STEM Spotlight

HIGH SCHOOL STUDENT CREATES SUCCESSFUL AFTER SCHOOL PROGRAM

Meet Taylor Fang, a Utah STEM Ambassador and an alumnus of the 2017 Stanford Artificial Intelligence Laboratory's Outreach Summer Program (Stanford AI4ALL). Taylor shares the work she's been doing to make AI more accessible to young women.

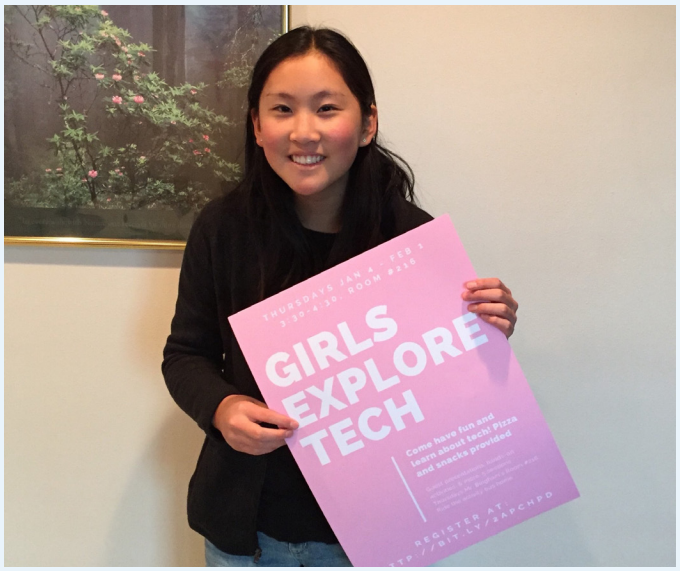
A few weeks ago, I led the last workshop of GET: Girls Explore Technology, a five-week series of afterschool workshops for middle school girls. I couldn't help feeling a bit nostalgic as approximately 20 participants filled out post-surveys in a science teacher's classroom. I thought back to the first day of GET, when one participant had asked, "Is it okay if I don't know anything about computers?" "Of course," I had answered, wondering if I should add, "that's the point."

GET, funded by AI4ALL's Community Impact Grant, took place at a local middle school in my hometown of Logan, Utah. Each week, participants learned about and explored different aspects of technology, from computer science to artificial intelligence. Through topic lectures, videos, hands-on projects (using Scratch, Hour of Code, Made with Code, Google's AI Experiments, and more), and guest speakers from Utah State University as well as computing fields, GET aimed to help inspire and encourage participants to pursue technological fields.

"Technology is EVERYWHERE, but where are the girls?" reads a National Center for Women & Information Technology (NCWIT) infographic, called "Girls in IT: The Facts." When I first read this line, over a year ago, I was struck by how much I related to it. Growing up, the STEM activities I participated in were disproportionately male. For example, I was the only female member of my high school's math club, and one of a handful of females at my local university's monthly science lectures. I was disheartened, but didn't think I could do much to change this situation.

Last summer, however, I had the opportunity to attend Stanford AI4ALL, a summer camp that intends to increase diversity in the field of Artificial Intelligence by targeting students from a range of financial and cultural backgrounds. I was elated to meet so many other girls interested in the same things I was interested in, and inspired by the things I learned. From completing a computer vision project to interacting with a variety of individuals in technological fields, it was an eye-opening experience.

While there, I started Allgirlithm with two other alumni, to encourage more people to pursue tech. Allgirlithm is a program that posts news, resources, opportunities,

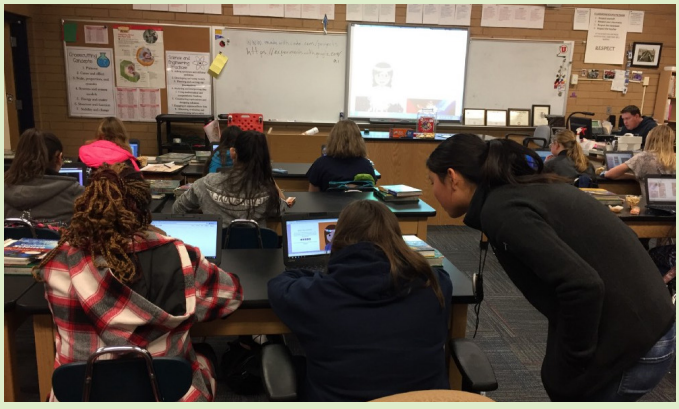


and profiles on women in tech, and partners with several other initiatives, like CreAIte. We've recently been scouted by Find X (find-x.org), an organization that supports youth initiatives around the world. When I got back to Logan, I knew I wanted to extend this into my local community. With the aid of the Community Impact Grant from AI4ALL, and in collaboration with the Boys & Girls Club of Northern Utah, I started GET.

For some participants, GET was one of their first experiences learning about computer science and AI. Their initial encounters with technology ranged from "watching my uncle work on computers," to "seeing glitches in video games." When asked to describe a programmer, their ideas included "a nerd with taped glasses," "nerd but funny," "zeroes and ones and typing on a computer," and "smart, kind, focused, and persistent." One answer said, simply, "me."

I tried to make GET the most accessible it could be, using factors addressed in the NCWIT infographic, including: incorporating hands-on projects, encouraging collaboration, boosting knowledge and perceptions about computing careers, and increasing confidence. To evaluate GET, I measured related areas: increase in interest, positive change in views, increased probability of participating more, and increased confidence.

More than 20 girls participated in Taylor's after school program.



Taylor advises students as they work on coding projects.

Based on verbal communication and survey results, the majority saw positive change in all areas, and participants ranked enjoying GET an average of 8.5 out of 10. The two measures that had the largest increase were "positive change in views on CS and AI," and "probability of participating more in these areas." Probability of participating more had an average gain of eight percentage points, while positive change in views was visible through verbal and written responses on the last day of GET, for example:

"I have realized that there is so much more to computers than just programming."

"I used to think that it wasn't very fun but I learned it's so fun."

"I am more interested in it now and it seems a lot more creative."

Overall, GET was a very fulfilling experience. I felt that the girls left with more confidence in their abilities and in their potential to be a part of the technology landscape, and that GET gave them greater insight into different aspects of these areas as a building block towards learning more.

I was inspired by my Stanford AI4ALL experience, and I was glad that I could transfer some of that feeling to others around me. When reflecting on something that inspired her, one participant wrote, "on some days my dad has trouble with the computer and he doesn't understand because he only speaks Spanish. I have to help him with all the problems. I want to build an app that can help him instead, and make it easier for him to use the computer."

Ideas and ambitions like this remind me of how important it is to have diverse technological representation, and of what GET represents: an opportunity for more girls to gain knowledge and confidence in advanced fields like artificial intelligence.

I'd encourage every individual to reach out in their community, because although it may feel like only a small step towards greater