2021a). Perhaps paradoxically, this imbalance may entail an abnormal elevation of higher-order self-related processing, rather than a 'loss' of the sense of self.