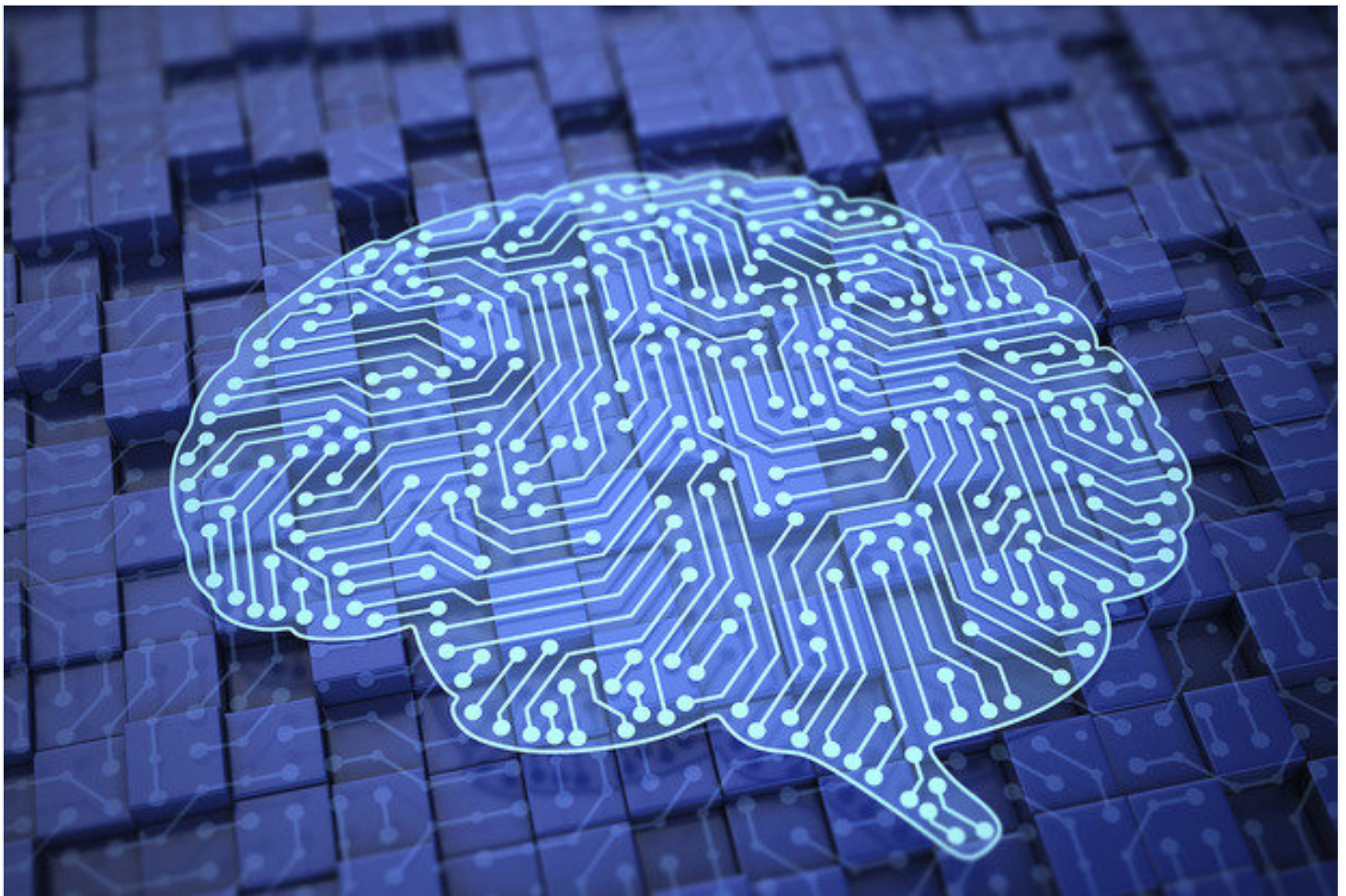


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pretty far along in their use of AI. Getting products that apply to small and medium businesses are more of a challenge, but we see efforts at Intuit, Xero, BQE Core, ...

Randy Johnston • May. 22, 2018



[In his [column last month \(May 2018\)](#), Randy explored the “Why and How of Artificial Intelligence,” with a focus on the positives and negatives of AI for accounting firms and professionals.]

From the June 2018 Issue.

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So how do Artificial Intelligence approaches work? They use:

- Cybernetics and brain stimulation – connection to neurology .
- Traditional symbolic AI – [John Haugeland](#) named these approaches to AI “good old fashioned AI” or “[GOFAI](#)“ exploring the possibility that human intelligence could be reduced to symbol manipulation.
- Cognitive simulation – Economist [Herbert Simon](#) and [Allen Newell](#) studied human problem-solving skills from psychological experiments resulting in the Soar architecture in the 1980's.
- Logic-based – [John McCarthy](#) in his laboratory at [Stanford](#) ([SAIL](#)) used formal logic and led to the Prolog language and the science of logic programming.
- Anti-logic or scruffy – [Marvin Minsky](#) and [Seymour Papert](#) found that solving difficult problems in [vision](#) and [natural language processing](#) required ad-hoc solutions.
- Knowledge-based – led to the development in the 1970's of [expert systems](#), introduced by [Edward Feigenbaum](#) of Stanford.
- Sub-symbolic – when traditional symbolic AI stalled in the 1980's unable to solve problems in [perception](#), [robotics](#), [learning](#) and [pattern recognition](#), researchers tried to not encode knowledge.
- Embodied intelligence – Researchers of [robotics](#), such as [Rodney Brooks](#), reintroduced the use of [control theory](#) and [embodied mind](#).
- Computational intelligence – [neural networks](#) and “[connectionism](#)” was revived by [David Rumelhart](#) leading to [soft computing](#) approaches including [fuzzy systems](#), [evolutionary computation](#) and statistical tools.
- Statistical methods – sophisticated mathematical tools to solve specific subproblems that are truly [scientific](#), in the sense that their results are both measurable and verifiable.

- Intelligent agent – a system that perceives its environment and takes actions

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sentiment analysis.

- Auditing – Mindbridge.
- Financial services – Kasisto, Moneystream.
- Sales – Salesforce PredictionIO.
- Self-writing applications – [Crane.ai](#).

We see a number of products that are running crude AI today and vendors that are pretty far along in their use of AI. Getting products that apply to small and medium businesses are more of a challenge, but we see efforts at Intuit, Xero, BQE Core, Citrix ShareFile, Thomson, CCH and most other products that apply to the CPA profession and to small and medium businesses.

As development continues and Artificial Intelligence transitions from an emerging technology to a mainstream technology, vendors will choose from many open source and proprietary suites that have Artificial Intelligence capabilities or they will develop their own algorithms inside their products. Examples today include:

- [Ayasdi](#)
- [Azure Machine Learning Studio](#)
- [Cloud Machine from Oracle](#)
- [Crane](#)
- [Cyc](#)
- [Deeplearning4j](#)
- [Playment](#)
- [TensorFlow](#)
- [Theano](#)
- [Torch](#)
- A list of 15 tools which includes comments and some of the above can be found [here](#)
- Another good list of AI tools can be found [here](#)

The best example of tools for accounting that are working

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Here's a summary of what you need to know about Artificial Intelligence:

Key Information	TECHNOLOGY: Artificial Intelligence
Why is the new technology better?	It is a method of data analysis that automates analytical model building
How can you do this today?	AWS , Azure , Google Cloud AI , IBM Watson , SAS
Risks	Wrong data set, conclusion unguided
Where/when to use	When data can answer a specific question
How much?	Can be up to \$10K per hour, or free on open source
When expected in mainstream	Simple AI now, fake AI common in current promotions, usable AI 4-6 years

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accurate? Can the applications make new conclusions without additional programming? If so, they may truly be AI?

Just like Machine Learning (covered in an earlier article in this series), what you are trying to filter out is products based on rules, forms or pattern recognition that is programmed to recognize each specific form/task and make a decision based on recognizing the form or task. You want the system to accept inputs of all kinds, recognize new data, learn about the data, and make conclusions that provide insight. Like the human race, it is hard to predict where AI will take the capabilities of machines and computers. As many of you have heard me say before, computing can be used for good or bad. I tend to look at the bright side of life as we are reminded by Monty Python [here](#).

Accounting • Artificial Intelligence • Technology

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