

**Audio-augmented Paper for Therapy and Educational Intervention for Children with Autistic Spectrum Disorder. Alessandrini, et al. IJHCS. 2014.**

**What are the core research questions addressed by the work?**

- How to design a tool for caregivers (therapists, special education teachers, parents) to discuss social stories (or similar materials) with children on the autistic spectrum?

**What motivates the work?**

- Scarce information exists on the benefits of situated audio-augmented social stories for the treatment of children with autism

**How does the work understand the usage, capabilities, and limitations of paper?**

- The decision of using paper in this study is primarily for its tangible qualities, which in past work have been demonstrated to have therapeutic value for improving social competence in children with autism
- Tangible paper-based is a rich solution because: (1) the expressive use of paper is quite infinite, (2) its physical interactions might favor sociality between the child and the therapist, (3) it might encourage cooperation and turn-taking
- Paper does not require complicated setup or scheduling, may be paired with multiple colors & styles of marking
- Paper can be less dynamic and multimodal

**What is the target application domain of the work?**

- Therapy and educational intervention for children with autistic spectrum disorder

**What are some proposed extensions to paper proposed by the work?**

- Addressing three objectives:
  - (1) Augment standard sheets of paper with the possibility of recording audio from the oral narration of the child and the therapist
    - This would allow the therapist to introduce the story or involve the child in presenting their own story without the need to write on paper
  - (2) Make the computer disappear from the user experience - reduce child distraction and maintain naturalness of therapist/child interaction
  - (3) Easy to configure
- Prototype: Hide Me!
  - Interactive environment enabling child and therapist to augment an ordinary sheet of paper with audio content

**How are the proposed extensions implemented?**

- Vision sensor + A4 sheet of paper, augmented by two pairs of unique tags recognizable by the sensor. One pair of tags printed on opposite corners of the sheet of paper was used to uniquely identify it, the other pair acted as playback and recording functionalities when hidden from the vision sensor.

**What findings have been obtained from either the implementation process or an evaluation of the proposed system?**

- Therapists used the prototype's tangible tokens as aid to engage the children
  - Use not only as a means to control the interaction, but also to empower the children in the therapy

- Prototype enabled gains in following activities: cooperation, anchoring attention, controlling attention
- Worth noting that the fiducial markers were not considered as a distraction by either the therapists or children
- Approach demonstrated as promising