Lewis Roundtable on human influence on the world of data

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In 2012, Facebook conducted an experiment to see if there was a relationship between the content it displayed to its users on their newsfeed and the emotion the users expressed through their own posts. The company was accused of 'manipulating' so to speak what the users could see and influencing their expressions. Interestingly so this experiment is a classic example of how computer simulated algorithms influence our behavior. I believe today algorithms are becoming more and more mortal; in the sense that they are not only a tool to quantitatively analyze data but a means by which humans are becoming increasingly predictable. Algorithmic studies today are thus not an area limited to computer scientists or engineers but a holistic field that involves people from all walks of life.

I was glad I could grab the opportunity to attend the roundtable by Lewis College of Human Science on this topic. What really got me interested in going for this event was the diverse background of the panel participants. Further, despite their varied background they focused their research on the same topic. It was thus a great opportunity to obtain a holistic understanding of human influence in the world of data.

The panel participants consisted of Angela Cirucci who studies social networking sites to understand more social aspects like identification and culture, Nick Seaver who is a current PhD student of anthropology at University of California, who has an interesting paper published called "What Should Anthropology of Algorithms do?" where he talks about his study on engineers behind music recommending systems like Pandora, Jason Resch, who is an IIT alumnus and has over 500 patents (yes, 500!!!) in his name both issued and pending, and lastly, Christian Sandvig who is a professor at University of Michigan his area of study is the internet infrastructure and public policy. While Resch and Sandvig were able to bring about more technical aspects to the discussion, Seaver and Cirucci focused on the more social aspects. The panel was thus able to lucidly describe both technical and social parameters of algorithms and how we as users may be unaware of their existence but are interacting with some form of algorithm every day.

We live in an exceedingly digital age, where all our opinions and decisions are recorded and monitored. According to Sharon Machlis of Computer World, the number of hyperlinks on the World Wide Web in 2010 was approximately equal to the number of synapses (neurotransmitters) in the human brain. This only brings me in awe of how much data there really is on the Internet today and how these rather complex algorithms derive meaning from it.

Google is one of the most powerful and widely-used search engines today that deploys complex algorithms to derive meaning from the multitude of data on the web. Sandvig provides an example of how, if a person writes emails about how depressed he is on Gmail, his featured ad results would automatically show products that would treat depression. This type of targeted marketing is something that is a function of the human society and the 'algorithmic world', so to speak, is only a mirror to this. Sandvig focused his conversation on how topics related to fraud, racism and inequality that exist in the human society are replicated in the digital society.

The roundtable utilized instances of how Facebook runs its algorithm to interact with its users. I felt this was an appropriate example since it is the most widely used networking site today and it is easy for people from all walks of life to relate to. Have you ever wondered how you get the news feeds on your Facebook page, what you see on your wall or how Facebook recommends "People you may know?" It all goes through an algorithm that is run at the backend. If you've ever read the hundred-page terms and conditions document before signing up on Facebook, you would know that you are actually giving Facebook the right to use your activity data and present you results. Increasingly so, you do not see everything your friends post because Facebook filters the data and tailors the information for you with the help of its algorithm.

The most interesting thing I learned was when Sandvig explained the science behind the 'like' button. For example if I 'like' a product on Facebook, for me it is simply a metaphoric way of expressing my opinion in the digital world. Facebook on the other hand establishes a permanent association of my identity with the URL. This link would later be reused not only to provide me with a similar newsfeed of the product, but also recommend this product to other users.

Then arose the issue of 'Algorithmic Transparency,' or how companies should disclose how they are utilizing customer information and activity log to provide them with a set of results. To this, Resch explained how we would never be able to understand what really goes on behind the algorithm of Google even if they were compelled to disclose it. Further, the algorithms are dynamic and are continuously adapting to user needs and changing preferences. Multiple programmers make the modifications on the algorithms over the course of time and this would thus raise questions on the accountability, since no single programmer can be held responsible for writing the code.

They also spoke about ethics in the digital age and how it is increasingly important today to increase scrutiny and regulation on companies. To this Cirucci explained how no technology is timeless since it is constantly tweaked with the new requirements. The people creating these programs have a moral and cultural expectation, which is shaping the way we use technology today. The Internet is moving to an age where it shows us what it thinks we want to see, which is a tailored search result, rather than just providing the most optimal search result. This search result is not only influenced by our previous search query but also by factors such as geographic location, operating system of device and type of browser. As algorithms become more sophisticated with time it is the moral obligation of the programmers writing these algorithms to ensure that they are ethical.

Overall, the event was intellectually stimulating and provided a good level of insight to the audience. The audience consisted of alumni, industry experts and current students who were able to raise eloquent questions. The event was followed by a reception where I had the opportunity to meet the panelist and many people from the audience. It was a great experience since I learned how algorithms influence other industries. I look forward to reading more about the research conducted by the panelist and many such events by Lewis College.

Photo by Shachi Sayata

Advancing women by engaging men

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This past weekend I had the opportunity to sit in a room with a bunch of young women from across the nation. We had gathered in the room on that sunny day in Nashville to attend a session called "Advancing Women by Engaging Men." The workshop was just one of several seminars, workshops, sessions and tours that made up the WE15 Conference for the society of Women Engineers. It began with the three women fellows from the following universities—University of Maine Louisiana Tech University, and North Dakota University—reading out their reference so the attendees could find out more information if we so desired.

For the next hour that I sat in that room, we discussed certain practices that made women engineers feel discriminated in schools, at work, and out on the field. Then came the big question, "Why is male engagement needed to advance women in the engineering field?" Simply put, because the engineering field was designed by men, for men, naturally the practices favor men. This doesn't necessarily constitute a bad thing. It was just how things were until the Industrial Revolution happened and women delved into more technical work places.

Statistics from the Census Bureau's 2009 American Community Survey (Beede et al., 2013) shows that women make up 48% of the work force and 24% of the STEM work force. David et al. (2013) says that these numbers might be due to different reasons such as "a lack of female role models, gender stereotyping, and less family-friendly flexibility in the STEM fields." Margaret E. Blume-Kouhout in her article "Understanding the Gender Gap in STEM Fields Entrepreneurship," (2014) attributes the disparity in gender participation in STEM field to incentives and benefits not being as available to women as they are to men. With there being more men than women in engineering, it makes sense that for things to change to improve the current state of the field for women, male participation is necessary. Another reason is that men are generally more influential than women, as is evidenced in a research done by Linda L Carli (2001), which means that they would have a better chance at changing the policies and issues that currently limit the participation of women in the engineering field. Thirdly, changing these sexist policies that exist in engineering field that discourage women from participating could also benefit men.

Karen Horton, from the University of Maine, mentioned at the session during the conference that the unrealistic expectations placed on men to be tough has caused certain men to make some unwise decisions on the field causing them injuries, stress, and even death in extreme cases. Certain societies, foundations, and universities are doing what they can to advance women in engineering. Foundations like the National Science Foundation providing grants to women in stem field.

Societies like the Society of Women Engineers provide scholarships to young women in the STEM field. There are several other wonderful things like this going on to advance women, but maybe it's time we started thinking about involving men in our bid to advance women in the STEM field. It doesn't mean all the several gender disparities that happen in the STEM field right now will disappear but it wouldn't hurt to try. UN Women thought this would be a great idea. Their #HeforShe campaign is a solidarity movement aimed at involving boys as agents of change for gender equality rights.