

Symposium | AI&IT : [Symposium 17] The development of robot and AI Agent System to improv Social Skills for Individuals with Autism Spectrum Disorder

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(Large Hall B)

[Symposium 17] The development of robot and AI Agent System to improv Social Skills for Individuals with Autism Spectrum Disorder

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[SY-17-01] Effect of Background on Autistic Children's Recognition of Robot Emotions and Empathy

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Children with Autism Spectrum Disorder (ASD) often face challenges in social skills, particularly in recognizing emotions. Social robots have shown promise in supporting the development of these skills. While several studies have examined how robots' physical appearance influences emotion recognition in children with ASD, less attention has been given to contextual factors such as background environments. This study applies the Individual Differences Theory (IDT) as a framework to explore the role of context in emotion recognition. We specifically investigated how different backgrounds affect autistic children's interpretation of robot-expressed emotions, as well as their visual exploration patterns using eye-tracking technology. A key objective was to compare similarities and differences in processing strategies between children with and without ASD. Participants included twenty-nine children with autism (17 boys and 12 girls; mean age = 9.4 years) and twenty-six typically developing children (13 boys and 13 girl; mean age = 9.5 years). Each child interacted with three robots (Buddy, Nao, and Leka) proposed in four background conditions (none, anger, happiness, sadness). Children were asked to rate the perceived emotion on a 6-point scale ranging from "very negative" (1) to "very positive" (6). Our findings revealed that for children without ASD, background context did not influence emotion recognition or visual exploration. In contrast, children with ASD were significantly affected by the presence of background images. Contextual cues altered both their recognition of robot emotions and their gaze patterns, suggesting a heightened sensitivity to environmental factors. Our results emphasize the importance of considering environmental context when designing interventions with social robots for children with ASD. By highlighting individual differences in visual and emotional processing, this research contributes to environmental psychology and provides guidance for creating more supportive interaction settings.