

# YOLO: A Robot Designed to Boost Creativity in Children

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**Abstract**—Creativity is a skill that can be trained and has proven benefits for the professional and personal development of individuals. Yet, despite seeking individuals with a greater creative potential, society lacks systems that nurture the development of this skill. Technological advances have the potential to develop solutions to support the development of creative skills. In this workshop, we present the design process of a robot named YOLO. This is a robotic toy, developed specially for children, and envisioned to be used during playtime to boost creative skills. The design process of this robot consisted of user-centered design methods and tools adapted for children. Applying user-centered design with vulnerable populations, such as children, poses specific challenges that require unique solutions. We aim to bring these challenges up to front by discussing the child-centered design process in which children were involved during all design stages.

## I. INTRODUCTION

Children are becoming avid adopters and consumers of cutting edge technology, such as smartphones, augmented/reality devices, and robots [1]. This intense adoption of technology is changing childhood experiences – deviating from traditional toys, to grow surrounded by digital and physical tech-devices [2]. Given this, designing tech-toys for children that can stimulate their inherent abilities, such as of being creative, is of extreme importance.

In this workshop we provide an overview of the design process of a social robot designed *for* and *with* children. This robot was designed with the overarching goal of nurturing the creative abilities of children during play [3]. Children were placed at the heart of the design process of the robot during all design stages. Our major contribution relates with the adoption of existing methods and tools from user-centered design to include children as experts of the robot design at different stages. For this, we have conducted activities such as co-designing [3] and bodystorming [4]. Adopting user-centered practices gives voice to human needs, capabilities and behaviors, to develop products that are approachable and joyful to interact with [5].

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## II. DESIGN CHALLENGE

Creativity is one of the most desired abilities, however, shows levels of decrease in middle school age years, a phenomenon called “creativity crisis”. Additionally, research has shown that everyone has the potential to be creative, as creativity is a skill that can be developed [6]. Technological advances enable the creation of promising new tools that have the potential to contribute to the development of creativity in children. This constituted our design space that we started exploring by considering the following question: *how can technology be used in a way that contributes to the development of creative skills in children?* With this in mind, we developed a robotic toy that has the potential to boost children’s creative skills during playtime. This robot was named YOLO, a short for Your Own Living Object.

## III. DESIGN STATEMENT

The design statement for this robot addresses the following design metaphors: play as communication, toys as tools, and playgrounds as spaces. Playfulness should be at the core of any design activity, as children communicate through play. Toys and craft materials are used by children daily, constituting essential tools for the design process. Familiar spaces, such as playgrounds and other children spaces, should be the stage in which the design process happens as they are safe and joyful. We aim to highlight design practises involving children concerning safety, privacy, and the need for interdisciplinary teamwork.

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