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GENERAL

Artificial Intelligence & Nonprofits: A Primer

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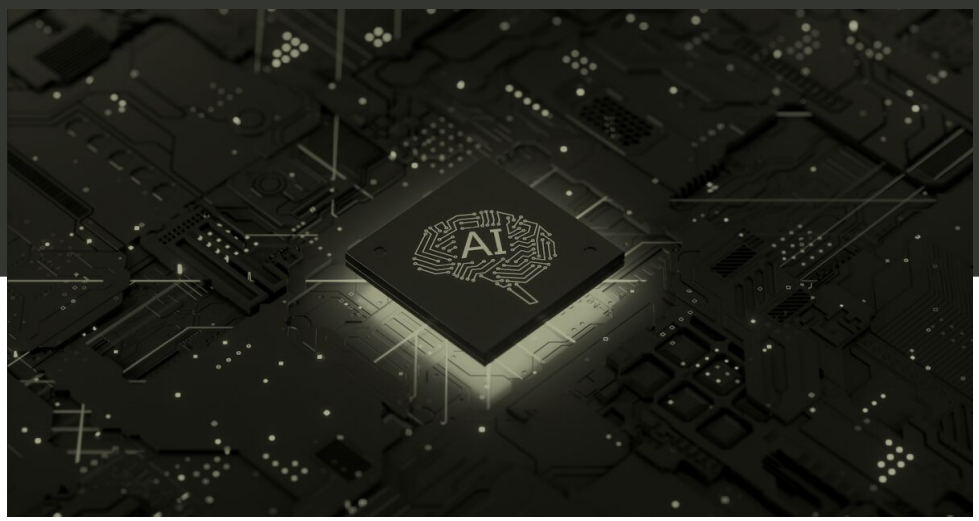

Most people expect to understand and be comfortable with Artificial Intelligence (AI) about as soon as they conquer – say – ancient Sanskrit.

It's one more weird technology thing, many fear: a science fiction nightmare that will take over our lives or – worse still – replace us altogether. It's tough to work up enthusiasm for, much less welcome, a scary new storm cloud like that rolling in from the horizon.

But AI is neither new nor likely to render humans obsolete.

What is Artificial Intelligence?

Although we've been hearing a lot about Artificial Intelligence only recently, technology nerds have been studying and developing its potential applications for over six decades. There were repeated " cycles of wild prediction and enthusiasm" followed by disillusionment when results were a dud. But we now seem to be in a period of (likely sustained) popularity.

So what changed?

What makes AI possible at all is computing power with "vast networks and memories"; in recent years, computer technology has advanced dramatically and costs have tumbled, and the pace of progress is rapidly accelerating. What the brilliant experts could only dream about earlier is now possible because the technology has caught up with their ideas.

And why won't people be pushed aside by computers? Artificial Intelligence is different from human intelligence; it doesn't work by "mimicking the complexity of the human brain" which it can never achieve. AI's purpose and success comes from using the unique tools of computers, namely, "huge memory capabilities and calculating power" that are far greater than the human brain can ever achieve.

Artificial Intelligence is "simply creating computer software that can accomplish tasks (at least with some level of competence and usefulness) that seem to require intelligence in humans." These tasks include, for instance, "communicating in everyday "natural" language, solving problems, recognizing images and patterns, learning new skills, and making decisions and plans." But AI systems lack the "context" that humans have: that is, "knowledge that human beings readily bring to bear that stems from our 'simply' living in the world with our wealth of impulses and experiences." So computers are incapable of "understanding humor, exhibiting basic 'common sense,' and working with ambiguity…."

The role of computers in AI applications, "as idiot savants," can be illustrated by an example. "A computer program may beat the world's best chess player, master the game of Go, play Jeopardy, or cite quotations from a library a million times larger than the works of Shakespeare. But that same program will be unable to perform even the most basic human task, like understanding the point of a story you would tell your 3-year-old child."

The reason Deep Blue bested Gary Kasparov in a chess match is not that the supercomputer became a "better player"; instead the machine successfully searched "billions of possible moves."

How Nonprofits Use Artificial Intelligence

AI use "still has a long way to go to make it into the mainstream for nonprofits, according to a new survey discussed in The Nonprofit Times on July 22, 2019. Of the survey respondents, only about 42% say they are "researching AI" but just 28% report that "AI is either deployed, in the implementation phase, or experimental."

Despite AI still being in its "infancy" in the nonprofit sector, there is already such a breathtaking range and scope of Artificial Intelligence applications in use that it's tough to cubbyhole them in neat little categories especially for an introductory post like this.

Computer scientist, Lisa Rau, Ph.D., explains it in her article (cited extensively throughout this post) noting "there are a wide variety of nonprofit organizational tasks that AI can help to solve, especially for any organization either with lots of data that is handled repetitively or that requires "significant analysis across many pieces of data."

For instance, "any nonprofit where people analyze images" can benefit from the rapid advances in image-processing technology. Examples include "the analysis of aerial images to calculate deforestation, coastal erosion, pollution emitted from smokestacks, bleaching of the coastal reefs or glacial melting." She also points out that facial-recognition technology can help analyze a mountain of digital photos taken at a gala to tag them individual attendees.

Another example applies to a nonprofit that has its staff try to large amounts of free text "routinely stored and used in decision making, reporting or analysis." That organization can benefit from natural-language processing technology which is developing rapidly.

An additional valuable use of AI involves "predictive analytics" tools that use "machine learning" to analyze "a set of legacy data" to "discover what factors in the legacy data can predict other pieces of data." For instance, it can help with questions like: "Which donor is most likely to give a gift of

over $1,000? Which students are most likely to drop out of school? What program design is most likely to achieve the desired outcomes? Which volunteer will be most successful to lead an advocacy initiative? What actions are most likely to increase constituent engagement?"

Dr. Rau particularly likes AI for use in "decision-making" because "humans are notoriously bad decision makers, afflicted with over 100 different kinds of cognitive biases. She cautions, though, that while "computers are excellent at making decisions based on data," certain biases can be programmed in if the human beings – "still the 'brains' of the operation – aren't careful.

Allyson Kapin, of digital agency Rad Campaign, presents the enormous possibilities of AI for nonprofits through the prism of four categories: Field work, Fundraising, Understanding campaign content gaps, and Leveraging data from personal stories.

For instance, in the field-work category, Ms. Kapin points to the Rainforest Connection's use of Google's TensorFlow to help in its "mission to protect forests from illegal logging." This AI application can "detect illegal logging in vulnerable forest areas by analyzing audio-sensor data." With this information, the organization is creating a large dataset that "lets scientists compare month over month, year over year changes to our planet's most endangered ecosystems" for use in policymaking and allocation of resources, and in Rainforest Connection's project to reintroduce species into reserves.

In the fundraising category, she cites the example of the nonprofit Charity: Water using the AI tool, Persado, to "understand understand which content and images on Facebook would generate more recurring donors for its monthly program called The Spring. After seeing the data, Charity: Water was able to act on the data and experienced a 32% increase in donation conversions."

There May Be New Jobs

In *The charity jobs that could soon be enhanced by AI*, Chloe Green (who writes for the UK's Charity Digital) addresses the "…fair amount of scare-mongering around Artificial Intelligence and the future of employment" including predictions that AI "could take over 40% of jobs by 2035."

She asserts that "a lot of this is a misconception at best, or simply overblown. Instead, "for charities, it means there is a huge opportunity to augment their operations with efficiency-driving tools that will leave humans to focus on the things they're best at: coming up with new ideas and carrying out the core work that will drive their missions and impact more lives."

Ms. Green gives intriguing examples and then refers readers to the (somewhat tongue-in-cheek) late-2017 blog post by Rhodri Davies: *Charity 2037: 13 Jobs We Might All Be Doing In 20 Years' Time*. There, Mr. Davies suggests that our reactions to the AI revolution – especially in terms of the employment prospects for charity workers in the future – should land somewhere in the middle of the spectrum of opinion from "this is all sci-fi nonsense" to "I for one welcome our new robot overlords."

Conclusion

This introductory post is just the tip of the iceberg in any dive into the vast depths of information about Artificial Intelligence. While we develop future posts on the topic, may we suggest that you take a peek at Beth Kantor's recent post, *Artificial Intelligence for Good: A Few Good Articles To Read*. Take a peek also at another article by the prolific Rhodri Davies from 2018, , *Where are the charities in the great AI debate?*

— Linda J. Rosenthal, J.D., FPLG Information & Research Director