FACE TO FACE

In this issue of 'Face to Face' Vagish K Jha talks to Prof. Shailesh Kumar, an eminent scientist specializing in Artificial Learning, Data Mining, Statistical Reinforcement Learning and Text Mining. Prof. Shailesh has over two decades of experience in applying and innovating machine learning, statistical pattern recognition and data mining algorithms. He pursued his Ph.D. from The University of Texas at Austin. In 2015, Analytics India Data Magazine recognized him among the Top Ten Scientist in India. He has Eighteen Patents under his name. He was a Vice-President in Ola as a Distinguished Scientist. Currently he is serving as a Chief Data Scientist with Reliance Jio.

Vagish Jha:

In the in the field of Education Technology (Edu-Tech) there is almost a 'glut of content' and Apps. So, in what way Artificial Intelligence is a game changer for education?

Professor Shailesh Kumar:

AI will most definitely be a fundamental game changer for Education. AI transforms any decision-making ecosystem in four fundamental ways:
First, AI enables personalized decisions vs. broadcast decision. Today one-size-fits-all education system achieves scale but not personalization. Second, AI enables real-time decisions vs. batch decisions. If a student consistently makes a certain kind of mistake, can we recognize and rectify it before moving forward? AI gives us real time feedback. Third, AI enables strategic decision making vs. tactical decision making. Each child's learning path has to be carefully crafted and adapted based on her current state of learning and the long-term learning goals. AI can help learn appropriate educational strategies by gathering data from millions of students. Fourth, AI enables proactive decisions vs. reactive decisions. Today's education system reacts to a student struggling in a concept or failing an exam. AI can predict something before it happens based on past experience. If we can tell that a student is lagging in a certain concept while doing fine in others, it can proactively help the student focus on the areas of her weakness with the right content to consume and problems to practice.

So yes, AI can play a significant role in fundamentally transforming Education. In education, there is a fundamental conflict between scalability and personalization. AI bridges this gap. AI can give you scalability and personalization at the same time

Vagish Jha:

How does the machine do that personalization?

Professor Shailesh Kumar:

Let us first imagine why this is difficult for teacher to do personalization by herself. For a teacher to even remember exactly what happened with each student, in each class, in each test, in each homework is a very difficult task. She cannot remember everything. But now we have something called logs, where logs remember everything

The idea is memory of what happened in the past is never lost in the cloud. We are taking that idea to build a profile of the student to figure out learning styles and predispositions. This combination of technology and teacher is going to create miracles in the education system. If there are Apps like Geneo which can do the testing for the student and take care of noticing how many times they watched a video and how did they do in the assessments etc. it is very easy to ascertain the competency level of the learners and help teachers personalize their teaching

Vagish Jha:

Our readers may not be aware of Geneo. So, could you give a quick introduction of Geneo?

Professor Shailesh Kumar:

Geneo is like a digitally augmented, intelligent textbook. It makes the textbook very personalised as a student can underline, annotate the chapters digitally along with making a variety of digital resources available in one place on your fingertips so that the student does not have to worry about all that. It gives you multiple perspectives on that topic. Every page you go there are corresponding things that you can do as virtual experiments, videos you can watch, problems you can solve. When you take the test or engage with doing a virtual experiment on Geneo you understand the concept better. And, if you are still stuck at some point you can ask for help from the pool of qualified mentors. Geneo makes your learning process a lot more holistic. The next version of Geneo will have AI embedded into this whole thing

Vagish Jha:

Okay so if the AI is going to do so much, will the teacher become redundant in future?

Professor Shailesh Kumar:

No. I think AI will never be able to replace a great teacher. It will only augment the teacher. What has technology done? It has not replaced anything. Doctors are still around, but we have seen the coming of X-Ray, robotic surgery and all that but at the end of the day humans will always be part of the loop. Thus, we are not replacing the teacher but we are bringing the best teachers to all the students

Vagish Jha:

In the age of AI what is the kind of teacher that you envisage? What will be the role of teacher in an AI age

Professor Shailesh Kumar:

So here's a work flow of a teacher I envisage in an AI enabled education system. Imagine a teacher comes in and says in the morning let me look at the state of my class. She figures out that 50 percent of her students are struggling with X, 30 percent with Y and the remaining 20 percent with Z. She then plans her class accordingly and teaches

This feedback is very critical. It's not about the quality of the teacher. It's about whether the students understood what you are teaching, through the assessment you can plan your next session better. This way teaching becomes student centric, not curriculum centric. This is a very important transition that needs to happen