

Use of a Wearable Recording Device in Therapeutic Interventions for Children with Autism  
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## **Background**

A common problem for caregivers of children with autism is facilitating communication, especially when the children are non-verbal. Caregivers use social stories and references to a child's activities to encourage discussion, but these efforts are challenging and not always effective. Additionally, caregivers are challenged with trying to understand a child's behavior and reactions without the aid of verbal expression from the child. This project applies the use of SenseCam to therapeutic interventions for children with autism.

SenseCam is a small wearable camera developed at Microsoft Research. It takes photographs automatically at a frequency determined either by a preset interval or in response to sensory input. Photographs can be transferred to a computer and watched at different speeds. SenseCam was designed to augment human memory by providing a first-person account of the wearer's activities.

## **Objectives**

In this work, we hypothesized that the use of SenseCam by children with autism will enable greater awareness of the child's perspective during the day and potentially be used in new therapeutic interventions to support communication and understanding. The photographs are captured from the child's perspective, allowing caregivers to review captured events with a child and encourage them to discuss activities and people appearing in these photographs. The primary objective of this work is to develop processes for inclusion of SenseCam technology into everyday use by children with autism and to modify interfaces to SenseCam media for use in these interventions.

## **Methods**

Children with autism, their daily activities, and their social interactions were observed in the classroom. Interviews with teachers and parents of children with autism provided additional data about communication challenges. Interviews with autism specialists informed the design of use of SenseCam by children with autism.

## **Results**

We have developed a therapeutic intervention using a novel technology--SenseCam from Microsoft Research. In this intervention, children with autism can wear SenseCam during all or part of a typical day. Parents and other caregivers can review photographs taken during school hours while teachers and other school staff review photographs taken during after-school hours. These review sessions can facilitate mutual understanding of activities in these environments and better communication between school and home. Parents, teachers, and other caregivers can also review photographs together with the children to facilitate communication. The photographs can

be used to encourage the children to discuss activities, people, social situations, and their feelings. This intervention can improve the children's expression and augment their understanding of social interactions through open discussion about the photographs.

### **Conclusions**

Working in collaboration with schools and autism specialists, we have developed a technology based therapeutic intervention which can enhance caregiver awareness and improve children's communication and social understanding. Future work will involve the deployment and evaluation of SenseCam in the classroom and the home among children with autism, their parents, teachers, and other caregivers.