
Can Algorithms Replace Academics?



By , Managing Editor, INSEAD Knowledge

Algorithms will augment the professor’s research, taking it into realms previously unimaginable in academia. But where does this leave the academic?

Academics have two large, overarching tasks: creating original knowledge and getting it published so others can benefit from it. Their work is time consuming, with professors involved in creative speculations, synthesising huge bodies of research, generating hypotheses, modelling, collecting data and iterating their research papers for publication. Add to this their obligations to prepare pedagogical materials, lesson plans, teach and write INSEAD Knowledge articles and professors become very busy people.

But it’s only a matter of time before the “algorithm”, currently disrupting industries from hotels to car sharing, takes its place in the academic’s office, according to Phil Parker, INSEAD’s Chaired Professor of Management Science. “There has been more and more automation slowly taking place. Now it’s accelerating and many people are not going to wait 10 years for an academic paper to be produced. Perhaps it can be produced much faster and also across hundreds of subjects that wouldn’t have been covered if not for

automation”, he said after a recent talk at INSEAD on automation in academia.

Parker reckons that automation can replace much of the work academics currently do, potentially achieving quantum leaps in academic productivity in the same way that Taylorism affected the manufacturing industry over 100 years ago.

The code of change

Currently, automation is already helping to drastically improve the dissemination of information. Some of Parker’s other projects include **automated authoring tools** that can write textbooks and synthesise important information for people who only speak underserved languages in far-flung parts of the world. Given the lack of pedagogical materials in developing countries, this is giving some rural communities in Africa unprecedented access to school books in their local languages and crucial farming weather reports for the first time.

He’s also using similar principles to create highly **customised course content** for his executive education students. His latest idea questions where, in the academic content creation chain, automation could help professors to further increase the reach of academic knowledge.

“One idea we’re currently working with is speculation engines. Imagine if you could have hundreds of academics focusing on your particular area of interest. There aren’t hundreds you can find. So we can create algorithms that read information, formulate opinions. Another algorithm may come up with a completely different opinion. Together they can give advice on the best approach to a subject,” he said.

Algorithms can also overcome the human tendency to stop working once the answer to the problem has been found or once the seeker clocks out for the day. Algorithms can keep churning data and can be programmed not to stop, potentially finding multiple solutions and then continuing into other databases to cover even more findings.

Going beyond

The idea of augmenting synthesis and speculation can consequently aid the dissemination of academic literature to areas previously thought impossible. “Often when a professor writes a paper, they’ll write it on a topic area, not

knowing or even realising themselves that what they've written is actually generalisable to a completely different academic area. But because different disciplines don't even talk to each other or even read each other's literature, there is a lot of insight that may not be known at this point," Parker said.

"Algorithms can actually synthesise these things automatically because no one really has the time to read all of the medical literature, all of the patent databases, all of the management science databases. Algorithms can facilitate that, reading it, synthesising it, and then maybe coming up with new theories that one might not have imagined. So one particular paper might ultimately have impact across hundreds of disciplines," he added.

Making it a reality

In reality, though, what might this actually look like for the academic? Given the proliferation of automation tools, it seems safe to assume that the software to answer complex questions is already there, but it's a matter of asking the questions in a way that a programme can find or even enhance the answer.

Parker advises academics to ask themselves "to what extent is what I do formulaic? Are there people that I could address with this new formula? If there are, maybe algorithms can help me either reach those people or draw new conclusions that haven't been possible until now."

Parker points to the typical structures of academic papers, with a proposition or a question, hypotheses, studies and conclusions, much of which rests on citing vast bodies of research, something a programme could assist with.

Given the critical shortage of highly trained academics in many disciplines, content authoring and automation seem like fitting solutions to enhance academic productivity and bridge knowledge gaps. But will automation tools make academics obsolete? Parker says that algorithms are part of a natural evolution of automation that goes back further than recent years. "In the 1960s, the first computer scheduling software was created to schedule classes. That saved professors a lot of time. Later we had machine-readable examinations, even spell check became automated. I see this being a continuum. Many things professors do now, a computer algorithm can probably accelerate that."

While Parker sees few limits to algorithmic academia, having even created a virtual version of himself as a salamander that can deliver lectures, he

admits that optimal algorithms to solve today's academic problems are at least a decade away. Ultimately, academics will still need to think of the problem areas and ask the hard questions, but they'll spend less time on the mechanics, using automation to solve potentially hundreds of thousands of problems at the same time.

***Phil Parker** is an INSEAD Professor of Marketing and the school's Chaired Professor of Management Science.*

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