IBM's 'Jeopardy!' champ ventures to new worlds

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Watson demoed by IBM employees. Credit: Wikipedia

IBM Watson initially won fame as the artificially intelligent computer system that won $1 million for whipping former "Jeopardy!" champs Ken Jennings and Brad Rutter on the televised game show in 2011.

Since then, under the leadership of Mike Rhodin, Watson has morphed into a muscular big business with lots of tentacles and more than 2,000

employees.

In February, the Detroit Free Press interviewed Rhodin, the New York-based senior vice president of IBM Watson who was in Ann Arbor town to speak with two groups of University of Michigan business students and budding entrepreneurs.

Rhodin smiled when I asked the sci-fi question he hears often: When will machines turn on humans and take over the world?

"I haven't seen any technology that could lead to that outcome," he said.

So he's really not worried that Watson will soon have no use for Mike Rhodin?

"Watson doesn't have the ability to think on its own," Rhodin said. "What Watson does well is continually stay abreast of everything that's going on, so it can sort massive amounts of information." But humans still decide what to do with that information.

IBM launched the Watson Group commercially with a $1 billion investment early last year. From a research team of 100 people when IBM CEO Ginni Rometty asked Rhodin to run Watson full-time and take it to market, it has grown to more than 2,000 people around the world.

Watson is also the focus of a college class of its own, to be taught at 100 universities worldwide this fall. And while Watson eats neither meat nor vegetables, it's even a sous chef of sorts, partnering on an app called "Chef Watson with Bon Appetit" to help home cooks create entirely new recipes.

Rhodin's team has worked on how to task Watson - which processes

information like a human in some ways, understanding natural language and learning as it goes - with solving problems faced by industries from medicine to travel and banking.

He used medicine as an example. "There are 700,000 new documents published every year of medical research, new drug trials, clinical trials," he said. "How many do you think your doctor reads?"

An average doctor might read hundreds, he said, not hundreds of thousands. The doctor could certainly come up with a sound diagnosis more quickly and save more lives by having more knowledge. Having Watson is like a doctor having a colleague alongside who has read all 700,000 journal articles.

Watson "is really about: How do we actually manage the information to our advantage, so we can become better at things? The creativity and ingenuity of humans, when freed up from mundane repetitive tasks, has always led to new innovation, throughout history," Rhodin said.

"What we believe is happening right now," he added, "is that the amount of information being produced in the world is overrunning the ability of humans to consume it. When these kinds of things have happened in history, new tools emerge that help humans deal with scale, such as in the industrial revolution.

"I think as we look at knowledge-based professions today - health care, law, teaching - they're all being overrun with information. It's very difficult for people to keep up - and that leads inventors to come up with ways to help humans deal with that overload."

Rhodin, whose family moved around the U.S. and Canada during his childhood, joined IBM immediately after graduating with a computer science degree from Michigan, which his father had attended for a time

before joining the U.S. Navy. He has worked chiefly on the software side of IBM's business, but also had a stint running IBM operations in Germany, the United Kingdom and Scandinavia. He also serves on Michigan's Computer Science and Engineering National Advisory Board.

In the three years since the "Jeopardy!" match on TV, Watson is 24 times faster, smarter with a 2,400 percent improvement in performance and 90 percent smaller. IBM says it has shrunk Watson from the size of a master bedroom to the size of three stacked pizza boxes. Since its commercial launch a year ago, the Watson Group has collaborated with partners to build 6,000 apps.

How did a behemoth company like IBM grow Watson internally from an idea to compete in a TV game show, into a major commercial venture?

Rhodin acknowledged that large companies often stifle innovation, a phenomenon at the heart of "The Innovator's Dilemma," by Clayton Christensen, which Rhodin called "one of the most powerful business books ever written."

"What's important about the way we incubated Watson initially was that we isolated it. We gave them the freedom to operate as a startup; there really wasn't much marketing at first," Rhodin said.

"One of interesting things we decided was that as a big company, it's important to look in the mirror a lot and understand who you are. We're a B-to-B company. That's our strength, that's what we do, but we also recognized that this technology was going to have broad applicability across many markets and sectors. So we opened up on a cloud-based platform that enabled startups to start building their own applications.

"It's a very similar model to Silicon Valley startups. You can use Watson

for free to build your apps, and then when you commercialize, we get a percentage. We also created a dedicated standalone $100-million investment fund for startups in this cognitive space, to help further the cause and move technology forward."

Financially, it's hard to know what long-term impact Watson will have on IBM, whose stock price has dropped 20 percent since last summer amid a slump in overall revenue. Rhodin said IBM's analytics business, which includes Watson, has grown revenues from $10 billion to $16 billion in the past five years - but that's only about one-firth of total IBM revenue.

On the education front, the spark for turning Watson into a college course offering came during a Rhodin visit to Michigan last year, when a professor suggested the idea.

"One of our original 'Jeopardy!' team leaders was with me, and when we got on the plane back to New York, we were talking about it," Rhodin said. "By the time we got off the plane, we had actually designed the full-semester course on Watson, and then took to a number of universities later that month." IBM provides the system and mentors and runs a contest across all universities for the best Watson application. Michigan and Ohio State were among the first 10 universities on board, along with Stanford, Texas, California-Berkeley and Carnegie Mellon.

A Texas team won $100,00 in seed funding last month in the first IBM Watson contest, for working with the state to develop a new social services help-desk program based on Watson.

Couldn't Rhodin use his clout, I asked, to help out the team from his alma mater?

"I was excluded from the voting," he said, noting that many excellent

apps were entered, including a medical one from the Michigan team. "The judging committee actually decided that I was too vested in one particular school, and I was excluded from the judging of the event."

Overall, Rhodin said, he sees no reason why Michigan and other nearby states can't compete with the high-tech hubs on either coast in the fast-growing world of cognitive computing.

"Personally, I would love to see the Midwest emerge as a new entrepreneurial capital," he said. "The people that go to the top-notch universities here, they like living here. A lot of people leave for job opportunities, but there's no reason those job opportunities have to be in New England or Boston. I'd like to see Watson be instigators in more startups in the Michigan area."

IBM'S RECORD IN BIG GAMES

IBM has pitted its computers against two high-profile contests in two thinking games: chess and the TV game show "Jeopardy!" Here's what happened.

Feb. 10, 1996: IBM's Deep Blue became the first machine to win a game against a reigning world chess champion.

Feb. 17, 1996: Kasparov won the weeklong match by a score of 4-2, winning three matches and drawing two after the opening loss.

May 11, 1997: After an upgrade by IBM, Deep Blue won a six-game rematch 3{?2{. Kasparov accused IBM of cheating and wanted a rematch, but IBM declined and retired Deep Blue.

Jan. 13, 2011: In a practice match before two televised episodes of the question-answering game show "Jeopardy!," IBM Watson - named after

IBM's first CEO Thomas Watson - won a 15-question round against Ken Jennings, the all-time winningest "Jeopardy!" champ, and former champ Brad Rutter. Score was $4,400 for Watson, $3,400 for Jennings and $1,200 for Rutter.

Jan. 14, 2011: Two official matches were recorded for TV and broadcast a month later. Watson won both handily, and IBM won the top prize of $1 million, Jennings took second prize of $300,000 and Rutter third, with $200,000. All prize money was donated to charities.

WHAT IS WATSON?

-Named after IBM founder Thomas Watson, IBM Watson was developed in the company's IBM's Research labs. Watson uses natural language processing and analytics, more akin to how people think.

-Watson can answer complex questions posed in natural language with speed, accuracy and confidence.

-Watson generates hypotheses based on evidence and learns as it goes.

-Watson gets smarter in three ways: It's taught by users, learns from prior interactions and learns by being presented with new information.

-Watson took down two "Jeopardy!" champions in 2011 in a 15-question match. Sine then, Watson has become 24 times faster and smarter, with a 2,400 percent improvement in performance.

-Watson is also 90 percent smaller, shrinking from the size of a master bedroom to the size of three stacked pizza boxes.

-Since its commercial launch a year ago, the Watson Group has collaborated with partners to build 6,000 apps.