The overall goal of EDsnaps, short for Educational Snapshots, is to increase the diversity in the Science Technology Engineering & Mathematics (STEM) workforce.
EDsnaps is a 501(c)3 non-profit organization.

EDsnaps Newsflash Letter - September 24, 2018

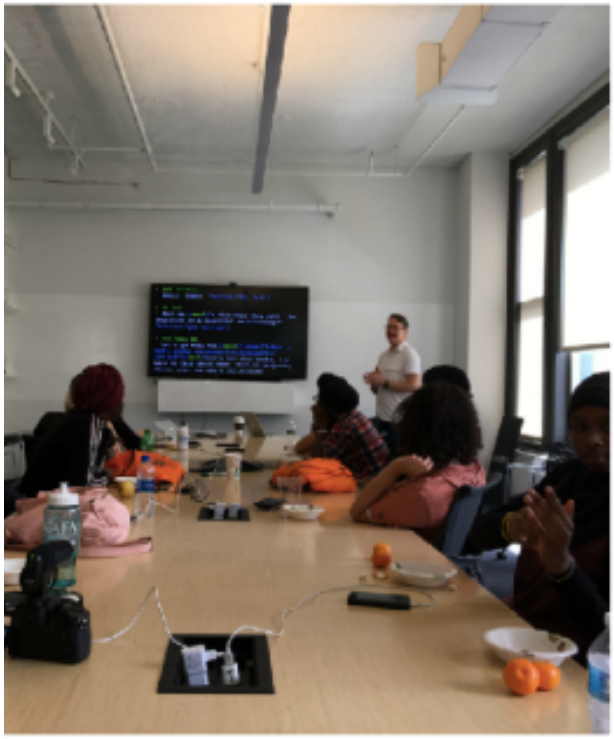
To Algorithm or NOT To Algorithm that is The Question.

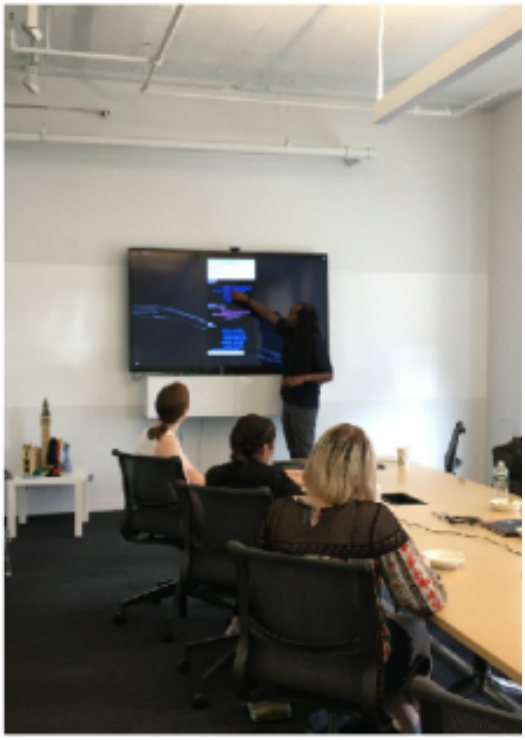
Serendipity: good luck in finding valuable things unintentionally. My moment of serendipity this past week: reading the article “Anti-algorithm Designing" by Vanessa Friedman published in the NYT on 9/13/18: https://www.nytimes.com/2018/09/10/fashion/telfar-rodarte-new-york-fashion-week.html. This article reminded me about two fieldtrips we took in our Summer Program. The first fieldtrip took us to the Quartz (https://qz.com) and the second one was to the Brooklyn Fashion+Design Accelerator (BF+DA, https://bkaccelerator.com).

Ms. Anna Mann, the manager, talent & culture of Quartz, coordinated our Quartz visit. She created an exciting Program with 6 workshops and two of them focused on algorithms. The first interactive presentation given by John Keefe taught us how to build an Alexa Skill and in the second interactive experimental workshop we learned about Machine Learning and how computers fit into the story of fake news. This workshop was presented by David Dodson.

For our newsreaders who are not familiar with algorithms (or may even feel a bit “weird” hearing about algorithms), rest assured, you are using

algorithms on a daily basis. Huh??? Yes, you apply algorithmic thinking or the ability to define clear steps to solve a problem every day. A very easy example is when you start your day. The alarm rings. What do you do?? You turn off the alarm and get up, or you hit the snooze button and 10 minutes later you hit it again or turn it off.





Another example of an algorithm would be a recipe to bake a cake. When I bake a cake, I follow a set of instructions. If I would like to make a change in my recipe, for example I would like to add nuts and cranberries to my basic recipe for Dutch chocolate cake, I would insert the extra lines of information in my document. In this way, if someone would like to bake my cake, they just need to follow the instructions. Translated to the math world, they are using my algorithm.

I partly rewrote my recipe, as I needed to add the nuts and the cranberries to the correct part of my original recipe.

This process of rewriting is used in a process called machine learning. Instead of a human (like me adding lines to my cake recipe), a system that

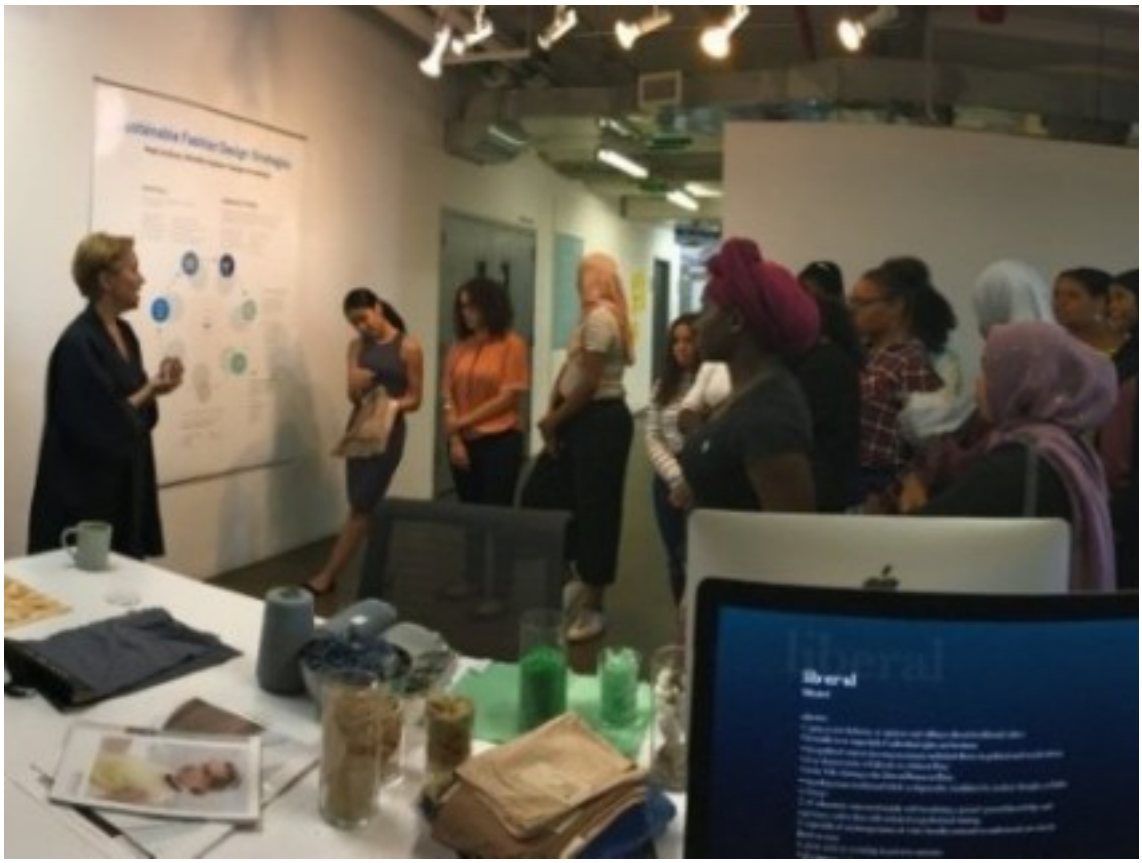
runs on a computer changes itself as it works through the lines, such as by learning from mistakes. This is the part where a lot of people feel uncomfortable as it indeed might sound as if this system is alive, maybe has feelings or senses, which is totally not true. In our second interactive workshop at Quartz, we learned how machine learning is used for examining news and how to understand how fake news can be created. We practiced with different search words, and learned the very basic of the process of machine learning. In the big screen entertainment world, some movies confuse machine-learning algorithms with Artificial Intelligence. Although an interesting subject, it is a newsletter subject for another time.

For now we stick to our algorithms.

What can you do with algorithms? A lot. For example, algorithms can help companies perform automated tasks such as payroll management, rescheduling travel routes, and weather forecasts, to name a few.

What is one of the problems with algorithms? Although they are very useful, one has to be careful with the outcomes as they might not be always correct when it comes to precision; there is an uncertainty factor in the model outcome. We can see this for example when weather forecasters show the projected path of hurricanes. Different companies use different algorithms leading to different prediction pathways, which show the margin of error. What is the cause for this margin of error? One of the unstable parameters is the data set collected.

Why is data collection important? Our students learned about this issue over the summer. We collected data in two different ways: through our questionnaires and field-date collection in our “Math is Fun” unit by Tyler Littlefield. We learned that it is important to take repetitive measurements in the math unit so we can make a more accurate estimation of the football field pole. We use our questionnaire data to understand what students need to learn and not so much what they like to see in the workshops for the coming years. This latter remark brings us to Ms. Vanessa Friedman’s NYT article about fashion.



Why Anti-algorithm design?

Ms. Friedman points out that fashion “should be about giving people what they never knew they wanted”. During our second field trip, which was hosted by Ms. Christine Billard, the Program Manager at the Brooklyn Fashion + Design Accelerator (BF+DA), our students were exposed to the TEK-tile program 2017 outcomes presented by Marie Vinter, a production and sample making (P.Lab) intern, to Study New York, a sustainable fashion brand founded by Tara St. James, BUPeriod, a venture fellow company at the BF+DA founded by Vanessa Siverls. We also met the Founder of the DF+DA, Debera Johnson. All these wonderful and strong women stepped out of their comfort zone to pursue their individual and community goals. They make the products and provide the services they want.

EDsnaps Take-Home Message

EDsnaps teaches students to step out of their comfort zone and provides the students with opportunities they never knew existed, and with STEM interests they never knew they wanted.

Each of our EDsnaps students is on her professional and personal way to become wonderful, powerful, problem-solving, proper algorithm applying women.

EDsnaps students will move the needle in respect to increasing diversity in the STEM workforce