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# The Potential of Humanoid Robots for Children with Autism Spectrum Disorders: a Preliminary Study

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Autism spectrum disorder (ASD) is a developmental disorder charac-terised by impaired social communication, restricted interests, lack of emotional control and repetitive behaviours. Autistic people are im-paired in their abilities for social interaction, social communication and imagination. Previous researchers have linked the delay in social devel-opment in autistic people to emotional impairment. People with autism spectrum disorders have problems with interpersonal relationships and difficulties building relationships with their environment. Humanoid ro-botics in combination with developmental therapy can help people build interpersonal and environmental relationships. The causes of ASD are still unknown, but studies have confirmed that autistic children's behav-ior improves with intervention. It is reported that many people with ASD achieve levels of engagement in tasks through interaction with robots and that robotic systems can be useful for some people with ASD to pro-mote social communication and support interpersonal communication. Based on the evidence that some interventions work, we have developed a curriculum to help autistic children build interpersonal relationships by using robots as a facilitators. Determining the optimal motion sequenc-es of robots when interacting with humans with ASD is important to achieve more natural human-robot interactions and to explore the full potential of robotic interventions. The main goal is to create a learning environment for autistic children in which they can build relationships with other people using verbal and non-verbal interactions. The re-search focuses on the development of learning activities mediated by a robot to help autistic children communicate with other people. We have

designed and developed a set of robotic movements and a set of verbal expressions that could be used by teachers and therapists to teach communication to autistic children. There is a possibility that visualisation by humanoid robots instead of humans may lead to a higher level of task engagement in people with ASD. With appropriate adaptations, the robot can be used to teach a wide range of autistic individuals.