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Prepare students for a future of artificial intelligence

Universities need to ensure high tech fluency for those in every subject area to advance their work

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Artificial intelligence will decisively reshape how all of us live and work together. It will help humanity learn more, waste less, work smarter, live longer and better understand and predict almost anything that can be measured.

Yet the promises and benefits of AI and related computing technologies clearly come with risks, including threats to privacy, public safety, jobs and the security of nations. The stakes are as serious as can be.

China is reportedly spending around $1bn a year on AI. France, Germany, Sweden and the Netherlands are all investing heavily in co-ordinated ways, and Canada and South Korea are also pursuing focused national AI strategies. The UK has announced a £50m fellowship fund to attract top machine learning researchers.

For the US to sustain its strength and play a decisive role in shaping these technologies, it too must commit to co-ordinated, sustained and highly visible government investments, over at least a decade. These will need to include support for rising researchers, for the advanced equipment and computing time their work requires and for concentrated university research centres.

Yet investment alone is not enough. Given the potent mix of opportunity and threat, those of us in higher education must find ways to equip our students to shape the future.

At MIT, for example, you can gauge the power and pervasiveness of AI and related technologies by the way our students are choosing to prepare themselves. Computer science has long been the most popular major at MIT, but recent interest has been explosive. Roughly 40 per cent of students now major in computer science alone or paired with another subject. They are making sure they graduate ready to bring computing-intensive approaches to fields as diverse as molecular biology, economics and urban planning. They know that computing is now as indispensable as maths.

To prepare society for the [demands of the future](#), institutions must equip tomorrow's leaders to be "AI bilingual". Students in every field will need to be fluent in AI strategies to advance their own work. And technologists will need equal fluency in the cultural values and ethical principles that should ground and govern the use of these tools.

The scope and urgency of this challenge are enormous, and meeting it will require bold partnerships. At MIT, we teamed up with Stephen Schwarzman, chairman, chief executive and co-founder of Blackstone, who enabled us to launch a $1bn initiative (the MIT Schwarzman College of Computing) designed to accelerate cutting-edge research, foster innovation, and deliver the power of computing and AI tools to every other discipline. Above all, it aims to educate the leaders of the AI future. A particular focus will be to advance research and education on the ethical implications and societal impact of computing technologies.

Across the US and elsewhere, colleges and universities are starting to respond to the challenges of this AI moment with their own initiatives in education and research. Because the need is so great, we should all hope that this trend continues, and that government and industry will encourage such efforts with investment.

In the coming decades, it will feel as though the kinds of opportunities, disruptions and progress experienced during the Industrial Revolution are now playing out at time-lapse speed. Responding to the magnitude of this challenge will require a broad strategic effort across society.

Technology belongs to all of us. We must all be alert to the risks posed by AI, but this is no time to be afraid. Those nations and institutions which act now to help shape the future of AI will help shape the future for us all.

The writer is president of MIT