

**THESIS TOPIC**

<b>Subject N° (to be completed by the ED):</b>	<b>FUNDING:</b> <input type="checkbox"/> Requested <input type="checkbox"/> Acquired	<b>Funding origin:</b>
Thesis title: Intra and interspecific visual attentional skills of children with autism spectrum disorders and children with typical development		3 keywords: visual attention, ethology, autism spectrum disorders,
Unit / team: <b>UMR 6552, team PEGASE</b>		
Supervisor's name: <b>Grandgeorge Marine &amp; Laurence Henry</b> as cosupervisor		Phone number: +33 2 23 23 60 80 Email address: marine.grandgeorge@univ-rennes1.fr
<p><u>Socio-economic and scientific context (approximately 10 lines):</u>  Visual social attention plays a crucial role in social functioning and learning, especially in the development of social skills in humans and animals. In animals, both attention's target and structure are influenced by living conditions, species-specific characteristics, type of social relationships, as well as developmental conditions. In humans, visual attention is at the core of social interactions from an early age. However, social attention seems to be altered in persons affected by some developmental disorders such as autism spectrum disorders (ASD). People with ASD display atypical visual attention towards human faces displayed on screens. However, these attentional deficits seem to be absent or lessened in contexts of interactions with animals or in more "ecological" situations (e.g. at home). This PhD project will thus be part of the international scientific debate on the processes underlying social cognition and its development, with the originality of comparing social (i.e. intraspecific) and pseudo-social (i.e. interspecific) cognition, a comparison rarely explored in the literature. Our aim is to characterize the visual attention's structure according to the interlocutor, whether another human or a pet, under "ecological" conditions versus tests in more controlled situations. This research will lead to a better understanding of visual attention characteristics associated with ASD, which represents a real societal challenge.</p>		
<p><u>Working hypothesis and aims (approximately 8 lines):</u>  On the basis of the literature and previous studies of our team, the hypothesis is that children with ASD would have a different visual attention structure according to the species they are encountering, and above all that they may be more willing to look at animals' rather than humans' eyes, while these attentional characteristics may also be modulated by the context (experimental versus home situation). Moreover, we expect visual attentional skills of children with ASD to be similar to those of children with typical development when interacting with animals but dissimilar when interacting with humans. One strong originality of this project is to combine classical ethological observational methods with eye tracking techniques in order to test the following aspects: (1) the characterization of visual attention (e.g., structure of attention, exploration pattern of body sites) towards to both social (i.e. human beings) and pseudo-social (i.e. animals of different species) targets in children with ASD (2) the comparison with children with typical development, and (3) the comparison in children with ASD persons according to the situations.</p>		
<p><u>Main milestones of the thesis (approximately 12 lines):</u>  The main stages of this PhD project will be  The first step will be to perform in parallel a literature review on the research question  And the writing of a proposal for the ethical committee in charge of work with human subjects (ASD and typical developmental control group). We expect, given the time required to obtain ethical authorizations to work on humans, to start recruitment of subjects at + 6 months after the start of the PhD project.  Then, standardized and free naturalistic observations of interactions between humans (research subjects) and animals and other humans will be performed up to the end of the second year of the PhD. Each subject will in addition be equipped with an eye-tracking glasses device allowing fine measurements of visual attention. We will recruit children with ASD and people with typical development as control group.  The third year will be devoted to data processing/analyses and the writing of the manuscript.</p>		
<p><u>Scientific and technical skills required by the candidate (2 lines):</u>  The candidate should master the theoretical and methodological concepts of ethology and have a good background in statistical analyses. Some knowledge about (1) eye tracking methods and/or (2) autism spectrum disorders would be appreciated. The candidate will have to show abilities for team work and for interacting with families and patients.</p>		
<p><u>3 publications from the team related to the topic (last 5 years):</u>  <b>GRANDGEORGE M, GAUTIER Y, BOURREAU Y, MOSSU H, HAUSBERGER M. (2020)</b> Visual attention patterns differ in dog versus cat interactions with children with typical development or autism spectrum disorders. <i>Frontiers in psychology</i>. 11: 2047, 1-9  <b>GRANDGEORGE M, GAUTIER Y, BRUGAILLERES P, TIERCELIN I, JACQ C, LEBRET M-C, HAUSBERGER M (2017)</b> Social rivalry triggers visual attention in children with autism spectrum disorders. <i>Scientific Reports</i>, 7 (10029), 1-8  <b>HENRY L., CRAIG A J.F.K., LEMASSON A., HAUSBERGER M. (2015)</b> Social coordination in animal vocal interactions. Is there any evidence of turn-taking? The starling as an animal model. <i>Frontiers in Psychology</i>, 6, 1416- doi.org/10.3389/fpsyg.2015.01416</p>		
<p><u>National and international collaborations:</u>  None at the moment</p>		