MOBILE

BIGDATA
R E P U B L I C | Transform Your Business With Data

ABOUT US   REGISTER   LOGIN

HOME   BLOGGERS   MESSAGES   POLLS   WEBINARS   RESOURCES   VIDEOS | STRATEGY   **ANALYTICS**   TECHNOLOGY   FB   TW   LI   G+   RSS

FINANCIAL SERVICES   HEALTHCARE   GOVERNMENT   EDUCATION   RETAIL

BIG DATA ANALYTICS

The Knowledge Versus a GPS & Big Data: No Contest

Robert Plant, Associate Professor, School of Business Administration, University of Miami
8/28/2013
Comment
14 comments

Login

👍 50%   👎 50%

The thing I love most about London is not Big Ben, Buckingham Palace, the London Eye, or Chelsea FC. It's the taxis. More specifically, the taxi drivers are the best in the world -- probably the universe.

They are witty. They always have change and provide receipts. They don't ask you tricky questions (to test if you're a local) and take you miles out of your way to run up the fare if you fail the quiz. The reasons are simple. London's cabbies are ethical, and they know where they are going and *precisely* how to get there.

On-the-fly route buffering
This is not by accident. This skill, called the Knowledge, is hard earned. The Transport for London Authority describes the system, which has been in place since 1865, this way to applicants:

> Before being licensed as a London taxi driver you will have to demonstrate that you are able to take passengers to their destination by the shortest possible route. To do this you must first learn the "knowledge of London" and then pass a series of examinations.

Anyone certified as an All London taxi driver is allowed to ply for hire anywhere in the 610-square-mile London area. The Knowledge is thus a very valuable skill. Candidates can be asked to demonstrate knowledge of any of 320 standard routes through central London, where there are 25,000 streets within a six-mile radius of Charing Cross. Candidates also need to know about theaters, landmarks, and other points of interest. Every year, hundreds of people start to learn these routes. They can be seen on their ubiquitous mopeds with maps on clipboards attached to the handlebars. Most give up or fail many times. Successful candidates take about 34 months and at least 12 attempts at the exam.

Knowledge in the time of big data
You would imagine that big data and GPS technology would make the Knowledge null and void. However, this has not occurred. The London Mini Cab drivers who are hired by prior arrangement (but can't pick people up off the street) frequently take longer to find their destination. These drivers are not required to have the Knowledge. They often rely on GPS devices, which are simply no match. GPS has big data, but the algorithms cannot capture the intrinsic knowledge required to refine the path on the fly.

In a famous demonstration, the BBC presenter Spencer Kelly, armed with a Sat-Nav GPS system, tried to reach certain spots in and around London faster than a black (All London) cab. On the motorway section of the test, the GPS won by five minutes. In the inner city section, the black cab made up those five minutes and built a 20-minute lead. By the end of the test, the Knowledge had beaten the algorithms by 27 minutes.

The tendency is for people to get caught up in technology and negate the human element. Technology is easy to highlight, and its achievements are frequently lauded. IBM's Watson is a prime example of success in big data. It displays high performance in its domain, but is it creative or adaptive? What if the question format suddenly changed? How quickly could it adjust? Is Watson the Mini Cab of test takers -- good on the predictable routes but not in a rapidly changing environment? It would still not pass the Turing test to show universal intelligent behavior.

No match for a mear machine
On the human side, perhaps the MIT professor Marvin Minsky would call the taxi driver's brain a "meat machine." It's doing just what Watson does: using big data, data compression, high-speed data access, adaptive predictive routing algorithms, heuristics, fuzzy logic, and data capture, all in real-time. Unlike Watson, it would pass the Turing test.

Systems like Watson are now being used for medical oncology diagnostics. In fact, big data is revisiting an area of research that was highly visible in the 1980s, when cancer diagnostic systems like MYCIN

MORE BLOGS FROM ROBERT PLANT

A Review: Big Data in 2013
39 comments
Data scientists, NSA, C-suite buy in... Big data changed a lot in the last 12 months.

What Would Seymour Cray Think of Big Data?
13 comments
How would the tech legend respond to the 4 Vs?

The 360 Degree View of a Customer
56 comments
Big data is helping companies like Netflix see what you really want (and even when you go to sleep).

Lessons for Big Data From President Obama's Healthcare Implementation
24 comments
Three big data lessons for CEOs from HealthCare.gov's bumpy start.

Is Big Data Ruining Sports?
29 comments
From sailing to the NBA -- big data could increase the gap between sporting haves and have-nots (while ruining the magic in the process).

More from Robert Plant

FLASH POLL

All Polls

DIGITAL AUDIO

Big Data Analytics Radio
Latest Archived Broadcast
Your Big Data Initiative Starts With a Great Team
The Big Data Conference and Nemertes Research have teamed up to provide expert advice on building a big data team and finding the right leader. Join us on Tuesday, Aug. 20.
Listen

Full schedule   Archived shows   Download to calendar

DATA VISUALIZATION SHOWCASE

Visualizing Sporting Value: Football Player Transfers
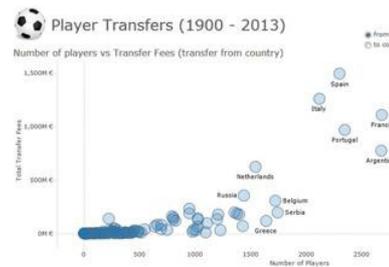
A great visualization of transfer fees leads us to think of deeper sporting analytics.
Explore this data here.

More Data Visualization Showcase

were expected to change the way medicine was practiced. Concerns were raised over the reliability of diagnosis, liability, efficacy, and ethics. These have not gone away, and until researchers conquer them, we should remember that oncologists go to medical school not just to gather data and learn rules, but also to become adaptive thinkers around each unique case. Big data systems like Watson are decision support systems -- just like GPS.

The next time someone ignores the human aspects of big data, be it in medicine, marketing, finance, or another domain, you may want to ask whoever is in charge, "Have you ever taken a London cab?" Remind that person that technology is great, but in some situations, there is no substitute for a human with the Knowledge.

Related posts:

- Ethical Data Collection: Please Have Your Boarding Card Ready
- Does Machine Learning Herald Judgement Day?
- The Recruiting Game Wades Deeper Into the Web

Email This   Print   Comment

COMMENTS

Newest First | Oldest First | Threaded View

PAGE 1 / 2 > >>

Qasim Bajwa, User Rank: Gigabyte Governor
9/3/2013 | 9:54:09 AM

Login

Re: We shouldn't forget Big Data is a tool
@netcrawl : Exactly, Big Data is like an extra helping hand, always surprising you with the results. And ofcourse, never can Big Data replace human analysis or the supremacy of the human brain.

50%   50%

As the blog states, There's a possibility that even support systems like Watson can choke.

Reply | Post Message | Edit/Delete | Messages List | Start a Board

Qasim Bajwa, User Rank: Gigabyte Governor
9/3/2013 | 9:50:07 AM

Login

Re: We shouldn't forget Big Data is a tool
@legalcio: That's a very good example you shared, it clears the wrong concept that dwells in people's mind about 'Big Data & Data Analysis'.

50%   50%

Big Data helps you see things from a new dimension. That's what i like to call it - it helps you connect the right dots at the right time for the right purpose.

Reply | Post Message | Edit/Delete | Messages List | Start a Board

Saul Sherry, User Rank: Blogger
9/2/2013 | 7:29:20 AM

Login

Re: We shouldn't forget Big Data is a tool
@a.saji not at all, it's taking the human's role from make a choice of 10'000 potential options down to 3 really good options - the meat is in the data, but the nuance is in the deicsion makers brain and experience.

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

dcawrey, User Rank: Exabyte Executive
8/30/2013 | 6:14:42 PM

Login

Re: We shouldn't forget Big Data is a tool
I remember long ago watching a documentary on television about what it takes to be a London taxi driver. And when comapring it to technological advancements, I did think that the Knowledge would not be beaten by GPS. That is because GPS is looking at things top-down. It's not looking at city elements the way that a knowledgable taxi driver can.

50%   50%

This is really great. One day I want to take a taxi in London to check this out. If only other places would do this to such great execution...

Reply | Post Message | Edit/Delete | Messages List | Start a Board

James M. Connolly, User Rank: Blogger
8/30/2013 | 10:22:18 AM

Login

The Human Big Data Machine
@Robert. This is a fun blog. One of the things that comes to mind is that the GPS vs cab driver test really highlights that the human brain is still a tremendous big data machine. Those drivers are processing data from dozens of different sources -- mostly on a subconscious basis -- as they go through their day. Those sources may be the knowledge that was handed down to them by their mentors, where they have seen traffic backed up, remembering where construction is happening, and -- very important -- their mental image of where streets connect.

50%   50%

The GPS test is comparable to the Jeopardy showdown with Watson. While Watson did well, it was devoting all its resources to answering a single question. Its human competitors had to process that same question while multitasking with all of the things that humans do without thinking. They likely were thinking about when to click in, looking at Alex or the audience (and processing what they saw), remember to breath, think about their scores, etc.

Let's not underestimate the big data processing power of the brain.

Reply | Post Message | Edit/Delete | Messages List | Start a Board

Pradeepta Mishra, User Rank: Exabyte Executive
8/30/2013 | 5:00:03 AM

Login

Man vs Machine
Big data is a broader concept involving many tools to solve the complex issues. The kind of problem it is trying to solve here has some association with GPS based signal processing system. The knowledge can be gained over a period of time with repeat travel however the GPS and Big Data algorithms can quickly learn the pattern and can provide the answer with reasonable accuracy. The accuracy can be improved upon time. I do agree that there is no comparison to the human knowledge so far as the accuracy is concerned but with a significant amount of time required to process the info.

50%   50%

BDR IN YOUR INBOX

Enter email   SUBMIT

▶ **FEATURED VIDEO**

Big Data Explained: What is a Data Mart?   18
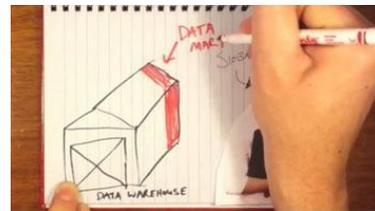
Use this video to explain quickly to someone the difference between a data warehouse and a data mart.
Watch This Video

More Video Blogs

FOLLOW US ON TWITTER

Big Data Republic@BigDataRepublic   15 Apr
AllJoyn: A Common Language For Internet Of Things - Open-source lingua franca aims to let IoT devices and services... ow.ly/2FHbY7
Retweeted by Yakamoto
Expand

Hajime Ozaki@hajozaki   22h
BDR Top 20 #BigData David Smith David Smith List of top tweeters on Big Data from @BigDataRepublic wp.me/p4Aavi-2
Show Summary

Marcus Borba@marcusborba   28 Apr
#BigData #Analytics #BusinessIntelligence #FS @informationweek @AllAnalytics @BigDataRepublic @BigDataNetwork @BigDataClub

LIKE US ON FACEBOOK

Big Data Republic   Like

4,168 people like Big Data Republic.

Facebook social plugin

ACCOLADES

Media Pioneer Award Winner

Reply | Post Message | Edit/Delete | Messages List | Start a Board

a.saji, User Rank: Megabyte Messenger
8/29/2013 | 11:09:30 PM

Re: We shouldn't forget Big Data is a tool
@James: Narrowing down the options ? Isnt it a drawback ? Its kind of limiting the options isn't it

Login

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

chris.had, User Rank: Bit Player
8/29/2013 | 5:55:46 AM

Re: We shouldn't forget Big Data is a tool
@Robert: Yes it sounds quite good but is it reliable ? I have my doubts on it.

Login

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

a.saji, User Rank: Megabyte Messenger
8/29/2013 | 12:51:01 AM

Re: We shouldn't forget Big Data is a tool
Im pro towards the technology advancements but I feel GPS is a bit more confusing sometimes especially when it comes for turns which have cross roads with small gaps. I don't think we can blame the system since   it happens mainly in overhead routes where you drive at a good rate of speed.

Login

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

netcrawl, User Rank: Petabyte Pathfinder
8/28/2013 | 9:07:24 PM

Re: We shouldn't forget Big Data is a tool
@legalcio I agree with you I think big data is trying to make things much better and easier, e-discovery is a good example @legalcio, with big data we can take tons of daat and managed to get result with greater accuracy. Big data will not replace human in some analysis works, it won't happen, big data will provide a leg up or a big boost and make the job much easier for us.

Login

50%   50%

Reply | Post Message | Edit/Delete | Messages List | Start a Board

PAGE 1 / 2   >   >>

BIG DATA REPUBLIC

ABOUT US | CONTACT US | HELP | REGISTER
TWITTER | FACEBOOK | LINKED IN | GOOGLE+ | RSS

in partnership with   InformationWeek   UBM Tech   powered by   UBM DEUSM