



CuSTEMized: Inspiring girls in STEM through themselves

www.cuSTEMized.org

By **Humaira Taz**

When Jean Fan volunteered at an afterschool program for second graders, one of the most common phrases she heard was, “But Miss Jean, I am not a math person!” Reflecting on this in her TED talk, Jean said, “Hmm, you are in second grade, and you have not even gotten to the cool math stuff like stochastic processes or Bayesian hierarchical models. How do *you* know you’re not ‘a math person’?” That is when it dawned on her that maybe if she showed the girls examples of other women who were scientists, or give them a personalized message to boost their confidence toward math and science, they could envision themselves in the same path. Thus, the nonprofit organization CuSTEMized was born.

“Women remain underrepresented in STEM [science, technology, engineering, and mathematics] fields,” said Jean. “I experienced this personally as the only female PhD student in my program at Harvard University,” where she

is currently working toward her doctoral degree in bioinformatics and integrative genomics. Her role model has been her mother—now a professor of geosciences.

Underrepresentation of women in STEM fields remains a common issue. While certain areas of STEM, such as biology and chemistry, see more participation from women, other areas such as physics, mathematics, and engineering suffer from a shortage of women. Jean thought, what if girls could see themselves in, not one, but multiple scientific careers in the future? That is the core of CuSTEMized.

The books by CuSTEMized introduce children to important scientific concepts, diverse STEM fields, and to actual women in different STEM fields. The organization features two main lines of books: *My Little Book of Big Dreams* and *My Scientific Name*. The most special aspect of both books is that the child is the main character. In *My Little Book of Big Dreams*, the

parents can personalize the main character using their child’s name and appearance. The book then portrays the child in many difference scientific careers.

Parents have had exciting reactions from their children after presenting them with this book.

One parent said, “Zoey is smitten with her book. She is so proud of the book and has been showing everyone who comes to our house. She is quite taken with the idea of being a meteorologist or an engineer now. This has been such a wonderful experience, and I am certain that Zoey is going to treasure this book long past childhood.” Another parent was rewarded with the most precious look on the face of her daughter when she realized that the book was about her!

When I browsed *My Scientific Name*, I was curious to see what STEM careers would show up for the letters of my name. Each letter represents a scientific career in the book. The e-book is free to download,



and the process is simple. I wrote my name, selected an avatar for myself, and although there was the option to add a personalized message in the book, I left that part blank. It barely took a minute for my e-book to be ready! Even though I am a materials researcher myself, I was nonetheless super-excited to delve into the book. I must say that I got more than what I had expected. Instead of simply paragraphs of text with some sparse pictures, the entire book was in the form of rhyming verses with vibrant illustrations! One page was dedicated to each letter in my name with the title of the scientific career, then the name of an actual scientist in that career, followed by a simple rhyme describing what the scientist does. I felt a bubbly happiness inside when I saw the “M” in my name was for “Materials Scientist”! I can imagine how happy kids must feel seeing their name spelled out into STEM careers, thinking that one of these careers is their meant-to-be future. The bonus points for this book were the photos and brief biographies of the scientists who were featured in the book.

Jean elaborated that they also organize hands-on science enrichment events in collaboration with local libraries and organizations, such as The Innovation Institute and The Harvard Graduate Commons Parent Association. The events are quite diverse: Sometimes

a coloring activity is featured using the CuSTEMized books as coloring books, while other times it can be a science demonstration or a presentation by women scientists invited from the local communities of Harvard and the Massachusetts Institute of Technology.

A common theme for most nonprofits is their almost complete dependence on donations. CuSTEMized is slightly different in this regard. Although the CuSTEMized e-books are free to download and print at home, the professionally printed hardcover books have a small cost. “All proceeds from hardcover book sales are reinvested towards our nonprofit mission by providing free personalized books to kids from underserved communities, in addition to organizing free STEM-enrichment hands-on learning events. In this manner, my hope is to be able to operate a truly not-for-profit, mission-driven organization that is not solely dependent on donations as a source of revenue,” explained Jean.

Because their growth has mostly been via word of mouth, their team is looking for people to assist with social media and advertising. In addition, they are also trying to branch out into other sources of revenue, such as through grants. Anyone with experience in grant writing, submission, and tracking will be a valuable addition to her team.



Jean Fan, PhD student in bioinformatics at Harvard University, and founder of CuSTEMized. Credit: Tony Rinaldo.

It is certainly not easy to run an award-winning nonprofit like CuSTEMized. Being a PhD candidate myself, I could not help but ask how Jean balances her PhD life and her nonprofit work. Her answer was the core of a passion-driven project: “If it’s important to you, you will find ways to get it done.” Of course, she also shared her personal tips. “I have a tendency of working many months in advance of deadlines (anti-procrastination, if you will), which seems to help a lot.” If one woman in STEM can create constructive ripples in society, think about what the next generation of women in STEM will achieve. □

