Can a Virtual Human Facilitate Language Learning in a Young Baby?

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Kailyn Aaron-Lozano[2], Cryss Padilla[2], Ari Shapiro[1], Jason Lamberton[2], Laura-Ann Petitto[2]

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Introduction

Problem
Deaf babies can experience reduced access to linguistic input when they need it (6-12 months)

Key Insights of RAVE
- 3-Way Socially Contingent Interaction
- Signing avatar to interact with the baby
- Robot to engage babies' attention
- Eyetracker to capture babies eye gaze
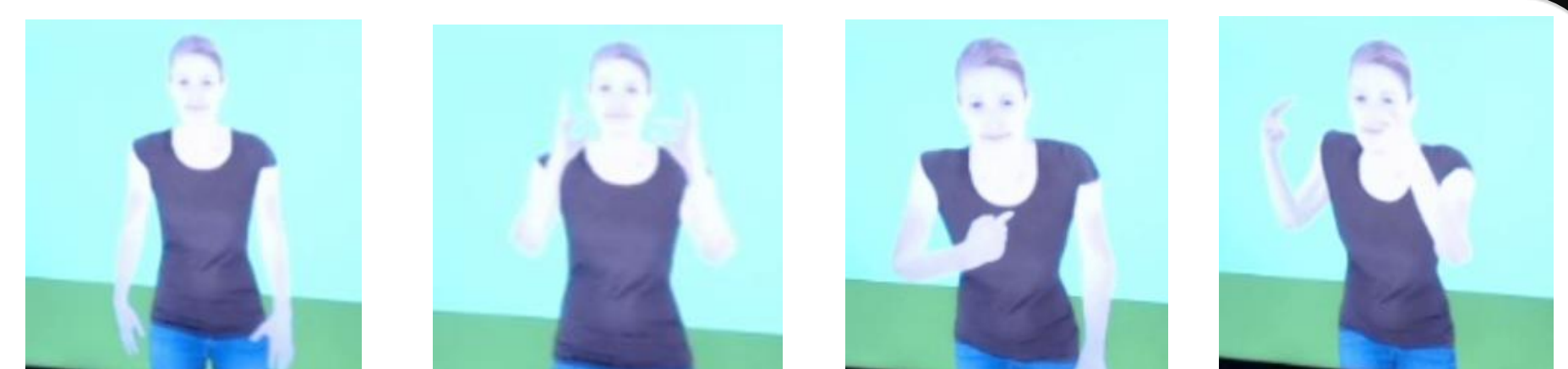- Thermal camera to assess babies' engagement

Research Questions

1. Do babies actually attend to the avatar?
2. Can babies distinguish among different avatar behaviors?
3. Can an avatar nascent language responses from babies?

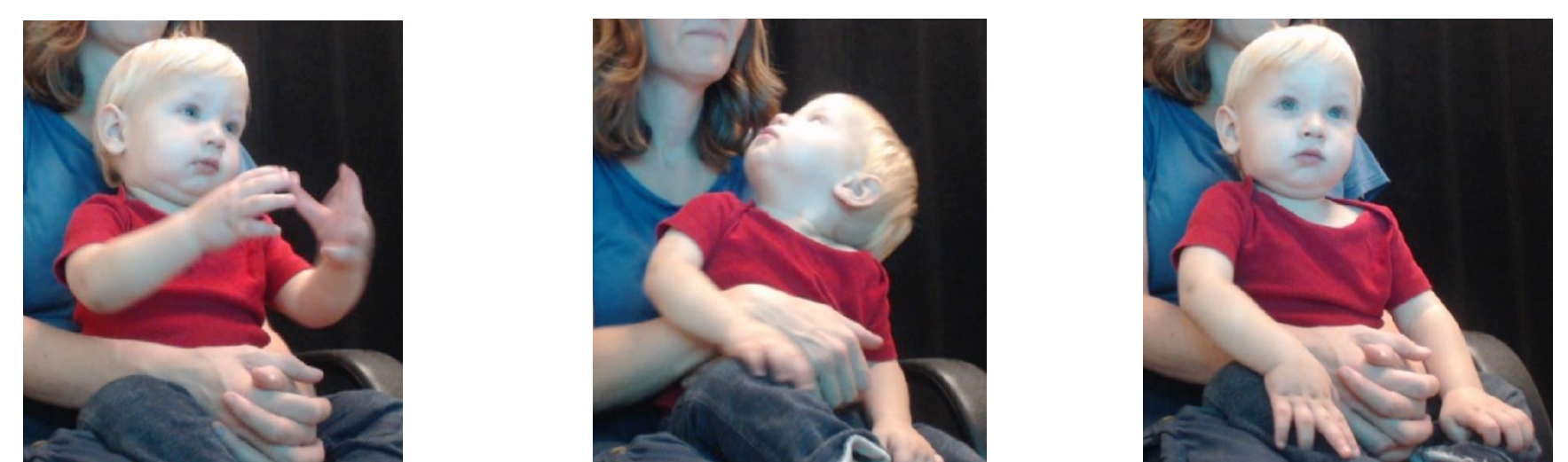## RAVE Language Learning Tool
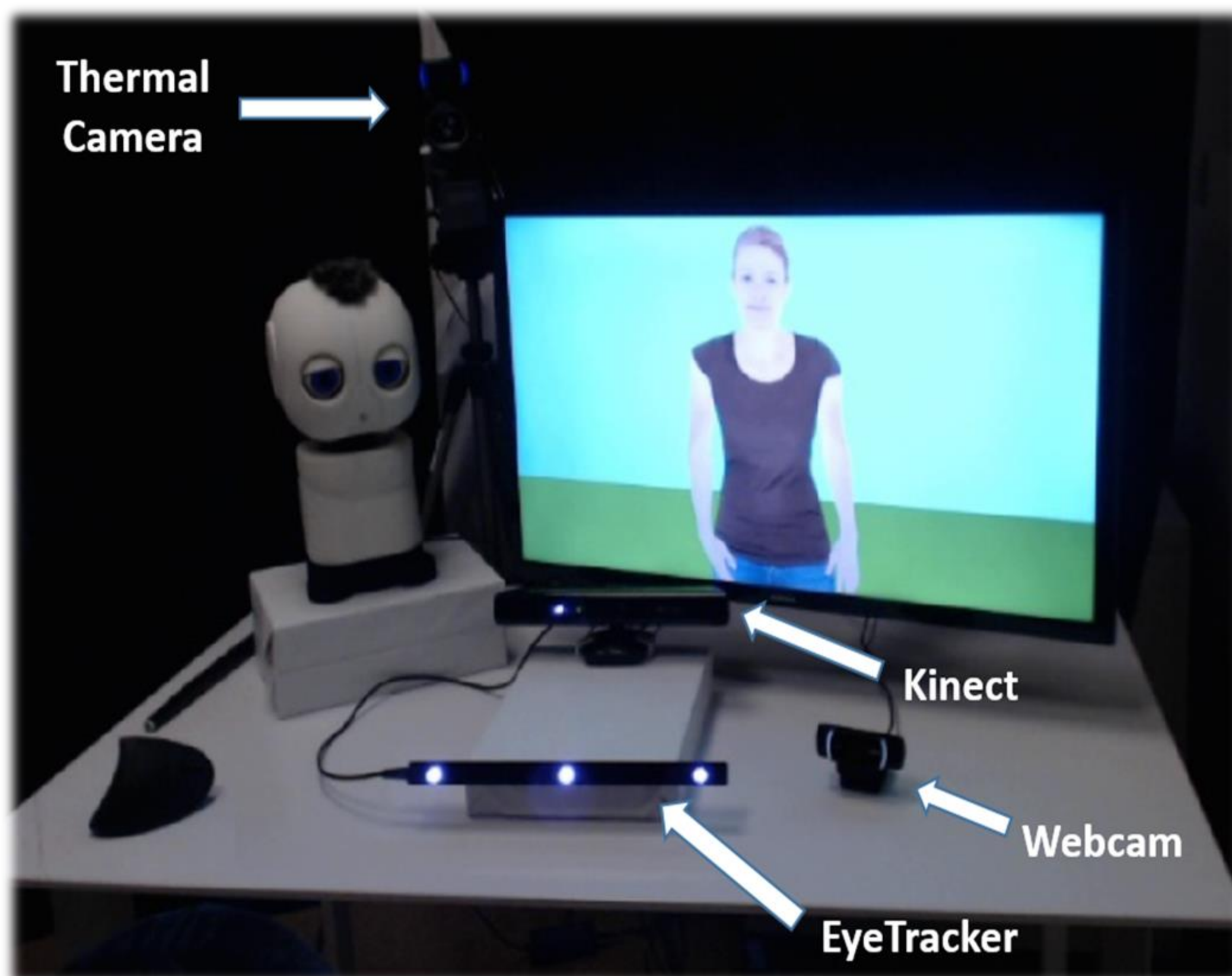
Avatar Conversational Modes

Idle Behaviors | Nursery Rhymes | Social Gestures | 3-Way Behaviors

Babies' Behavioral Responses

Linguistic Responses | Social/Gestural Responses | Sustained Visual Attention

Experiments

Procedure
- Greetings
- Introduction to Robot & Avatar
- Calibration
- Interaction Session (~4 min)

Participants
- 4 participants
- Ages 6-13 months
- 1 Sign-exposed

Analysis
- Coded conversational turns
- Based on occurrences of specific behaviors

Results

1. Babies responded to more than 60% of Avatar behaviors

2. Responses were not equally distributed across different types of Avatar behaviors

3. Babies produced the largest percentage of linguistic responses to the avatar's Nursery Rhymes. Further, a large percentage of their response to this behavior involved them to be largely riveted into a state of fixed and sustained visual attention

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