Using Socially Assistive Robots and Creating an Annotator from Scratch

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Introduction
My name is Bhav Patel. I am currently a rising senior at La Salle High School and intend on majoring in Astronautical Engineering. This summer I worked in the Interaction Lab at USC under Dr. Matarić and was mentored by Caitlyn Clabaugh. This lab falls under the discipline of computer science. I had two overarching projects which were: To build an annotation GUI for future use of having children use in data collection and to use "Dash and Dot," two children’s robots, to see if they were viable in teaching children how to code/program.

Objectives & Impact of Professor’s Research
My lab mentor Caitlyn Clabaugh is currently working on teaching younger children through robots. This holds certain advantages such as learning through play and exploring learning styles (especially with preschoolers where there is little to no research on their learning styles). Contributing to the general goal of the lab, Caitlyn’s work furthers the process of bringing robots into our daily lives. Specifically, these robots are called SAR’s or socially assistive robots.

Skills Learned
I have learned the following skills and techniques:

**How to build a basic graphical user interface (GUI)**
- I have learned to code (introductory-proficient level) with the following languages: HTML/CSS, Java, and Python.

**Using a SAR robot**
- How to use various sensors at the right moment to create a fluid and life-like movement.

Beyond the lab, I took tours with my SURE lab mentor, Eric, and learned of the vast differences that encompass various labs. It was interesting seeing my lab, which looks like a line of computers on desks as opposed to a classic “basement lab” that Eric worked in.

How This Relates to My STEM Coursework
I now see STEM as something completely different. I have learned that half the battle is grants, paperwork, and management. An example of which being the countless IRB’s I saw in the Interaction Lab. On top of that, I have now seen that although research is much of finding out what works, it is also just as much finding out what doesn't work.

Overall, bringing this back to my high school (La Salle High School), I can now see, at least within STEM, classes and clubs with a fresh outlook. Mostly, this will go towards the robotics club, where I have now realized the frustration of people in the club (myself included!) when something doesn’t work. I now find it critical to know what doesn’t work as opposed to just what works. Finding out what doesn’t work will always improve the final product.

My Next Steps
The biggest thing I will take back from this is programming. I learned around 4 different languages this summer and their different areas of expertise. Originally I knew C++ and struggled immensely, but now I have a newfound respect for programming and its uses. I now want to build several GUI’s and other Java/Python applications, and perhaps practice HTML & CSS websites.

Acknowledgements
Special thank you to: Dr. Matarić, Caitlyn Clabaugh, Dr. Katie Mills, Luping Wang, Steven Tsung-Han Sher, Eric Westphal, and Tracy Charles