

## **How sensitive are individuals to key fundamentals of action perception?**

My project will measure the sensitivity of people with different levels of *autistic traits* to understand key qualities of other peoples' behaviour. Actions are the principal way we influence the world; how humans perceive other peoples' actions tells us how we make sense of each other. Actions are defined in a multitude of different ways, from *how* the action is executed (e.g. action speed) to *what* the action goals are (e.g. avoiding/approaching), to *why* the action is performed (e.g. to communicate), and are even influenced by underlying actor traits (e.g. actor dominance). Together, these behaviours allow us to respond appropriately within our complex social environment. Our ability to observe and interpret these behaviours gives us critical insights into the minds of other people. Computational modelling in Dr Barraclough's lab has shown that there are 4 key action qualities on which we evaluate human behaviour: friendliness, formidableness, purposefulness, direction.

In my project I wish to investigate how sensitive we are to these 4 different action qualities, in particular exploring how autistic traits impact these abilities. Autistic Spectrum Condition (ASC) can have a profound impact on the ability to interpret social information, but these Autistic traits are present in all humans as ASC is a spectrum disorder. Although ASC is often associated with psychological deficits, recent evidence suggests that some aspects of perception are enhanced with ASC. Examining sensitivity to the key action qualities, and the impact of autistic traits will: 1. Allow me to better define human ability to read the behaviours of other people, and 2. Determine where autistic traits not only have a detrimental impact on action perception, but critically and uniquely, where action perception is enhanced with autistic traits. Thus, this research fits the remit of a University for the Public Good, as the results will support the 'amelioration of human life and conditions'.

The study will use a behavioural, computer-based experiment, to provide highly accurate data on action perception. In week 1 I will be trained to produce computer-generated action avatars, and on the use of MATLAB to run experimental scripts and analyse data. I will then lead the experimental design to answer the research questions. In weeks 2-5 I will independently run the experiment to collect data from a diverse population of individuals; whilst analysing data for each individual during free periods. In week 6, I will look for patterns in the data across individuals, apply statistical models, and determine how Autistic

traits interact with our sensitivity to different action qualities and thus maybe find one of the root causes for social disconnection with ASC.

This research aims to test where Autism *benefits* action perception. It is therefore important that public awareness of autism includes both 'good' and 'bad', as well as the nature of the condition as a *spectrum* on which all humans lie. My leadership activities will involve disseminating research results, and leading international science outreach events in Romania, my home country, where public understanding of psychological disorders is less developed than the UK.