

مباراة للتعيين في بعض المراكز الشاغرة
وللتعاقد على بعض المهام لدى وزارة السياحة

المهام : مترجم

مسابقة في المهارات اللغوية : تشمل أسئلة بالعربية حول نص باللغة الإنكليزية إضافة إلى تعبير كتابي باللغة الإنكليزية عن موضوع النص . المدة : ثلاث ساعات

Citizen science enters a new era

By Dan Drollette

BBC, April 2012

Earthquake researchers have a problem. So do scientists trying to investigate the spread of deadly malaria. Whilst conservationists trying to get a handle on the state of illegal logging may have it worst of all.

What connects all of these is that when it comes to cracking some of their field's biggest issues, traditional science methods are not fully up to the task.

But science is changing. In the age of the internet it is waking up the idea of people power: the combined forces of thousands of ordinary connected volunteers can help collect or crunch overwhelming masses of data.

"There's so many people that can take part in this way, I think crowd-sourcing could almost be more important than the development of the Web," says Ben Segal, who has worked on many volunteer computing projects at the at the European Particle Physics Laboratory, Cern – and who mentored, among others a young Tim Berners-Lee, who would go on to invent the World Wide Web.

"Citizen science" is not a new concept. So-called "volunteer computing" projects have expanded rapidly since the launch of Seti@Home in 1999, a program that still uses the power of millions of ordinary computers in screen-saver mode to help search for signs of intelligent life in the universe. Tapping into aspects of computer processing power, such as recharging modes, and making use of previously wasted "cycles", desktops or laptops from people scattered worldwide can band together to mimic the number-crunching power of a supercomputer.

By the end of the last decade, several projects were using volunteer computing power for solving complex problems, ranging from cataloguing stars in the distant corners of the universe with Galaxy Zoo to predicting the complex three dimensional structures of protein structures with FoldIt. There is even a site (scistarter.com) devoted to the growing popularity of citizen science, where people can discover, take part in and fund research projects.

But those at the forefront of the field say that citizen science is now beginning to enter a new era. What has changed is a growing sense that participants can actively take part in projects, rather than passively allowing their idle computer to do the grunt work. "Their feeling is that science is too important to be left to scientists alone," says Francois Grey from the Citizen Cyberscience Centre, a collaboration set up in 2009 between CERN, the University of Geneva, and the United Nations, with seed money from the Shuttleworth Foundation.

Tools for the trade

Grey's Citizen Cyberscience Centre is one of the main operations pushing citizen science into unexplored territories. One reason Grey says this is becoming increasingly possible is that the

technology barrier is dropping, so more and more sophisticated hardware can be placed in citizen's hands.

One project the CCC supports – the “Quake Catcher Network”, or QCN as it is known – epitomizes the trend towards ever-smaller, more **nimble** devices, based upon the latest chips. A customized external motion-detecting device with a USB plug turns peoples' ordinary desktops into **automated earthquake detectors**. Connect computers via the internet to a centralized system, or server, and you now have a wide-ranging system that maps an earthquake's aftermath.

The network has been tested in the San Francisco Bay Area, and sensors were sent to New Zealand following the earthquake in September 2010 to learn more about the occurrence of “aftershocks” – which are almost as dangerous as the main event itself. In November last year, researchers at Taiwan's Academia Sinica set up a server to monitor the quake-prone island that lies between the Eurasian and Philippine Sea Plates.

The sensors were developed by Elizabeth Cochran of the US Geological Survey and Jesse Lawrence of Stanford University and currently cost between \$60 and \$200 per sensor, a fraction of the cost of professional seismometers which can cost anything up to \$100,000 apiece. The QCN devices only have a fraction of the sensitivity of research-grade seismometers, but what they lack in sensitivity, they more than make up for in sheer volume, says Lawrence. “With many more cheap sensors, instead of guessing where strong motions were felt by interpolating between research sensors, we should be able to know where strong motions were felt immediately, because we have (QCN) sensors there.”

And soon there could be an army of mobile “**quake-catchers**”, according to QCN's Carl Christensen. Smart phones are ideal for the task, as they already have built-in motion-detectors, gyroscopes, accelerometers, and GPS signaling. By summer 2012 QCN expects to release an app that turns your Android smart phone into a pocket-sized earthquake sensor. Soon after, they hope to send 1,000 sensor-equipped phones to places where a fault-line has just slipped.

Some of the hardware being adopted in other citizen science projects also hail from unexpected origins. A major advance in scientific computing came from the development of superfast 3D Graphics Processing Units (GPUs) to run video games on Sony's PlayStation 3 console. GPUs can do 10 times more than an ordinary chip. Consequently, Dave Anderson, founder of the open-source software platform BOINC, foresees volunteer computing at an “exascale” level – about 1,000,000,000,000,000,000 calculations per second – 100 times more powerful than today's top supercomputers.

(866 words)

Answer the following questions

In ARABIC

1. Summarize the text in Arabic in about 200 words
2. Give the Arabic equivalents of the bolded and underlined terms and expressions.
3. How would an ordinary individual help scientists working in their labs? Support your answer with personal examples

In ENGLISH

1. According to some the rising of Islamic movements in the Arab world is due to socioeconomic reasons, for others it is due to the dictatorships. Comment and give your opinion in about 200 words.

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