



# NRI: FND: Assistive Child-Robot Interventions for Infants with Motor Disabilities



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## Central Research Question

How can a mobile assistive robot encourage children with motor disabilities to practice motor (and other developmental) skills?

## Motivation

- 7% of children experience developmental disabilities
- Intervention is often delayed until post-infancy
- Early robot-mediated interventions are a potential solution

## Key Problems to Address

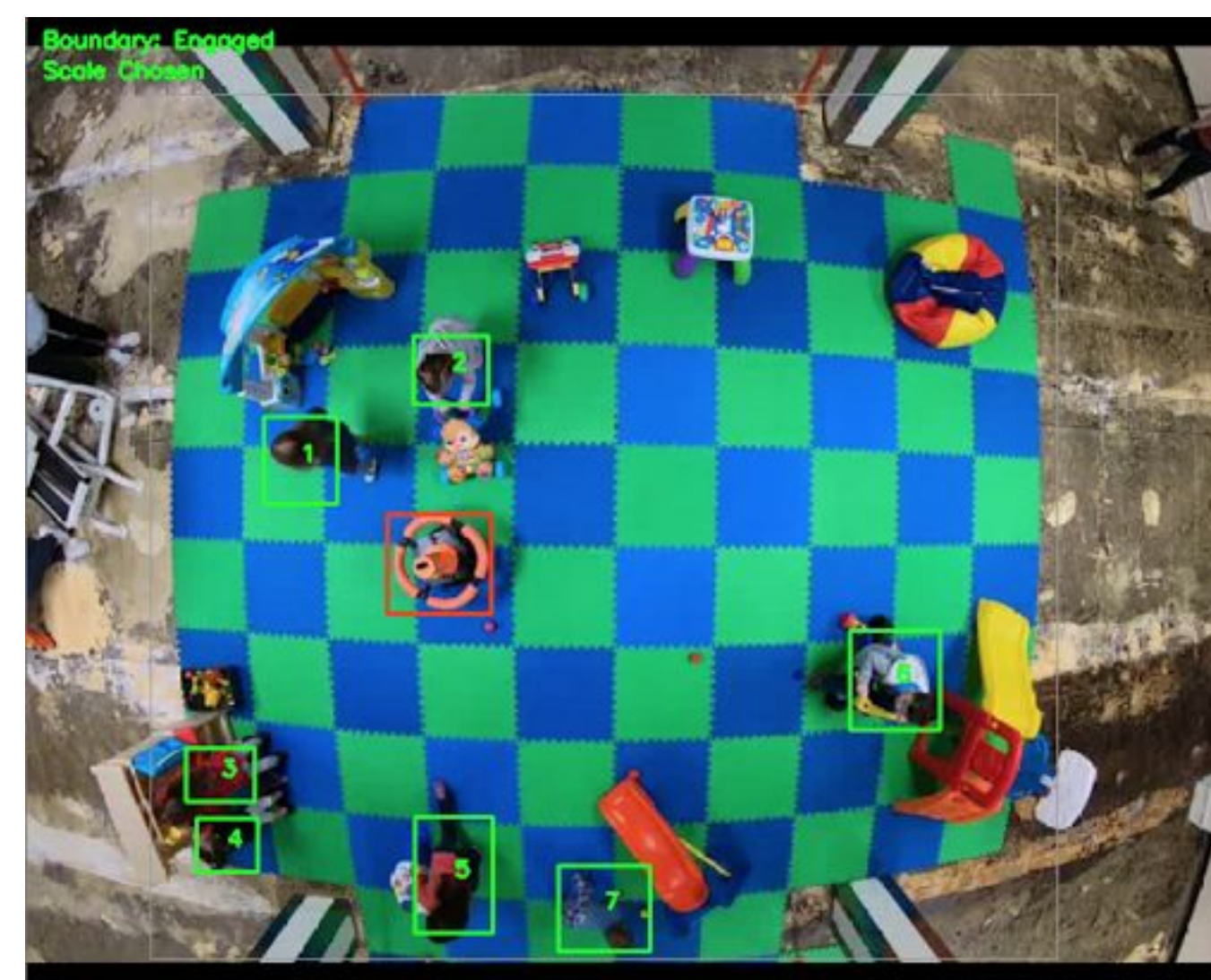
- Design of an appropriate robot with engaging rewards
- Tracking states of interest during infant-robot intervention
- Automatic behavior tree generation to maximize motion



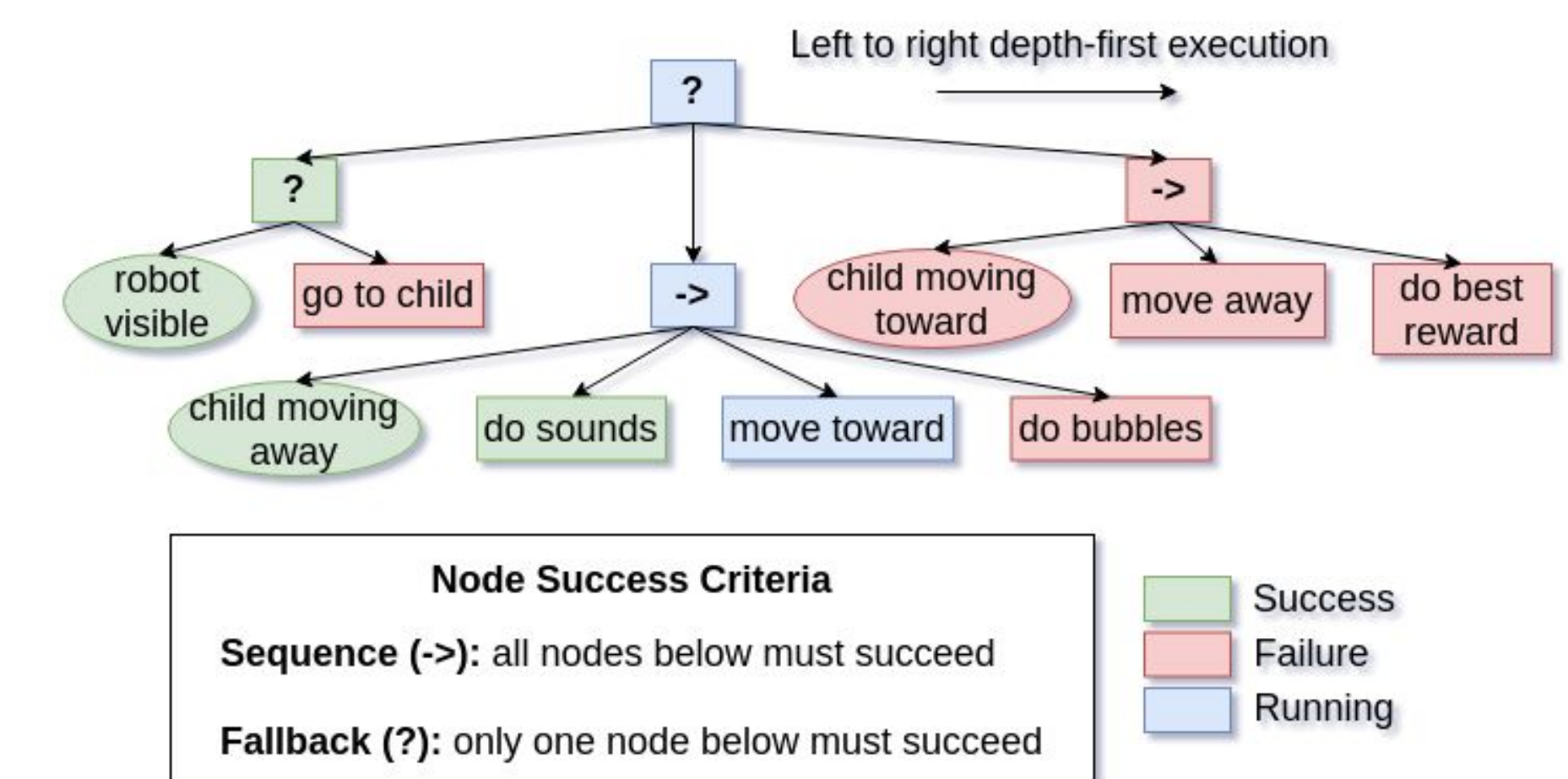
Current robot prototype



Exploratory robot test in a playgroup



Example markerless tracking output



Illustrative behavior tree mock-up

## Robot Design Details

- Current robots/toys for infants do not fit the proposed intervention needs
- We are working with child motion and rehabilitation experts to design a robot

## Learning (State-Tracking) Details

- Current practices for tracking relevant states are for adults or require markers
- We are weighing alternatives for tracking intervention states of interest

## Planning (Behavior Tree) Details

- Manual tree generation is time-intensive
- Thus, we propose an automatically generated belief behavior tree