## B   ADDITIONAL STUDY AND TASK INFORMATION

B.1   Study Exclusion Criteria and Enrollment

The data used to illustrate our approach in this paper were derived from two children (aged 7 years) who participated in a larger study. Exclusion criteria included known genetic or neurological disorders (other than Autism Spectrum Disorder, ASD), brain injury, meningitis, structural brain abnormality, motion sickness, neurofibromatosis, seizure disorder, head injury or concussion with loss of consciousness, psychiatric diagnosis (not including anxiety/depression), movement disorder, oculomotor disorder, benzodiazepine or antipsychotic medication use, and nonverbal IQ < 70. For the ASD group, the participant's guardian confirmed that their child had a prior diagnosis of ASD or Asperger's syndrome from an educational or healthcare professional according to DSM-IV or DSM-5 criteria. This diagnosis was assessed and confirmed by the research team. TD individuals were excluded if they exceeded the threshold on an ASD screening tool or had a first-degree relative with ASD, Asperger's Syndrome, or a related disorder. Guardians gave informed consent; minor participants gave assent.

B.2   Task Parameters

Figure 1 of the main document shows data from the Intercept task, which was one of a battery of eight custom-built virtual environment applications designed to test visuomotor integration skills. The parameters of this task and the others in the visuomotor assessment battery are published elsewhere [10]. The intercept task was one of three "watch-and-move" tasks, during which the participant made a whole-body movement (leaning or stepping) in order to move their user-controlled object (blue ball) in relation to a target object (in this case, a moving red ball). The intercept task required integration of vertical and horizontal motion, given that targets rolled down on an angled grid. The grid was pitched toward the participant in the virtual world, giving the illusion of oncoming motion. The target object (red ball) appeared at the top left, right, or center of the grid, and rolled at 30* of visual angle per second to the bottom left, right, or center of the grid, for a total of nine trajectories. Participants were instructed to move their blue ball (user-controlled object) to block the red ball (target object) at the bottom of the grid, and to not let it go past them.
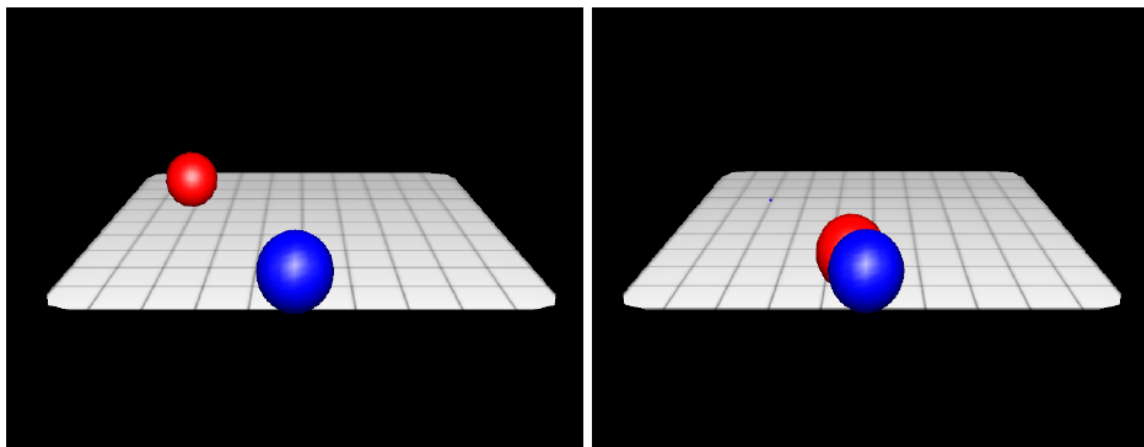
Sample trial trajectory of the Intercept task at the start and end point (top left to bottom center), where the blue ball is the participant's user-controlled object, and the red ball is the target object.