Reflections on AI

Q&A with
Samira Samadi

TUM IEAI

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The TUM IEAI had the pleasure of speaking with Samira Samadi. Samira is the research leader of the "Human Aspects of Machine Learning" group at the Max Planck Institute for Intelligent Systems (MPI-IS).

1. What is the biggest misconception about Artificial Intelligence?

I think the biggest misconception about AI is, that it is some higher intelligence, although in reality is just a set of rules that we, as computer scientists, have specified for solving a problem. So, similar to if you want to go to work tomorrow - based on the time of the day - you might decide to choose one route over the other. When you use Google Maps app on your phone, it's just because it has much more computational power, it can try hundreds of different routes in one second. The app can take many more parameters into account: like weather, traffic and the time of the day to give you the best route.

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

I think one of the most important ethical questions which has been overlooked for a long time and has been getting more attention recently is: "How can we stop AI from spreading misinformation?". Online social media survives on user engagement. Companies optimize for user engagement by using AI algorithms that show users the content which is more attractive to them. There are no ethical constraints here to stop these algorithms from spreading misinformation that could be harmful to society.

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

Tech companies use AI to drive for profit. Therefore, the researchers who work at the tech industry are never free in the kinds of research and investigation they do. I think as academics we should really leverage our freedom in research to look closely into AI algorithms and their application into society and their implications for society.

4. How can bringing humans into the AI development process improve fairness and efficiency?

So when it comes to critical decision making, I would like to think about AI and humans as two agents, each with their own strengths and weaknesses. On the one hand, we have AI which can analyze massive amounts of information and find patterns in the data. On the other hand, we can have human experts that can do higher reasoning and evaluate the quality of the solution, as well as the fairness of the decision-making process.

5. At what point of AI development is human involvement most critical?

I would say that the first critical point is the data collection process. At the end of the day, ML predictions are only as good as the data provided to them, therefore we should make sure to have diverse data sets that are collected in an ethical way. The second most critical point is auditing- to have human evaluators that can investigate the outcomes of the ML model

to make sure that they are fair. Of course there are fairness metrics that can be automated through this process, but choosing which fairness metric is suitable for your situation is something that only humans can do. The inclusion of civil society significantly improves the quality of the AI ethics debate and also the AI systems and products.

6. We often say that AI is changing or transforming the world. To what extent is AI changing us as humans?
I think that any new technology changes our lives, but probably the way AI is changing us in amore invisible way is how we perceive the world around us through the lens of social media. AI algorithms are really experts at showing users the content that is more attractive to them. Overtime this can limit the diversity that each of us receives.

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Meet the Expert

Samira Samadi has her Ph.D. from the school of Computer Science at Georgia Tech in the US. Her research background is in machine learning (ML) and algorithm design, with a recent focus on developing fair and efficient ML models. More broadly, Samira studies the interactions between humans and ML and uses her findings to design ML systems that augment humans' abilities rather than replacing them.

In addition to developing machine learning systems that make decisions based on principles of fairness, Samadi also aims to explore methods that will enable a collaborative synergy between humans and machines when they make joint decisions.

In medical diagnosis, the physician might get help from a machine that analyzes all the patient's historical data and makes a prediction about their medical needs. To build more effective hybrid human-ML models, Samadi builds meta-algorithms that shape the decision-making dynamic between humans and ML.

Samadi's research is also motivated by a broader movement of scientists who believe that simple models can result in more interpretability and fairness without necessarily compromising performance. It challenges a long-held view in the machine learning community that the more complicated the model, the better it is. "People don't only care about outcomes, but also about their dignity and whether they were treated the right way. They want to feel that the procedure is fair. But unless you understand what's going on in an ML system, you can't make sure it's doing things right."