

"Scientists can tell a story without losing accuracy"

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Agência FAPESP – Dan Fay, an engineer at Microsoft for more than 20 years, is a member of a select group of professionals in search of partnerships between the software giant and scientists heading projects related to energy, earth, and environmental sciences.

They are projects such as the World Wide Telescope software, developed with the help of researchers from John Hopkins University. The software allows scientists from around the globe to access, manipulate, and share images of celestial objects collected by space telescopes, observatories, and research institutions.

“Our challenge is finding researchers to whose research we can add not only hardware, but also more value”, says Fay. Besides being director of the Earth, Energy, and Environment effort at Microsoft Research Connections, a division of the Microsoft Research organization, Fay also serves as a member of the Purdue University Computer and Information Technology Industrial advisory board in the state of Indiana.

He was in São Paulo to take part in the Latin American eScience Workshop, sponsored jointly by FAPESP and Microsoft from May 13 to 15, 2013. Fay gave two presentations to researchers and students from different countries about how advances in the handling of massive amounts of information have led to improvements in a variety of areas. The first one was about how to integrate science and cloud computing; the other, “how to achieve international visibility”. After the event, he sat down with **Agência FAPESP** for an interview, parts of which are reproduced below.

Agência FAPESP – What are your expectations for the future of eScience, the use of technology and computational tools in doing science?

Fay – What is interesting about eScience is its ability to mix computational data and new techniques in a number of areas. We’re seeing an increase in the use of computing, but the next step is the merger of different areas and the combined use of information generated by them, like, for instance, a cross-sectional analysis of data from the biological and environmental domains. Both of them speak different languages. The transition between areas will be one of the

future challenges. You can’t take for granted that a piece of information means something. You have to be sure.

Agência FAPESP – How can researchers use cloud computing in their studies?

Fay – Cloud computing offers a paradigm shift in the way data analysis and computational challenges are met by numerous areas of scientific study. Unlike supercomputers which are isolated and centralized, cloud computing is everywhere and it can support different computing styles suitable for data analysis and collaboration. We’ve been working with academic researchers for the past three years, exploiting the full potential of this new platform. There are more than 90 research projects using Windows Azure [Microsoft’s cloud platform] and we’ve learned a lot from them. As with any new technology, some people start using it before, others later on. Several researchers have started using it to understand how it can change the way they do research.

Agência FAPESP – In your opinion, will we see a shift in the way science is promoted?

Fay – I told the students in the workshop that there will always be traditional, peer-reviewed articles from scientific journals. However, with the amount of information we have today, data can also be presented in different ways in order to make articles available to other people and the general public. An article that is rich in detail can become accessible to people from other areas. Producing photos and videos, among other resources, can help as well.

Agência FAPESP – Is that one of the roles of scientists?

Fay – You can use the same accurate scientific data and tell stories about them, allowing people to listen to the story told visually straight from the source. This interaction is very powerful. It is the same as going to the museum and looking at a variety of artwork: people connect with them. Scientists want that same connection to happen between colleagues and the general public and their information, data, and articles. I think finding other mechanisms to explain data is good. These are fascinating times, in which there is a worry to disclose

information in an interesting way. That is true not only when talking to your peers, but especially if you want policymakers, the government or financing bodies to understand your work. Sometimes it has to be presented in a certain way in order to be digested more easily.

Agência FAPESP – Does technology help with that?

Fay – Yes. In part because it makes people have a more in-depth reading of the articles. There is a researcher at Harvard, an astronomer, who created one of these virtual tours we have about galaxies. She estimates that more people have seen her tours than read her articles. This kind of understanding is growing. If I can help someone to read an article by seeing this somewhere else, that is advancement.

Agência FAPESP – In your opinion, should scientists use social media, such as Facebook, to show their work?

Fay – Yes. They should always adhere to scientific rigor, but it helps to use design or marketing techniques. Even in their posters. It is a better way of displaying information.

Agência FAPESP – Will new technologies foster the disclosure of scientific data?

Fay – Beyond data disclosure, there is a social problem, where people feel like they own their ideas or their information. It is important to find ways to share data and, at the same time, acknowledge the people that collected, processed, and made it available. I believe that is where many of the challenges are. There is also the issue of medical and other kinds of data which you don't want out there.

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