



# Reflections on AI

Q&A with  
Aditya Johri

---

***“We need a much higher level of governance and some regulatory impetus when it comes to AI ethics.”***

---

The TUM IEAI had the pleasure of speaking with Prof. Aditya Johri, Professor of Engineering in Education at George Mason University. Dr. Johri studies the use of information and communication technologies (ICT) for learning and knowledge sharing, with a focus on cognition in informal environments.

---

## **1. What is the biggest misconception about Artificial Intelligence?**

I think the biggest misconception about AI is that AI is this one “thing”, a single entity, although in reality it has different meanings for different people or communities. It is a dynamic concept and its meaning keeps changing with time. In its early incarnations for a lot of people working on AI, its strength came from being able to approximate or mimic human intelligence—whereas now there is a large component of AI that is about being able to do what humans cannot do well. The misconception about AI arises largely from the symbolic meaning it has inherited from popular culture, especially science fiction. One way to overcome that limited view of AI is that it is important to think of AI as AI-based systems that augment a range of human and machine functions or activities. From auto-correcting my grammar while I type to adjusting the brightness of my face while I record a video – AI-driven techniques are everywhere.

## **2. What is the most important question in AI ethics right now?**

I think the most important question right now in relation to AI ethics is “what are we talking about when we talk about AI ethics”. Similar to the use of the term AI, AI ethics itself means different things to different stakeholders and I do not believe that there is a consensus on what AI ethics actually is or isn’t. For me, the most important, or maybe the most interesting, question is what is the efficacy of so many efforts that are currently underway to come up with ethical frameworks and guidelines? Can personal moral responsibility or technical solution in terms of programming ethical or moral reasoning within a system be an effective path towards ethical AI? In reality, we need much higher level of governance and some regulatory impetus when it comes to AI ethics. This is a double-edged sword as limits to what people and companies can do might limit innovation but the time for some form of regulation is now, otherwise AI-based technologies will be embedded into so many systems already that it would be hard to control or regulate them post-hoc.

## **3. Can AI change our moral values or ethical decision-making?**

This is a complex and complicated question. One interpretation of this question is whether the use of AI will overtime change our moral values or what

we consider to be ethical or not. The chances are that it will. Societal and communal values, or even institutional values, things that actually matter are always in flux. Ideas we would have considered as morally reprehensible or ethically dubious a few decades ago do not seem to us to be so now, for instance, reproductive rights. Especially in healthcare and medicine many of the advances that are commonplace now would have violated moral principles not too long ago. Sustainability or climate change would not have been moral or ethical issues a few decades back but now they are. Similarly, as AI becomes commonplace we will find ourselves debating and shifting our moral perspectives. The other interpretation of this question for me is whether AI will chance how we make moral or ethical decisions, i.e., will we assign agency and control to a system that uses some form of AI to make decisions on our behalf that have moral and/or ethical consequences and I think we will. Cognitively speaking, with each new cognitive tool we have created, we have offloaded some of our thinking – calculators and computers do so much of what we did with pen and paper plus a lot of things we humans cannot do – and I think the use of AI is likely to play a similar function for our moral and ethical work. At this point, I do not really know how.

#### **4. What is the role of academia, research institutions and other centers when it comes to the ethics and governance of AI?**

As someone who is a faculty with both research and teaching responsibilities, for me the role is two-fold. One, creating a better understanding of AI ethics and why we should or should not govern AI systems. This is a complex issue and requires a diverse range of viewpoints and it is

important that academics and researchers from different disciplines engage in a dialogue about the ethics of AI. Granted, given the very different and deeply ingrained disciplinary perspectives it might not be possible to reach a singular understanding, building common ground is still essential. My other role is to educate others, mostly my students, on applying a techno-critical stance when using or building AI applications. What I mean by that is stepping aside a bit and taking off the glasses of techno-optimism and examining and thinking about what they are doing when it comes to building or using AI. And more importantly, being aware that the work they do or will do, is not without unintended or second-order consequences of which they might not even be aware.

#### **5. Is there a way to truly trust systems that we cannot understand?**

We place trust in a lot of things that we do not truly understand. Human relationships are complex, most of us do not have a great insight into them but there are many people and relationships we trust innately. In terms of technology, how many of us really know how our cars work or even our toasters? Still, we trust them to function in a certain way. Granted, when it comes to something like a car, there is a complex infrastructure that goes with it – ranging from highways to seatbelts, and also a set of regulations. Once the system is in place though, like most infrastructures, it disappears into the background and we trust it without even thinking about how it works. Now, there are both pros and cons to trusting systems. It is critical that we do not question every interaction with a system as that would make it impossible for us to function, to even lead our daily life. On the other hand, blind trust in systems that surround us without real

consideration of their long-term impacts has caused many of the problems we face today, such as climate change. In relation to AI, this is a serious issue because we have yet to understand what is, or is not, trustworthy and we are limited, because we do not even know how to evaluate its long-term impact without a level of transparency into how something works. Even if you didn't understand it all, you could at least look inside a car. What is the counterpart for looking inside an AI system? Where are the boundaries of an AI system?

#### **6. What is it particularly about AI ethics that demands global discussions?**

AI ethics is a global concern for me as AI itself is a global issue. AI has the potential to transform so many aspects of our lives. Doing so in an unequal manner would worsen the global inequalities that we see around the world and inequality within a nation. Every large technological shift comes with the potential to create social and economic opportunities, but we need to make a concentrated effort to ensure that everyone has an equal chance of participating in this transformation, including a plan for educating and retraining people. We also need to create both institutional and absorptive capacity in areas that lack the ability to design and use new technologies. Finally, in terms of its implementation and use, we need a contextual understanding of the role AI can play as our values and norms are very often communal and local. Even though certain governing principles about AI might be common across the globe, there are many issues that have to be examined in context. For instance, the use of AI in agriculture has the potential to transform food supply globally but if it comes with automation that displaces the agricultural workforce, how do countries that have a large

percentage of population engaged in agriculture implement and adopt AI for agriculture?

### **Meet the Expert**

---

Aditya Johri publishes broadly in the fields of engineering and computing education, educational technology, and computer-supported collaborative work and learning. His research has been recognized with several best paper awards and his co-edited volume, the Cambridge Handbook of Engineering Education Research (CHEER), received the 2015 Best Book Publication Award from Division I of AERA. His research is supported primarily by the U.S. National Science Foundation (NSF) and he has received over \$4M in external funding including an NSF Early CAREER Research Award. Most recently he served as a Fulbright-Nokia Distinguished Chair in ICT at Aalto University, Finland (2021), and while a faculty at Virginia Tech (2007-2013) he was recognized with the Engineering Dean's Faculty Fellow Award for Extraordinary Performance in Research (2013) and Outstanding New Assistant Professor Award (2010). He received his Ph.D. in Learning Sciences & Technology Design (2007) from Stanford University, Palo Alto, CA.

