# Learning to communicate with machines

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Report Post


**CUHK professor devises novel robot-based training program for children with autism**

The words that we speak are not the only channel of communication between humans. Nonverbal means of communications, which are essential for expressing our ideas clearly to others, are often overlooked in our education. This is even more obvious when we are teaching children with Autism Spectrum Disorders (ASDs). Children with autism tend to develop nonverbal communication skills, especially gestures (spontaneous hand or head movement produced while talking), later than other children. This delayed development hinders learning and social interaction. Determined to overcome discrimination against autistic children and help them to better integrate into society, Professor Catherine So of the Department of Education Psychology at the Chinese University of Hong Kong (CUHK) and her research team have enlisted a team of robots – seemingly cold-hearted machines that are incapable of conducting meaningful communication, to teach children how to communicate – with amazing results.

Previous studies have shown that individuals with ASDs tend to show little interest in other human beings, and are insensitive to their behaviour patterns. This provides an optimal platform for the robots to play their role. The Robot for Autism Behavioral Intervention (RABI) program combines an innovative training program with NAO, as the robots are

called, to teach the children gestures. NAO looks sufficiently like a human being to encourage the children to transfer their learned skills from human-robot interactions to human-human interactions. At the same time, its lack of human attributes such as facial features and expressions make it less likely to overstimulate or distract its young acquaintances. Incorporated into social stories, gestural movements performed by NAO can be understood and learned relatively easily by these children.

In collaboration with and supported by local social service organisations, over 300 autistic children aged from four to 12 had participated in the training program since its establishment in 2014. Since then, the team has launched six different intervention programs and helped them promote their nonverbal communication skills. A new robotic recruit, PaPeRo, will join NAO in a newly developed program to perform dramas that aim to explain to preschool children with autism why they should produce certain appropriate behaviours and how they should behave at homes and in schools. The tremendous efforts of Professor So and her team were recognized with the Smart People Merit Award at the Hong Kong ICT Awards 2018 which promotes outstanding information and communications technology (ICT) inventions and applications.