

Executive Insights: An Interview with Brian Goehring, Associate Partner, AI Research Lead at the IBM Institute for Business Value

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Abstract

I interviewed Brian Goehring, Associate Partner, AI Research Lead at IBM Institute for Business Value. Artificial Intelligence (AI) has become all pervasive especially in the digital aspect of our lives. Mr. Goehring discusses the various phrases and terms used to describe AI. He also touches upon the ethical issues and concerns about the impact on jobs that may be brought about by AI. Finally, he also gives advice on how to prepare future students and the workforce while also discussing what an AI program should look like in small and large organizations.

Mr. Goehring, you are Associate Partner, AI Research Lead at the IBM Institute for Business Value. Can you tell us what the IBM Institute for Value does and what is your role as AI Research Lead?

I work at IBM as the AI Research Lead with the Institute for Business Value, which collaborates with industry professionals, leading-edge clients, academics, and a wide range of IBM consultants and subject matter experts around the world. We use data-driven research and expert analysis to deliver insights to business leaders about emerging trends, opportunities and challenges. Our thought leadership reports offer prescriptive recommendations to address the most pressing industry and marketplace challenges and opportunities that will determine future organizational success.

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Many tend to use AI, Machine Learning, and Data Analytics interchangeably. Can you explain the differences among these terms?

If you talk with dozen different experts about the definition of AI, you might get at least twenty different answers. Essentially, AI is a broad category term for technology that enables machines to learn and act from data and improve over time. Machine Learning (ML) is a subset of AI that learns independently to perform an assigned task with increasingly greater accuracy as it digests more and more data over time. Deep Learning is particular ML technique that leverages neural networks and has fostered many of the AI advancements over the past decade. And data analytics is a foundational capability along the journey to AI, from descriptive to predictive to prescriptive analytics as a company's relative AI maturity increases.

In IBM research reports "Cognitive Enterprise" is used often. What is Cognitive Enterprise?

The Cognitive Enterprise is a vision for the future of organizations – especially large, global, and rather complex ones. Exponential technologies like AI, automation, IoT, blockchain, and even more innovative ones are applied at scale to create market-making business platforms, transform core processes into intelligent workflows, and reimagine the way we all work. For example, if we zoom in on intelligent workflows – by using AI in supply chain processes, organizations can turn unstructured real-time data into insights that help predict disruptions and vulnerabilities. It can support rapid scenario planning, unlocking hidden insights that augment the supply chain planner's ability to quickly determine the best course of action. Blockchain technologies can trace the provenance of goods throughout supply chains, even across an end-to-end lifecycle that involves hundreds and hundreds of organizations along the way.

What are some of the common themes or concerns you come across industries that your clients are associated with?

The value of AI is a core issue and a research theme in our work. Across industries, businesses are asking how AI can help solve business problems and make their mission-critical processes more intelligent: for example, AI-driven virtual assistants to improve customer experience, applying AI to transform recruiting, AI-enabled risk management to model business risk or credit risk, and so on.

Our research shows how these applications drive business value such as topline revenue, customer satisfaction or employee satisfaction, and how AI augments people and processes to do their jobs better and more effectively. To achieve these benefits, companies have to think holistically and use AI in areas to develop and augment people's skill sets.

In general, some companies have thrown together AI engineers and data scientists and hoped that would result in effective use of AI, but it needs to be more thoughtful and needs to be integrated throughout the organization. When you can connect data and processes within and across functions and the enterprise with AI-driven intelligent workflows, you can drive even more value. Imagine having more complete visibility across your supply chain, no matter what stage in the process, so you can make fewer decisions based on historical data, and take more actions with predictive, real-time insights.

What should an organization looking to get started with the use of AI should do? When they contact you (IBM)--what do you suggest they do?

Most businesses working to integrate AI and automation into their workflows will tell you the technologies aren't silver bullets. We see too many companies that try to implement AI and automation projects without a clear strategy in place. Sadly, their endeavors often fall short because they don't clearly define their purpose, they set overly ambitious goals, or they deploy before they're able to deliver value. Too many data and AI projects fail because their creators rush into the technical implementation of solutions without first clearly defining what real-world problems they are trying to solve and what success looks like for their business.

But there is no single answer to addressing these issues; it depends on the organization itself. Our experts often use Design Thinking approaches to work *with* clients to help them decide where to start based on their business challenges or opportunities – going quickly from Minimum Viable Products (MVPs) to operating at scale – and build their broader AI capability alongside the use of case implementations.

What is your advice for small businesses who want to take advantage of AI? How should they approach AI?

There are few different ways to approach this. Small and medium size businesses have not actively embraced AI compared to large business enterprises, because there is a certain degree of scale needed to create value. To realize value, one needs to justify the investment not necessarily in terms of dollars, but in terms of investment in management focus and attention,

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organizational resources, etc. Many smaller and medium sized firms are looking to larger enterprises to see how everything works and what the lessons learned are before these smaller firms adopt AI more fully.

To clarify, AI is not like a software package that one can plug-in and start using?

That is correct. AI is not an off the shelf software package – although there are data- and AI-related software accelerators that can help. Rather, it is set of techniques, skills, and capabilities. From an algorithmic point of view, it is a continuum from mining the data, to analytics, to advanced analytics, and then on to dynamic approaches to learning. What we want AI to do is not just to automate a process, not just do it faster, better, or cheaper, but rather to learn from data and help create better experiences in a virtuous circle. It is similar to someone joining an organization not simply to do what they are instructed to do initially but rather someone who can learn from experiences and interactions, so that they can engage more effectively with a customer, with a business partner, with another employee, or others. This is the premise of AI--that is, bringing out intelligence and learning across an organization.

In one of the reports that you and your colleagues prepared, you mention that while the Board of Directors generally see AI ethics as a significant issue and area of corporate oversight responsibility, whereas CEOs don't have the same level concern for AI ethics. Why the different level of concerns between the two?

Businesses sometimes think of AI more of as a technical issue, and that may be a possible reason for the disconnect. In the end, trustworthy AI is about having a holistic approach to AI governance that brings together tools, solutions, practices, and people to govern AI responsibly across its lifecycle. Trusted AI outcomes are achieved through the use of governed data and AI technologies within an open and diverse ecosystem rooted in ethical principles. We certainly hope that CEO disconnect has changed somewhat since the surveys were done around the turn of 2018-2019.

Amazon had AI powered recruiting engine that appeared to be inclined against selecting women for certain jobs, and in criminal area AI tends to associate African Americans more disproportionately with crimes. What can be done about removing xenophobia, misogyny and other biases that are associated with AI?

These are societal challenges that we all need to address. This is an area where one entity cannot approach a solution unilaterally. It has to be a multi-stakeholder, multi-organizational approach to tackling fundamental ethical issues that society needs to come to terms with. In some ways, AI is another catalyst, amplifying these issues that are part of the ongoing societal dialogue.

When we think about biases, algorithmic bias is certainly a factor that needs to be addressed, incorporated, examined, and scrutinized. Data bias is much more pervasive. Human biases are usually based on experience and the “data” that they have and that they bring to specific situations in front of them. Predictions that are made based on biased data that has not been adjusted in appropriate ways are going to yield biased predictions because they are not scrutinized in proper ways. We have to keep in mind that it is not only about the engineers who write the algorithms but making sure that the data is structured in an appropriate way to mitigate the biases that are often inherent to them.

Looking at this issue in a positive light, AI can be used to debug some of our own human biases. So, when someone is deciding to hire someone, or to evaluate or approve credit application and anything like that, they are bringing their own experiences regardless of any technology involved at all. We should think of the human brain as its own black boxes with its own set of biases. If anything, AI has the opportunity to lay out what we are taking as inputs and looking at how we are evaluating and generating decisions and outputs. We as society or as an organization can look at and examine and test to see whether they align with our values. That’s often called value alignment, especially in academic circles. We can have robust debates and conversations to make sure that we mitigate and minimize those biases and ensure AI is achieving goals that align with our human values.

One major concern about AI is that as it becomes more pervasive, it will lead to significant job losses, and increase inequity between workers unfamiliar with or not trained in AI, and workers proficient in AI. Essentially, AI will hollow out the middle class. What are your thoughts on this?

Any new technology has always impacted jobs. For example, when ATMs were introduced in banking, it brought down costs in transacting with the company and increased the number of branches that a bank could profitably operate. It didn’t reduce the number of bank tellers, as many had feared; it actually increased them. So yes, AI will impact many jobs, but not necessarily by eliminating them, but rather shifting and changing them. The question

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many companies are confronting now is how best to support reskilling, retraining, redeploying employees for higher-value work.

Where do you see the adoption of AI growing?

We see continued growth in developed economies and large to medium sized organizations – and eventually as the technology continues to mature, in less developed economies and smaller organizations. Natural language processing (NLP) is at the forefront of recent adoption: almost half of businesses today are now using applications powered by NLP, and many businesses plan to begin using NLP technology over the next year.

What is the future of AI, where is the science of AI headed?

Organizations whose core business is AI are thinking about the future of AI, while others are waiting to see what happens. For example, there are discussions regarding Deep Learning and what kinds of limitations there are in terms of what it can do in an enterprise or business or societal setting. Deep Learning algorithms often demand mountains of data and huge processing power, huge costs, and sometimes a huge carbon footprint. There are also discussions about AI learning more as humans do—often called Neuro-Symbolic AI—such as when children can simply recognize something by looking at a thing and abstracting from conceptual understanding, not just direct prior experience. It would be good to see whether we can inject conceptual learning into more of AI, which might be a way of improving the ways machines learn.

A Business Insider article noted that quality of education in the U.S. is deteriorating. The article states that U.S. ranked 38th out of 71 countries in mathematics, and 24th out of 71 countries in science at the elementary and high school level. How can AI help in improving math and science aptitude of these students?

We as a society need to decide how important some of the technical skills such as STEM or STEAM are in the secondary education system. We should also foster and encourage a wide variety of paths that interest students. Of course, STEM curriculum is an essential part, and every student should have access to it, as that will play a meaningful role in many jobs in future.

For college undergraduates and especially those in business programs, what kind of courses do you recommend and what type of skills is the industry looking for students who want to work or research in this area?

We should certainly embed ethics in the undergraduate and graduate courses for technical fields like AI and data science. Business graduates should also have appropriate levels of understanding and know what it takes to address ethics in AI, including some of the technical issues.

I'd also point out that some of the technology industry's faster growing fields - from cybersecurity and cloud computing to data science and digital design - do not always require a traditional degree, but rather the right mix of in-demand skills. At IBM we refer to those as "new collar" jobs, and we believe shifting to a "skills as currency" mindset can expand the talent pool to candidates with more diverse experiences. Currently, nearly half of IBM's job openings in the U.S. do not require a 4-year degree, and we have invested hundreds of millions of dollars in programs to help people gain skills for a new era of technology.

What role do you see for AI in Management?

It's important for leaders at all levels to understand how AI is transforming their industry or domain and the value that it provides to improve processes and decision-making. It's also important to recognize the new kinds of skills and ways of working that will be needed to fully realize that value – and managers have an important role to play in attracting and fostering the right talent to execute on that vision.

Executive's Bio

Brian Goehring is an Associate Partner and the AI Lead for the IBM Institute for Business Value, where he brings over 20 years' experience in strategy consulting with senior-level clients across most industries and business functions. He received an A.B. in Philosophy from Princeton University with certificates in Cognitive Studies and German.

Interviewer

Amod Choudhary is an associate professor at the Department of Economics and Business at Lehman College of the City University of New York (CUNY). He has taught courses in Strategic Management, Seminar in Strategic Management, Principles of Finance, Principles of Management and Introduction to Micro and Macroeconomics. His research interest and publications are in: gender in management, entrepreneurship, and corporate governance. At present, he is

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fascinated by the potential use and implications of artificial intelligence's role in strategic management. He is member of Lehman College Executive Committee of the General faculty and the Undergraduate Curriculum Committee. He is also a member of Academy of Management's Strategic Management and Gender and Diversity in Organizations divisions. Prior to joining Lehman College, Professor Choudhary worked as a corporate lawyer for international law firm Clifford Chance, and other law firms. Prior to his legal career, he was as an engineer for the US Army Armament Research, Development and Engineering Center, Picatinny Arsenal, NJ. email: amod.choudhary@lehman.cuny.edu
