

Detailed Concept

Children are taught language by listening to their parents from when they are born. It happens automatically unlike the structured approach they later experience in school. I will be making a language learning toy that is based on this principle. The child will learn by listening to the toy speaking.

Parents interact in one-way verbal communication during the first year or two, and even when the child starts to speak they have a far wider command of the language so it can be seen as dominated by listening in the early years. Since the child cannot ask, the parents respond to what they see and talk about it. The toy will likewise react to what it sees and talk about it.

In addition the toy is a property of the child so the child initiates the learning as play by grabbing the toy and showing it something. This interaction should ideally be registered in detail by the toy, allowing it to interpret this non-verbal communicated intent.

So the toy is there on behalf of the parents, but the child is unaware of this relationship, and sees the toy as a playmate. The toy should not promote a primary friend role; I don't want children to not play with other children. The toy should therefore be able to handle activities for children playing together. This interaction is however outside the scope of the thesis.

The toy will be programmed with machine learning, computer vision and speech along with a language learning and comprehension model. At any given time it will know of one or more activities with built-in objectives. It will try to achieve the objectives when given the opportunity. I have so far identified two types of activities.

1. Classic board game playing where the toy is a collaborative participant. The toy helps the child progress in the game.
2. Vocabulary building. The toy will challenge the child to grab certain objects or do other tasks by asking the child for help. Alternatively when presented with something will explain what it is, and what you might do with it.

I aim to create a concrete activity design example for each of these.

Talki is a bit helpless and needs the child for all practical actions.

