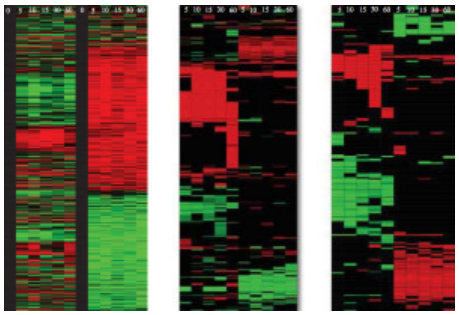
Genomic data mining firm hopes to help personalized medicine become commonplace in 3-5 years

March 18, 2014 6:00 am by Deanna Pogorelc | 0 Comments



Charles Eldering started developing methods for mining big data back in the late 90s on a project that characterized consumers based on their purchasing and television viewing habits. Now, a decade and a half later, similar technology is finally coming of age in healthcare.

"I think it's going to be another 18 months or so before we stop focusing on the mechanics and scary parts of data mining," Eldering said. Once that happens, he thinks the industry will start paying more attention to genomic data mining services that could bring down the cost of care.

"Our bet is that within a three to five year time frame, you'll see this kind of technology applied more widely in healthcare," Eldering said.

He's the founder of Expanse Bioinformatics, which has been building up a portfolio of algorithms and methodologies that may eventually enable doctors to recommend a course of treatment or a change in behavior to treat or prevent certain diseases, based on a patient's genetic data and behaviors.

That's already happening with biomarkers and molecular diagnostics in some kinds of cancer, he pointed out. But as the price of sequencing continues to fall, data becomes more widely available and pressure mounts for providers to control

Before the advent of whole genome sequencing, this kind of analysis wasn't possible, Eldering said. Researchers instead had to focus in on specific genes and search for mutations.

Expanse is developing algorithms and systems that would be able to compare genetic data from populations with and without a particular disease, or that have and have not achieved a certain health goal.

"Our way of looking at the big data is that we don't require specifying what genes to look at," he explained. "We believe that patterns and correlations can be recognized between large sets of genomic data coupled with behavioral data. Our approach was, let's look at the data and let the patterns emerge on their own."

Eldering said one of the first applications the company is looking at is post-traumatic stress disorder, a condition that appears to both genetic and environmental links. The goal would be to identify soldiers with increased susceptibility to PTSD based on their genetic makeup and behavioral history, so that a prevention of early-stage treatment plan could be put in place.

But first, it needs access to large genomic data sets, which it plans to get through partnerships with other organizations and companies. In the PTSD case, for example, Eldering said he'd like to work with the Veterans Affairs Office of Research and Development, which is running the Million Veterans Program to collect genetic, military exposure, lifestyle and health data for those kinds of research purposes.

And the pool of potential partners is continuing to expand as organizations like Kaiser Permanente and UC San Francisco, and companies like Craig Venter's Human Longevity, make efforts to collected mass amounts of genetic data.

Elderling said his team has looked at many potential applications and sees cancer and type 2 diabetes as other diseases whose diagnosis and treatment could be helped by the technology. He said the company hopes to have partners lined up this year and begin launching product next year. If that's the case, it may be in a space with the likes of NextBio (acquired by Illumina), Bina Technologies and Appistry.

[Image credit: Flickr user Libertas Academica]

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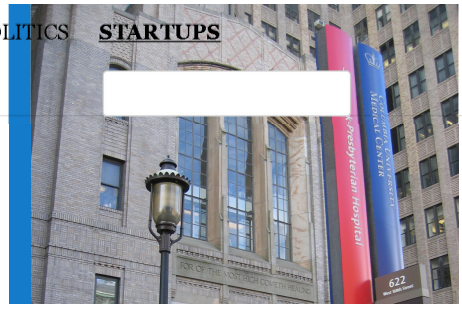

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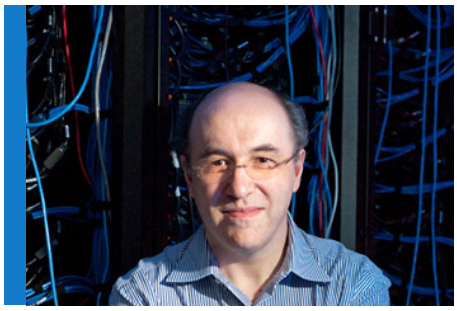

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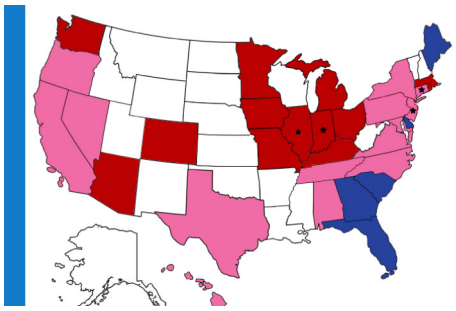

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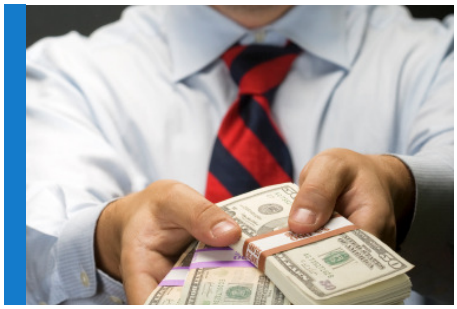

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