

Teaching bias in AI and Robotics to Children in a small community in Mexico

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Figure 1: (a) Robot prototype (b) open-source robots for ai and robotics, (c) piloting teaching materials with children.

ABSTRACT

A clear and well-documented L^AT_EX document is presented as an article formatted for publication by ACM in a conference proceedings or journal publication. Based on the “acmart” document class, this article presents and explains many of the common variations, as well as many of the formatting elements an author may use in the preparation of the documentation of their work.

CCS CONCEPTS

- Human-centered computing → Empirical studies in HCI; Accessibility systems and tools;
- Applied computing → Interactive learning environments;
- Social and professional topics → Children;
- Computing methodologies → Cognitive robotics.

KEYWORDS

Child-centred AI, Educational Robotics, Child-robot interaction

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1 INTRODUCTION

Teaching Artificial Intelligence (AI) and Robotics to young learners has been made progress in the last decade [1, 6]. However, programming skills might be a barrier for young learners where visual and auditory programs help to address such challenge [5].

Current research lines in AI and Robotics claims to be neutral where data pipelines align with principles of findability, accessibility, interoperability, and reusability (FAIR). Scientific and technological progress has been made in the last two decades due to great investment of countries in such areas, leading to those countries to define core values of ML and AI and bridging questions no how to adapt such core values from the most to the least privileged environments [4]. There is also emerging values in the field of ML/AI on societal forces on what research is done and who benefits [2]. Hence, the aim of this work is to present results of a pilot study and curriculum design on teaching bias of AI and Robotics in a small community in Mexico.

In this paper, we present results from a pilot experiment on the challenges of teaching bias in AI and Robotics of a small community of Mexican children.

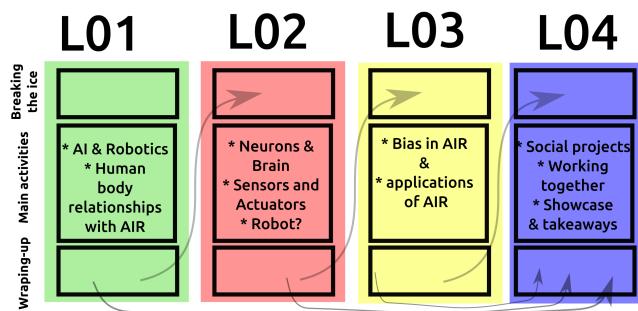
2 TEACHING BIAS IN AI AND ROBOTICS TO CHILDREN

Payne et al. have shown great progress on making pilots and beta test teaching ethical AI to young audiences [7]. For instance, last autumn 2021, beta test was organised where 250 students participates and on summer 2021, another pilot were organised with 28 kids at the Media Lab with a cost of \$150 for the week. The asked questions were: What's is the best algorithm to make a peanutbutter sandwich, is it the algorithm that makes the tastiest sandwich? , is it the prettiest sandwich? , the quickest and easiest to make? , the easiest to clean up?

117 3 STUDY DESIGN AND CURRICULUM DESIGN

118 Designing inclusive teaching practices for students has shown positive
 119 impact on students, where study design consider the creating
 120 procedures, instruments and data collection and analysis [3].

121 Figure 2 illustrates the curriculum design for the pilot experiment.
 122 In lesson 01, we could showed the children how artificial
 123 intelligence works with online applications. Also we were able to
 124 use more dynamic activities with protoboards so that the children
 125 can easily learn how robotics works and its relation with human
 126 senses. Lesson 02 consist of ... Lesson 03 consist of ... Lesson 04
 127 consist of ...



141 **Figure 2: Curriculum of four lessons of 1 hour and a half (L01,
 142 L02, L03 and L04). Arrows illustrate the connection between
 143 the first and the last part of each lessons.**

146 4 RESULTS

147 A “teaser figure” is an image, or set of images in one figure, that are
 148 placed after all author and affiliation information, and before the
 149 body of the article, spanning the page. A “teaser figure” is an image,
 150 or set of images in one figure, that are placed after all author and
 151 affiliation information, and before the body of the article, spanning
 152 the page 1.

154 5 CONCLUSIONS AND FUTURE WORK

155 We addressed the challenge of teaching bias in AI and robotics in a
 156 small community in Mexico to as a way to build AI by and for the
 157 people.

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