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Dear committee members,

I am applying for the Reproducible Autism Science award as I am committed to making my research robust, open and reproducible. I am eligible for this award as I received my PhD in December 2014, am based at the University of Oxford, UK, and can attend the Discover Conference.

My research aims to understand how autistic children experience sensory information differently to those without autism. In particular, my research looks at visual processing in autism, using a combination of psychophysical experiments, electroencephalography (EEG) and computational modelling. Although my research focuses on autism, my projects often start by characterising sensory processing in typically developing children and neurotypical adults, so that we can more readily interpret how perceptual abilities diverge in autistic children.

My interest in open research was sparked by a frustration that many findings in the autism literature are inconsistent, and as a result I have been working to improve my own research practices. I test relatively large sample sizes and apply Bayesian statistics to deal with issues of data insensitivity, and I have conducted a replication study of one of my key studies in which I found enhanced integration of motion signals in autistic children (Manning et al., 2015, *Journal of Neuroscience*; Manning et al., 2017, *Autism & Developmental Language Impairments*).

I have made open the data from all studies where participants gave consent to share their data (Tewolde, Bishop & Manning, 2018, *Autism Research*, <https://osf.io/c9fjz/>; Manning et al., 2018, *Journal of Vision*, <https://osf.io/audxh/>), and I now routinely ensure I get this consent. I have also openly shared experimental code (Manning et al., 2017, *Molecular Autism*, <https://osf.io/j34cq/>; Manning et al., 2019, *Developmental Cognitive Neuroscience*, <https://osf.io/fkjt6/>) and analysis code (Manning et al., 2018, *Journal of Vision*, <https://osf.io/audxh/>; Manning et al., 2019; *Developmental Cognitive Neuroscience*, <https://osf.io/fkjt6/>) which I have written. These scripts are commented, with readme files and databooks where necessary to explain files and variables.

I have pre-registered two autism studies: one which is complete and for which we won the Open Science Framework Preregistration Challenge Prize (Tewolde, Bishop, & Manning, 2018, <https://osf.io/pv4w6/>), and the other which is ongoing (<https://osf.io/znyw2/>). The ongoing project involves computational modelling which is hard to fully specify before the data are seen (e.g., removing outliers, modelling contaminant processes, adding transformations), so we plan to use a blind modeller who will analyse the data randomised with respect to group membership, as outlined in our preregistration document.

Two of the above projects were student projects (Furtuna Tewolde, MSc student; Rory Trevelyan Thomas, BA student), showing my commitment to encouraging the next

generation of scientists to engage in open practices. My current undergraduate students are in the process of pre-registering their hypotheses relating levels of autistic traits in the general population to decision-making and all data and scripts for these projects will be made available.

Thank you for considering my application.

Best wishes,

Catherine Manning