



# Code/Art paints a more equitable tech future for Miami

By Nancy Dahlberg  
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In 1984, 37% of all computer science graduates in the country were female. Today, that number is about half (18%) and has barely budged in the last decade. What's more, women hold just a quarter of the tech jobs and in software engineering, the number tumbles down to about 14%.

To tackle the gender disparity in tech, Amy Austin Renshaw founded the Miami-based nonprofit Code/Art six years ago, aimed at increasing the number of girls interested in computer science through art.

“I wanted to do what I could to reverse that trend, and, for a whole host of reasons, I thought art would be the perfect hook to make coding more widely appealing to girls,” said Renshaw, a self-taught coder who earned three MIT degrees – yet opted to study materials science over computer science (or CS) at the time, believing she did not have enough CS background. She spent most of her career in Silicon Valley and Boston working for semi-conductor companies before moving to Miami.

With Miami’s tech movement gaining steam, Code/Art is helping to build a homegrown tech talent pool that better mirrors the gender, racial, and ethnic mix of our community. In this way, not as much tech talent will have to be imported to sustain the movement and our community will be lifted up, Renshaw said. “It really is an all-hands-on-deck moment, and we need to be doing all we can to make CS education more accessible to all.”

Code/Art’s solution: start young. To date, it has reached nearly 7,000 girls in grades 3-12 through the organization’s CodeHER coding clubs, community outreach events, and its teacher training program.

Among one of Code/Art’s newer innovations, the non-profit trains K-12 art teachers to incorporate Code/Art’s creative coding lessons into their existing curriculum and to offer electives and CodeHER clubs at their schools. “We want to reach girls with coding lessons without them having to make the leap of faith to first sign up for a CS class/camp/workshop. This is a significant difference between Code/Art’s approach and other organizations in the same space,” Renshaw said.



*Miami-Dade teachers take part in one of Code/Art's professional development training.*

## **Solving for the computer science teacher shortage**

The training program helps schools increase their computer science teaching capacity while providing a fun and creative early introduction to coding for many girls (and boys) who might otherwise have never considered taking a CS class. Helping to build this capacity is critical because there is a huge demand and few CS teachers to fill the need. Only 38% of Florida high schools offer AP Computer Science, and the problem is a lack of teachers, not a lack of demand, Renshaw

said. To date, Code/Art has trained 155 Miami-Dade County school teachers, many of whom have taken more than one Code/Art professional training course. Code/Art’s curriculum combines art, creativity, and social good and meets Florida Department of Education and Computer Science Teachers Association standards.

Girls learn more advanced coding skills and get exposure to role models and potential CS careers through Code/Art’s CodeHER programs – including weekly school year clubs, workshops, summer camps for girls in grades 3-8, and a year-end group coding project. They can find their tribe and show off their skills at coding competitions, including Code/Art’s national CodeYourSelf and Animated Art coding competitions and a South Florida regional ChangeMaker coding competition. The annual Code/Art Fest brings together speakers, workshops, a STEAM Expo, students, and teachers in the spring.



Amy Austin Renshaw is CEO of Code/Art.

Through art – which is fun, creative, and very Miami — girls learn the basics of coding naturally.

A 2014 study done by Google on why fewer women were going into tech found that for girls who had never tried coding, the word they mostly used to describe computer science was “boring.” Art is definitely not boring, and now with interest in NFTs blowing up, it’s become more than a smart hook, Renshaw said. “One of our former students just sold her first NFT for thousands of dollars and it was an artwork she had coded for a Code/Art competition.”



*Art is at the center of Code/Art's mission. The organization's CodeYourself and CodeYourFutureSelf activities help girls see themselves in tech.*

Like any startup, Code/Art is looking to scale its impact. This non-profit startup expanded in-person teacher training workshops to Palm Beach and Hillsborough

counties this summer and, in virtual sessions, teachers are joining from around the globe. While most of the girls in CodeHER Clubs live in South Florida, virtual clubs and competitions welcome everyone.

## **Eye on Miami impact**

What can Miami-Dade's government leaders and business community do to help ensure a diverse pipeline for tech?

Support organizations that value diversity and inclusion, Renshaw said. She applauds the new initiative, Tech Equity Miami, aimed at expanding internet connectivity, tech education programs, resources for small businesses, and tech employment opportunities for Miami-Dade residents. And Venture Miami's Miami For Everyone three-day event in June connected the community with the Miami tech movement.

Still, the majority of investment toward diversity in tech is aimed at higher ed, which is short-sighted, Renshaw said. As early as the 3rd grade, many girls already see coding as more of a "boys thing." By 9th grade, if a girl hasn't yet tried coding, she is much less likely to start. If businesses and government leaders are serious about increasing female representation in tech, she suggested they support programs that introduce girls to coding at younger ages.

Miami should not simply emulate Silicon Valley, Austin, or Seattle, but play to its strengths to make the tech industry stronger, more innovative, and more sustainable, Renshaw said. "We know, from history, the toxic cultures that permeate other tech centers, and we have the opportunity to deliberately create a different culture here," she added.

Now is the moment, she said, to create a future in Miami where women hold closer to half the tech jobs, and where people of color are fully included in the



tech and innovation economy. Few times has the region had so many strong women leaders as role models, including Miami-Dade Mayor Daniella Levin Cava, Miami Dade College President Madeline Pumariega, and leaders of entrepreneurship organizations including Melissa Medina of eMerge Americas, Leigh-Ann Buchanan of aīre ventures, Maria Derchi of Refresh Miami, Rebecca Fishman Lipsey of The Miami Foundation, Michelle Abbs of Web3 Equity, Claudia Duran of Endeavor Miami, Felecia Hatcher of Black Ambition, and more. At the same time, emerging technologies like Augmented Reality, Web3, and NFTs present the opportunity to encourage more female representation in them from the start, Renshaw added.

“Diversity is our great differentiator in Miami, and innovation is built on a diversity of people and ideas,” Renshaw said.



*Code/Art's lessons engage girls. All photos provided by Code/Art*

*This story is part of a startup series Refresh Miami is producing with Opportunity Miami on entrepreneurs addressing issues pivotal to Miami's economic future. The*

*story is also published by Opportunity Miami on its Medium channel. The first two stories in the series are [Kind Designs here](#), and [Career Karma here](#).*

*For more info: [https://refreshmiami.com/code-art-paints-a-more-equitable-tech-future-for-miami/?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=code-art-paints-a-more-equitable-tech-future-for-miami](https://refreshmiami.com/code-art-paints-a-more-equitable-tech-future-for-miami/?utm_source=rss&utm_medium=rss&utm_campaign=code-art-paints-a-more-equitable-tech-future-for-miami)*