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Interview with Bernado A. Huberman on Social Media and Collective Intelligence

Panagiotis Takis Metaxas

Bernardo A. Huberman

((*)Pls insert bio, max 180 words))**

KI: We see a very broad interpretation of Social Media these days. How do you define Social Media?

I define social media as an electronic medium such that participants can interact with each other using a variety of methods, such as videos (youtube), texting (twitter), posting of photos (instagram, facebook, google+) broadcasting physical locations (four square) engaging in commerce collectively (groupon) or plain text interactions such as wikipedia and epinions.

KI: Regarding this definition, how would you put Collective Intelligence in that context?

Collective intelligence posits that *the problem solving ability of a group often surpasses that of individuals*. Wikipedia is a good example, and if creativity is yet another problem that needs solving, youtube or other social media forums can sometimes help solve the problem of accessing knowledge, news and the organization of collective social actions.

KI: Please tell us your personal assessment of these fields of research.

When it comes to research, I see of lot of results which are a bit parochial in the sense that they *lack generality* and that, in many cases, they cannot even be verified because of lack of access

to the data used. On the other hand, we have learned a lot about the evolution of social networks, how information spreads through them and the incentives that make individuals contribute content, in spite of the fact that they seldom rewarded financially for that activity.

KI: What are your observations on the changes and trends these fields have gone through?

The biggest change has been that *social media has become a topic in computer science departments*, which traditionally teach and do research on the engineering of computing systems and not the analysis of socially generated data. Most of the practitioners have discovered that a bunch of courses in statistics can get them going fairly quickly into the field, but the drawback is the *lack of depth in the results and their generality*.

KI: What are future research challenges in this area?

To establish general results. And for that, a necessary but not sufficient condition will be *access to the data*.

KI: Social Media and Collective Intelligence are often mentioned in context of the fourth paradigm (data-intensive scientific discovery). What is your opinion regarding this?

In the physical sciences, theories are often needed to explain what data exhibits. Data-intensive scientific discovery claims to be able to dispose of theory, and concentrates on the patterns (often hidden) that can be observed in very large amounts of data. I think that it is a valuable approach, and it remains to be seen if theory can, at times, predict patterns that data did not explicitly show.

KI: Also closely connected is the topic of Big Data. What challenges and opportunities do you see in the application of Big Data in the context of Social Media and Collective Intelligence?

Big data is another way of saying that the web has enabled the collection of very large amounts of information that, in the proper hands, can provide extremely detailed data about peoples' activities, social patterns and the way users forage for information on the web. In social media, big data is the driver of all the research we have seen in the past few years under the name of social networks. Not much has been done on collective intelligence with the exception of Wikipedia.

KI: R&D and Innovation has already opened itself to include customers and other stakeholders outside of the company. What is your opinion on the inclusion of Collective Intelligence in the Innovation process as the next step?

The more is known about users, customers and enterprise employees, the better the mechanisms that can be implemented to serve them all. But most of it will fall under the marketing department, not much in collective intelligence.

Most of the interesting *innovations* in the social computing arena are coming from people who have never been associated with a research environment. Examples are Wikipedia, Friendster, MySpace, Twitter and Facebook. To the extent that these innovators were just customers or stakeholders of other companies, they are proof that *collective intelligence* is at work.

KI: What implications do you see for the future of collaboration in this context?

I'm not optimistic, for data will be confined inside the walls of enterprises for reasons that range from privacy to legal and intellectual property.

Explicit collaboration among researchers will be as tough to obtain as before, because of the competitive nature of the scientific enterprise. Private companies will also prevent that from happening, because of the value of the data and insights they have.

KI: You have published several studies researching influence and sentiment on Twitter. Do you think Twitter can be used as a source for high quality Collective Intelligence?

Yes, in some cases the opinions and news contributed by hundreds of thousands of people can amount to a form of intelligence hard to achieve but a few individuals. But the data needs to be analyzed with care.

KI: What are the challenges in using Social Media as a data source for research?

The biggest challenge lies in the *quality* of the research performed on Social Media. Many of the published results consist of straightforward statistical analyses, which do not provide either useful insights or general conclusions. Furthermore, we need to realize that social media is not the same as a social system offline.

KI: What part does Social Network Analysis play in this area?

So far, social network analysis has played an important role in this area. But, the fact that many newcomers are unaware of that field means that, if present trends continue, doing social network analysis the way originally conceived of will be less relevant over time.

KI: In your opinion, what are the big gaps that need to be filled in this area?

We need more sociologists involved in this work. The *big gap* is partly due to the fact that people in the social sciences are not always versed in sophisticated mathematical and statistical ways of looking at data, and people in the information sciences seem unaware of social theories.

KI: Regarding the immense amount of data flowing through Social Media these days, could improved algorithms and data storage technologies keep up? Do you think it would be necessary at all?

I think that improved algorithms and storage technologies have been able and will be able to keep up with the amount of data generated by social media. After all, Google alone carries an immense amount of data that is evergreen and growing without straining the infrastructure. There will be problems with bandwidth as more and more video is generated and consumed, but I'm optimistic about its provision.

KI: *Thank you very much for this interview!*