ETHICS BY DESIGN

Bias in artificial intelligence has its origins in human assumption rather than computer code, argues Dr Rumman Chowdhury, Global Lead for Responsible AI at Accenture

The worst thing that happened to AI was to call it artificial intelligence. So argues Dr Rumman Chowdhury, whose job at Accenture is working with the C-suite at top companies to make sure AI is ethical, explainable and transparent.

To think of AI as artificial intelligence is to perhaps give the technology more humanity than it deserves. "We use these very human words; we call it computer vision as if it [technology] can see. It doesn't. Algorithms don't see," Chowdhury says. By using phrases such as 'computer vision' to describe how systems interpret and understand the real world, we anthropomorphize, ascribing human attributes to a technology that is, as the 'artificial' part of the moniker suggests, a sophisticated mimic of our own capabilities.

"[Today, what we call] AI is an evolution of traditional analytics, which now includes prescriptive and predictive technologies," explains Chowdhury, who is a practicing data scientist with a background in quantitative data science, as well as a degree from Massachusetts Institute of Technology (MIT). "What that means is that we have evolved beyond a world of retrospectively looking at purchase behavior or quarterly results. Instead, we are using models that can predict behavior with some degree of uncertainty."

These models are applied to more than potential human behavior; indeed, AI is at work in nearly every industry – optimizing supply chains, providing predictive maintenance alerts in manufacturing, assisting with drug discovery and enhancing customer support. However, they do not operate in a vacuum. They are created by humans, trained on human-curated data, and may reflect some of the societal biases of the world we live in, without the self-awareness, intelligence and tools to recognize these flaws on their own, as humans might.

The drive to use AI as a tool for good, and acknowledge the human responsibility in designing and deploying these systems, goes to the heart of Chowdhury's role at Accenture. While an algorithm is simply maths translated into code, unconscious bias can creep in.

MITIGATING AGAINST BIAS

For data scientists, bias is structured, it exists in the data, is often quantifiable and therefore treatable. However, even with perfect data, Chowdhury argues that we still have to consider the societal bias reflected in the information we collect. People may have assumptions that we, as individuals or a society, consider to be unfair and incorrect. However, we still act on those biases, consciously or unconsciously, with those actions then reflected in our data.

To that end, in 2018 Chowdhury spearheaded the launch of Accenture's Fairness Tool, designed to detect and mitigate bias in AI models. Recognizing and addressing these issues is a

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RÉSUMÉ: DR RUMMAN CHOWDHURY

2017 Appointed Senior Principal, Global Lead for Responsible AI, Accenture

2017 Named as one of the BBC's top 100 Women

2017 Awarded PhD in Political Science from University of California, San Diego

2016 Senior Data Scientist, Metis

2015 Wins Strata/Hadoop Data Impact Award

2014 Worked as an analytics scientist and a manager of data science at Quotient Technologies, CA

2006 MS in Quantitative Methods of the Social Sciences, Columbia University, NY

2003 BS in Political Science, and BS in Management Science, Massachusetts Institute of Technology (MIT)

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critical step, Chowdhury notes, but bias mitigation goes hand-in-hand with creating a responsible framework for how AI systems are developed, implemented and governed.

"Systems of governance exist to help us ensure we are building thoughtfully and responsibly," she says. "Is the data powering our models being used in support of the purpose for which it was collected? Were we transparent in how it would be used? What are the systems of redress in place should the model not perform as expected, or lead to potentially harmful unintended consequences?" Thinking through and codifying governance structures for a variety of organizations is a key focus of the work Chowdhury does with clients.

Addressing societal bias is harder, but can be done if we "embrace diversity in all its forms", according to Chowdhury. "These systems don't just exist in a bubble. They exist as part of a system of human beings and AIs interacting with each other. Identifying flaws in your implementation or your data requires a diverse perspective."

Chowdhury makes that point that this type of bias is mostly unintentional. "People aren't maliciously trying to make bad things. They're coming in with the best of intentions. Their blind spots are what may lead to unintended consequences, so part of the work we do with clients is to help illuminate and anticipate those blind spots."

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EMBRACING DIVERSITY

The key to eliminating bias is to recognize that it exists, and to work with diverse communities while creating algorithmic models and implementing AI.

"What it boils down to is addressing these problems, or potential problems, with impacted communities. So thinking through who this AI might touch, followed by its impact, and how you incorporate a community's voice into what you're building," says Chowdhury. "The answer here is user-driven design development. Much of what technical teams are grappling with is how to get these voices in the room."

Chowdhury emphasizes that while the technology is new, the questions we ask – about inclusion, fairness, systemic bias – are not. "We've asked many of these questions before, but AI asks us to examine them slightly differently. Rather

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DR RUMMAN CHOWDHURY, ACCENTURE

than 'explainability', I push for 'understandability', which encompasses the decisions made by the algorithm but, importantly, explains clearly to an individual why the AI made them."

Understandability goes hand-in-hand with agency, which is the ability to take action if there is a problem with the algorithmic output of the AI technology. This is where good governance comes in, with the ability to address and redress problems a critical component.

CULTURAL CHANGES

Business is waking up to the notion of understanding bias in AI. Chowdhury has been working with a traditional bricks-and-mortar business that has a family-friendly reputation. The business had acquired an AI startup and was concerned about how the acquisition might impact the larger organization.

"They are a hundred-year-old company, not very technical, and were trying to merge their culture with that of a small, scrappy, pure analytics AI startup. Leadership was worried about how using AI might impact their reputation or their brand. So we worked with their general counsel to think through their principles of the ethical use of data and ethical use of AI technologies," says Chowdhury. "They hired us to broker a merger of cultures."

This cultural element is fundamental to Chowdhury's work and career. "To serve humanity, we don't just need people who know how to program and code; we need people who can unpack the complexity of the human condition."

It is this ability to find patterns in the world and to "right patterns of human behavior" that attracted Chowdhury to the field of data science. She discovered the importance of ethics working in Silicon Valley and explains that some companies

TRUST IN AI

In a bid to dispel concerns regarding AI as an existential threat that will see machines rising up to destroy their masters, Thales revealed an approach at the 2019 Paris Air Show that places humans at the center of any AI initiative. Called 'TrUE AI', the approach embraces Transparent AI, where users can see the data used to arrive at a conclusion; Understandable AI, that can explain and justify the results; and an Ethical AI, that follows objective standards protocols, laws, and human rights.

clearly thought the role of technology was to fix people. "There are a lot of problems with how technology gets used. It's more important to think of these technologies as serving people. How we build it should wrap around what humanity needs."

Conversely, studying at MIT taught Chowdhury to ask questions. "[MIT] sparks an independent growth spirit. It teaches you how to ask questions and how to interrogate intelligently. I appreciated a culture where a lot of brilliant people were approaching problems in novel and unique ways."

IMAGINED WORLD

Recently, Chowdhury has found inspiration in literature, having discovered the science fiction writings of Roquia Sakhawat Hossain, a feminist author who – like Chowdhury – had Bangladeshi roots. "Just yesterday, I found out that the first female scholar to ever talk about a feminist sci-fi future was this woman who is from where my family is from," she says. "[Hossain] wrote this imagined future of a world in which technology is used for empowerment and knowledge and not for personal gain."

It sounds like a utopian dream. However, with the right team in place at Accenture, Chowdhury believes it is possible. "I once asked somebody why we are so willing to spend billions of dollars on this notion of colonizing Mars, but we're not willing to spend that money on making sure the entire world is educated or making sure everybody has clean water or enough food to eat. Many of these things can be mediated by technology." ■

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