

## Summer Newsletter

Welcome to the summer 2018 edition of the Autism@Manchester newsletter. In this edition you will find:

- Findings from research taking place in Greater Manchester (pages 7-12)
- An interview with Dr Ming Wai Wan (pages 13- 17)
- Opportunities to take part in research with Autism@Manchester (pages 18-19)

### NEWS

#### Award success

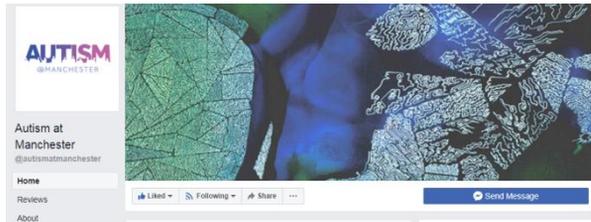
Each year the Faculty of Biology, Medicine and Health at the University of Manchester hold an annual event to celebrate public engagement and involvement in research work. Autism@Manchester won the 'outstanding contribution to public engagement and involvement' award in recognition of the different initiatives that we have developed to involve autistic people and their families in research.



Autism@Manchester chair Emma Gowen (centre) receiving the award with Ellen Poliakoff, Alexandra Sturrock (left) and Peter Baimbridge (right)

### Facebook

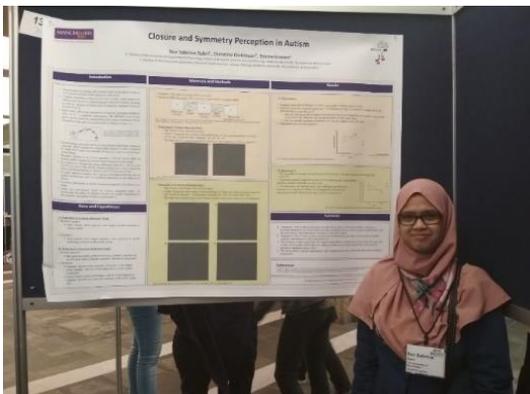
Autism@Manchester is now on Facebook! Please like our page for discussion and regular updates from our research community [@AutismAtManchester](https://www.facebook.com/AutismAtManchester)



### Autism Research Meeting

Each May the International Society for Autism Research hold it's annual meeting. Autism researchers, clinicians, autistic people, parents and stakeholders attend to discuss the latest research findings (view this years [program](#)). Charity [Autistica](#) reported from the meeting in a number of [podcasts](#).

This year, the meeting was held in Rotterdam, The Netherlands. There were a number of representatives from the Autism@Manchester community in attendance. Ming Wai Wan, Nur Sabrina Subri (pictured left) and Daniel Poole (pictured right) presented their research in poster presentations.



### Autism in women and girls events

Autism@Manchester organised two events at The Manchester Museum that aimed to enhance connections between researchers and the autism community and raise awareness of women with autism who are an under diagnosed section of the population.

These events followed on from our [Building Bridges project](#) where the autistic community expressed a need for more opportunities for two-way discussions with researchers and easier access to research. In addition, they also highlighted that more research and awareness is needed around the differences between autistic males and females. The project was funded by the Centre for Engagement and Involvement “Engaging our communities support fund”, The University of Manchester and organised by: Dr Emma Gowen, Dr Kathy Leadbitter, Dr Ming Wai Wan, Dr Ellen Poliakoff (University of Manchester), Dan Redfearn (Salford University), Hayden Larder (autistic adult, Seashell Trust), Helen Larder (Hayden’s mother), Peter Baimbridge (autistic adult and CEO, Salfordautism), Victoria Grant (Manchester Museum)



### Autism in women and girls events (continued)

#### Event 1: Postcards from an Aspie World

In this seminar and workshop, Hayden Larder, Helen Larder and Dan Redfearn gave a presentation about their autism training resource for practitioners and facilitated a series of interactive exercises. The training resource is based on a series of postcards created by Hayden and her mother Helen that offer an insight from Hayden's life as a young woman with autism. Dan also gave a presentation about misconceptions of autism in women and girls:



Following the presentations, attendees were given the opportunity to draw their own postcards documenting thoughts, emotions or struggles around all aspects of autism (but particularly the female perspective) that they want to share/send a message about.



### Autism in women and girls events (continued)

#### Event 2: Uncovering Hidden Autism in Females

Females with autism face longer waiting times to receive their diagnosis and many are not identified at all. Increased social motivation and social mimicking strategies are thought to be behind these difficulties in identification. This talk, given by Hannah Belcher (Anglia Ruskin University) who herself is diagnosed with autism, discussed evidence supporting this theory and speculated on what research needs to uncover to improve the lives of females affected by autism.



Following the seminar, attendees were able to talk to Autism@Manchester researchers about their research during a 'poster session' where researchers displayed some of their work on large posters.



### Grant success

Emma Gowen, Ellen Poliakoff and Stephanie Baine awarded £3,500 from the Experimental Psychology Society for a project 'Testing motor-sensory predictions in autism'.

Emma and Ellen have also been awarded a £10,000 University of Manchester 'Investing in Success' award to fund research into action prediction in autism, including research visits and seminars from international collaborators. Action prediction involves predicting what someone else is doing from looking at their movements (e.g. working out what object a person might be about to grasp). Ellen and Emma want to measure action prediction ability in autistic adults and see whether this relates to coordination difficulties that many autistic people have.

### Publications

- Fayette & Bond (2018) A qualitative study of specialist schools' processes of eliciting the views of young people with Autism Spectrum Disorders in planning their transition to adulthood. *British Journal of Special Education* ([manuscript](#))
- Green & Garg (2018) The state of autism intervention science: progress, target psychological and biological mechanisms and future prospects. *Journal of Child Psychology and Psychiatry*
- Poole et al (2018) Visual-tactile selective attention in autism spectrum condition: an increased influence of visual distractors. *Journal of Experimental Psychology* ([manuscript](#)) [Synopsis of this study on page 7]
- Wan, M. W., Green, J., & Scott, J. (2018). A systematic review of parent–infant interaction in infants at risk of autism. *Autism* ([manuscript](#))



By Dr Daniel Poole,  
Research Associate, Division of Neuroscience and Experimental  
Psychology, University of Manchester

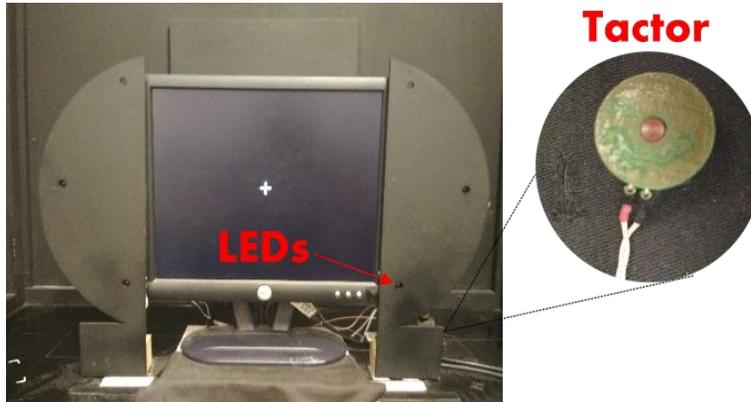
At any given moment our different senses (e.g. vision, touch, hearing) receive an enormous amount of information. For instance, if we walk through a city high street (such as [Market Street](#) in Manchester city center) we are presented with a barrage of sound, sights and smells.

As our brains have a limited capacity for receiving and interpreting information from our senses, [selective attention](#) allows us to focus on the information which is important to what we are doing, while suppressing irrelevant, distracting information as much as possible. There is evidence that selective attention may operate less efficiently in autistic people. This is likely to contribute to commonly reported [overwhelming sensory experiences](#).

The study of human perception using lab experiments is called *Psychophysics*. Psychophysics experiments involve asking participants to make judgements using their senses in tightly controlled conditions. Previous work looking at selective attention in autism has tended to focus on visual information in isolation. However, our everyday experience involves a complex interplay between information received by the different senses. In a [previous study](#), we found that autistic people were less able to filter out distracting visual information (flashing lights) when asked to focus on touch (a vibration on the finger).

#### What was the study?

In the present study we aimed to replicate our previous finding and explore the effect in more detail. A group of 24 autistic adults and a comparison group of 24 neurotypical (non-autistic) adults complete a series of experiments requiring different judgements about brief vibrations and/or flashes from LED lights.



The experimental set up. Participants felt vibrations through the tactor which was positioned behind a shield. They were asked to ignore distracting light flashes from the LEDs

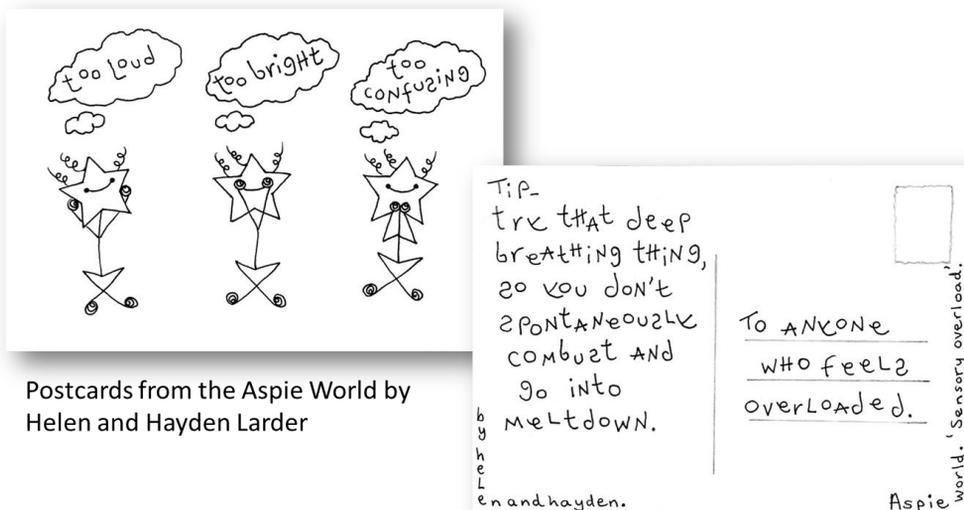
#### What did we find?

We closely repeated our previous finding; autistic participants were less able to suppress distracting visual information when focusing on touch. Interestingly, this was not part of a general problem with suppressing distracting visual information as autistic and neurotypical participants performed similarly when trying to suppress identical visual distractors, but when focusing on different visual information. The two groups also performed similarly on a visual-tactile task which did not involve suppressing distracting information.

#### What does this mean?

Taken together, these findings suggest that autistic people may have problems with focusing on touch while ignoring distracting information.

Differences in how the senses function can represent an important aspect of how autistic people experience the world, and have been described since the earliest studies of autism in the 1940s.



Postcards from the Aspie World by Helen and Hayden Larder

However, the nature of these differences and how they arise are currently not understood. This study improves the characterization of sensory function in autism and in particular how the different senses work together.

Through improving understanding of the specific aspects of sensory functioning affected in autism, it might be possible to optimize environments for autistic people and develop targeted interventions which could help reduce the negative aspects of sensory processing.

### THE EFFECT OF CLOSURE ON SYMMETRY PERCEPTION IN AUTISM



By Dr Nur Sabrina Sabri,  
Research Associate, Division of Neuroscience and Experimental  
Psychology, University of Manchester

Different aspects of visual information may be processed by different areas of the brain and even processed at a different speed. For example, closed and symmetrical shapes are processed faster than open and asymmetrical shapes, giving the 'pop-out' effect to help reduce visual clutter (Figure 1). This is especially important to help the brain to pick-up important information when looking at a crowded visual scene that contains too much information.



Figure 1: Example of open (left) and closed (right) shapes.

As mentioned on the previous page, sensory issues are commonly reported across all senses in autism. Despite causing great anxiety and distress, the cause of these sensory issues remains unknown and they have been highlighted as a [priority research area](#) by the autistic community.

A recent study by our group looking at visual perception in autistic adults ([Jachim et al. 2015](#)) has reported reduced closure in this group – the benefit of detecting closed shapes was smaller for the autistic compared to non-autistic group. In addition, our recent work on non-autistic people has shown that closure and symmetry are linked and if altered may affect each other. Therefore, in this study we sought to investigate how closure might influence symmetry detection in autistic adults, to see if reduced closure affects their sensitivity to symmetry.

### THE EFFECT OF CLOSURE ON SYMMETRY PERCEPTION IN AUTISM

#### What was the study?

We compared the ability of 14 autistic adults and 14 non-autistic controls to detect symmetry in closed and open shapes. Simple targets made of several discrete elements forming a shape were used and presented on a computer screen (Figure 2). The participants were asked to indicate which of the two targets that were sequentially presented had the most symmetric shape.

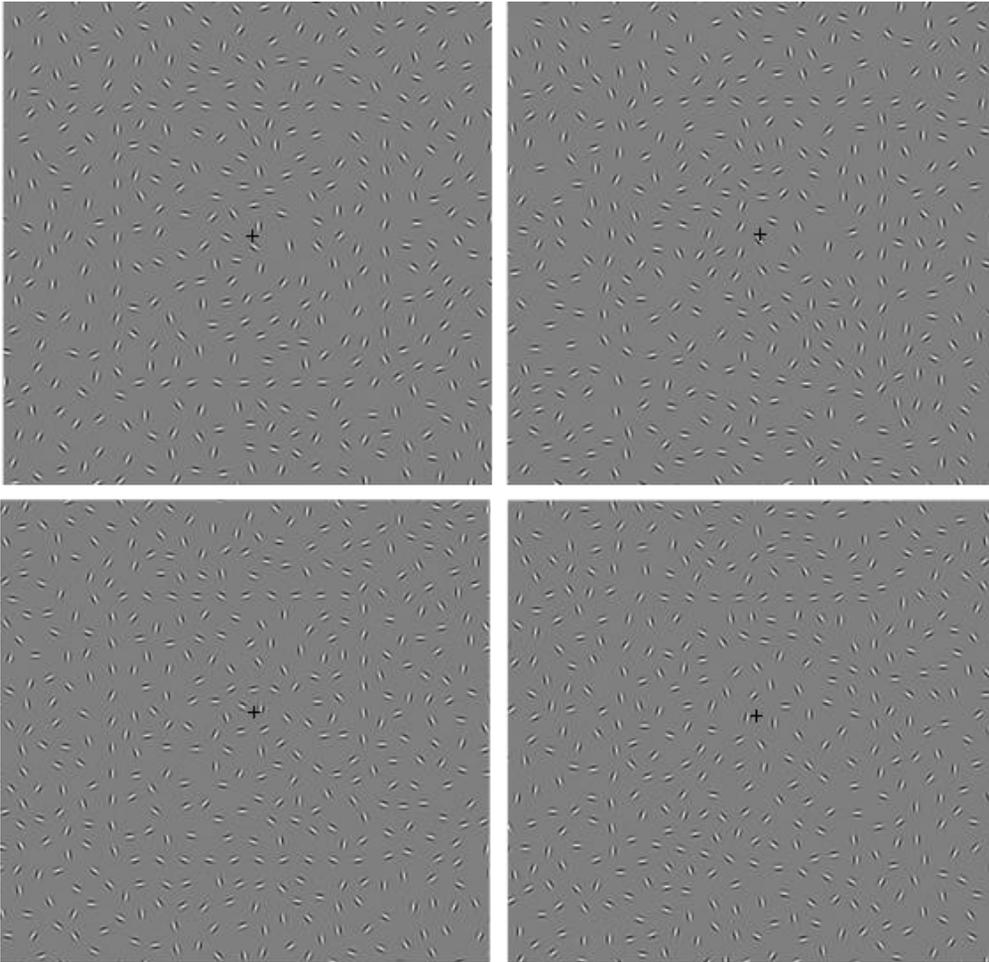


Figure 2: Samples of closed shapes (top) and open shapes (bottom) used in the study. For each shape, the participants were asked to decide which one of the two sequentially presented targets (left and right) has the most symmetric shape.



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## LATEST FINDINGS

### THE EFFECT OF CLOSURE ON SYMMETRY PERCEPTION IN AUTISM

#### What did we find?

We found that the autistic group was equally good at detecting symmetry with the closed and open shapes. However, this was not the case for the control group where they were more sensitive at detecting symmetry with the closed compared to the open shape; indicating that closure benefits symmetry detection. In addition, the autistic group outperformed the control group with the open shape suggesting that this shape stood-out more for the autistic group, therefore reducing the closure benefit in this group.

#### What does this mean?

Results showed that everything in the visual scene seems to stand-out equally and is therefore picked up and processed by the brain in autistic people. A lack of closure benefit on symmetry detection in this group may result in less filtration of visual information, hence too much highly accurate information coming in and competing for their attention. These findings help us to understand one of the possible causes of sensory overload commonly reported in autism, which is useful to know before thinking about how to overcome this.

## WHO ARE YOU?

**My name is Dr Ming Wai Wan (Ming Wai is my first name). I am a developmental psychologist and lecturer at the University of Manchester.**



**As a developmental psychologist, I am broadly trying to understand through scientific methods how and why we become the way we are in terms of our social, emotional (including mental health) and cognitive development.**

**In my research, I focus mainly on infancy and early childhood when the family is usually the key (social) environmental influence, and we are usually focused on measuring a very specific factor(s) that we suspect may alter the child's developmental course, and on finding ways to improve or optimise this. In particular, the possible impact of parent-child relations on children, especially in their early social, emotional, and cognitive life. I have studied this in diverse groups, including babies and young toddlers "at risk" for autism – but also in mothers with mental health problems and children from non-Western cultural contexts. Measuring how parents and babies interact with each other through observation is what I am often doing**

**<http://research.bmh.manchester.ac.uk/maci> We can use this also to evaluate the effectiveness of early interventions, as well as allow us to try and link social brain functioning with real-life behaviour.**

**Outside of work I am most often busy with my own energetic two-year-old boy; I am one of his favourite case studies of parent-infant interaction! I am often in awe at his excitement over spotting trains and trams. I hope one day to share with him my love for travel, cultures and super long train journeys in the world.**

## WHO ARE YOU?

### WHAT MADE YOU BEGIN RESEARCHING AUTISM?

I must admit that technically accurate answer is that I don't actually research autism! The longer answer is that I started off studying parent-child relationships and ways that researchers can measure that systematically. These skills were helpful for trying to understand the early social experience of babies who later go on to be diagnosed with autism. In 2009, I was very fortunate to get funding for research with the British Autism Study of Infant Siblings (BASIS <http://www.basisnetwork.org/>) supported by Professor Jonathan Green here at Manchester. We found results suggesting that babies 'at risk' of autism may tend to elicit slight differences in parental interaction, and that those who went on to be diagnosed with autism showed interaction differences from those who were not at about 14-months of age. We've been working on early intervention work in this group since, including trials in the UK and now in Australia. So, this is why I say I don't really study autism, because on the practical side, I'm focused on early development (and more precisely, behavioural dynamics) so most of any research sample will not have an eventual autism diagnosis. But, of course, the aim is to inform our understanding of early autism. The wider question I have been and continue to be intrigued by is how our early social experiences, as shaped by parental interactions, might impact on us later in childhood and our life course. The possible bi-directional dynamics of life experience and neural development has fuelled my interest in studying various groups.

### HOW WOULD YOU DEFINE THE AUTISM SPECTRUM?

I could name the key 'textbook' features that characterise autism, with my particular academic focus being in the social domain, but I've come to learn that many individuals with autism - or autistic individuals - view autism as an integral part of who they are. The spectrum covers such a wide range. And yet, empirical studies struggle to take into account this range

## WHO ARE YOU?

### HOW WOULD YOU DEFINE THE AUTISM SPECTRUM? (cont)

I like Mark Johnson's description of autism as an 'adaptive variant pathway' in brain development. My academic focus has mostly been in infancy, well before autism can be diagnosed, and here any differences are really mainly subtle or on the group level (that is, we work by averages). It's a challenge to study such differences not only because they are they really young, but also because neurotypical development also encompasses such a wide range.

### IS IT POSSIBLE TO CARRY OUT RESEARCH IN YOUR FIELD WHICH APPLIES TO ALL ASPECTS OF THE AUTISM SPECTRUM?

In a way, yes. I study parent-child relations, with a particular focus on infancy and toddlerhood at the moment, so we don't tend to differentiate into subgroups. However, I would also be interested in studying how autism impacts on wider family relationships, and the particular issues and experiences of parents with autism.

Children with autism also often have other clinical issues, such as attention deficit hyperactivity disorder (ADHD), obsessive compulsive disorder (OCD), anxiety and learning disability. These groups would be interesting to study as *comorbidity* (presence of additional diagnosis) is often overlooked in practice and finding appropriate and effective parental supports is important to improve child functioning and the family's quality of life. I am just beginning also to look at parent-baby interactions in babies with Neurofibromatosis Type 1 and Down Syndrome, many of whom will also have autism albeit only diagnosable later on.

## WHO ARE YOU?

### HOW VALUABLE DO YOU EXPECT YOUR RESEARCH TO BE WITH AUTISTIC PEOPLE, OR SOCIETY AT LARGE, AND WHY?

I hope my work will be helpful to society, including people with autism and parents who care for a child(ren) with autism. Being a researcher is a privilege but also an arduous journey to make a difference. Even by increasing understanding and awareness, we can individually make a difference.

Research-wise, I hope to increase understanding of the autism 'prodrome' (the early years before ASD can be diagnosed) and the work I've been involved with has already fed into early intervention trials in the UK (led by Professor Jonathan Green)

<http://research.bmh.manchester.ac.uk/ibasis/about/> and Australia (led by Professor Andrew Whitehouse) <https://autism.telethonkids.org.au/our-research/current-research-studies/australian-infant-communication-and-engagement-study-aices/>, with further international interest.

Feeding what we know into scalable treatments is one of the next challenges. In terms of my own contribution, unlike many measures used by researchers to 'profile' a child, which often rely on parent or clinical report, my work is mainly observational and takes into account the child's usual social environmental context (i.e. interaction with caregiver rather than an experimenter or computer!) I think this is important, because babies act differently in artificial contexts. With fast developing and increasingly accessible technologies, we can come to study parent-child interactions (and other family interactions) in increasingly naturalistic, faster and reliable ways.

## WHO ARE YOU?

### WHAT RESEARCH IDEA WOULD YOU LIKE TO PURSUE IF FUNDING WAS NO BARRIER?

I would love to do some kind of large scale developmental study following up from early infancy to adulthood, including observational measures in the home (designed to be as unintrusive as possible) as well as in our own 'babylab', and parent report not only with questionnaires but also qualitative interviews. How do early experiences impact on various aspects of brain functioning at different ages in neurotypical and neurodivergent groups? How might parent perceptions lead to behaviours that might impact on the quality of life and experiences of these children?

If we conducted a large enough study, it could accommodate many research questions, some of which would be aimed towards understanding autism. I would also personally be very interested in working with those more technology-inclined than I am to work on less resource intensive ways to measure parent-child interaction and in training on such measurement.

THANK YOU MING WAI

If you have any comments on this newsletter,  
please contact  
Dr Daniel Poole  
([daniel.poole@manchester.ac.uk](mailto:daniel.poole@manchester.ac.uk))



Daniel Poole



Martin Casassus

Our sense of time and duration are essential to how we experience and interact with the world around us. There are many reports that autistic people experience and perceive time differently to non-autistic people. However, to date timing has not been well characterised in autism and the extent to which differences in timing cause problems is unknown.

We are seeking volunteers for a research project which will systematically investigate the experience and perception of time in autism spectrum conditions.

We are recruiting adults with a diagnosis of autism, and non-autistic controls who are closely matched in age, sex and IQ.

We are looking for volunteers who are:

- Aged between 18-45
- Have normal or corrected vision (glasses are ok)
- Native English speakers who are able to read written English and communicate verbally in English
- Have no first degree relatives with a diagnosis of autism (applies to non-autistic control volunteers only)

All parts of the study will be conducted in the Zochonis building at the University of Manchester. Participants will be compensated for their time and reasonable travel expenses.

We have prepared a short [video](#) to display what participants would be asked to do.

For more information, contact Dan and Martin:



[autismtimeperceptionstudy@gmail.com](mailto:autismtimeperceptionstudy@gmail.com)



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Andrius Vabalas

Autism is primarily identified by differences in social and communication ability. However, a substantial body of evidence indicates that motor difficulties such as clumsiness, unstable balance and unusual walking style are also common in autism. Research in motor functioning is important because motor difficulties cause practical difficulties with daily tasks such as eating, dressing, and performing skilled movements, as in sports.

We are running a study in which we are asking autistic adults to copy different movements and perform simple movement tasks. We are doing this to find out more about why autistic people have motor difficulties and whether they can be used to help diagnose autism and to design therapies.

We are looking for volunteers with a diagnosis of Autism or Asperger's Syndrome:

- Aged between 18-45
- Have no history of eye disease or of psychological illness
- Speak English as a first language

Experiments will take place over two visits lasting approximately three hours in total. All experiments are non-invasive. If you decide to take part you will be asked to observe and copy different actions while your own actions are recorded with a sensor. You will also be asked to perform other simple movement actions. While you are doing these experiments, we may also measure where you are looking using an eye tracker on the table in front of you.



All volunteers will be reimbursed for their time and reasonable travel expenses. If you would like more information about this study, or would like to take part, please contact Andrius at: [andrius.vabalas@manchester.ac.uk](mailto:andrius.vabalas@manchester.ac.uk)