

Doc 1:

Dylan Losey Assistant Professor, Mechanical Engineering at the Virginia Tech Engineer.

A recent survey by Forbes indicated that many Americans still trust humans over AI by a large percentage. Those surveyed shared that they think people would do a better job of administering medicine, writing laws, and even choosing gifts, just to name a few.

The faculty in the College of Engineering have their own opinions based on their expertise and related research. We wanted to hear from some of the most well-versed in the AI space to learn more about how this technology impacts us.

These faculty experts range from computer scientists to electrical engineers to aerospace engineers and even building construction experts. Here's what they had to say about AI—the good, the bad, and the (potentially) scary.

AI and robotics can open doors for people living with physical disabilities. We've seen the promise of assistive robot arms and mobile wheelchairs helping elderly adults regain independence, autonomous vehicles increase mobility, and rehabilitation robots help children gain the ability to walk. The promise of this technology is a higher quality of life for everyday users.

AI is a powerful tool that can easily be misused. In general, AI and learning algorithms extrapolate from the data they are given. If the designers do not provide representative data, the resulting AI systems become biased and unfair. For example, if you train a human detection algorithm and only show the algorithm images of people with blonde hair, that system may fail to recognize a user with brown hair (e.g., brown hair = not a human).

In practice, rushed applications of AI have resulted in systems with racial and gender biases. The bad of AI is a technology that does not treat all users the same.

Artificial intelligence is influencing our decision making.

We are already facing the negative outcomes of AI. For example, take recommendation algorithms for streaming services: the types of shows you see are influenced by the shows recommended to you by an artificial agent.

More generally, today's AI systems influence human decision making at multiple levels: from viewing habits to purchasing decisions, from political opinions to social values.

To say that the consequences of AI is a problem for future generations ignores the reality in front of us — our everyday lives are already being influenced. Artificial intelligence — in its current form — is largely unregulated and unfettered.

Companies and institutions are free to develop the algorithms that maximize their profit, their engagement, their impact. I don't worry about some dystopian future; I worry about the reality we have right now, and how we integrate the amazing possibilities of artificial intelligence into human-centered systems.

Doc 2:

The AI chat app being trialed in NSW schools which makes students work for the answers, The Guardian 12 february 2024.

When year 8 student Mikaela Rumi Badger asks ChatGPT how to solve a question for a fractions exam, it gives her the answer.

But when the Ponds high school student asks New South Wales' purpose-built AI app NSWeduChat for help, it asks her additional questions.

"To better assist you, can you let me know what you need help with?" it asks, coaxing her with clues when she attempts calculations.

"Not quite," it tells her. "To convert an improper fraction, you need to multiply the whole number by the denominator and then add the numerator. Can you do that?"

The app, which describes itself as a "virtual tutor", is being hailed as the possible future of artificial intelligence in NSW schools.

On Monday, 16 public schools across the state gained access to the app for the next two terms in a trial that will determine its viability to go sector-wide.

NSWeduChat, designed by the state's Department of Education, is modelled on ChatGPT but built specifically for the state's curriculum. Students have access to one interface, while teachers have their own version of the tool which they can use to direct classroom content.

Unlike ChatGPT, the app has been designed to only respond to questions that relate to schooling and education, via content-filtering and topic restriction.

It does not reveal full answers or write essays, instead aiming to encourage critical thinking via guided questions that prompt the student to respond – much like a teacher.

For Mikaela, asking questions in classroom settings can be intimidating.

She says the app also helps reduce the "stigma" of AI chatbots, which were initially banned in public school settings after ChatGPT launched in 2022. Since then, assessments have been altered at the school to reduce the risk of plagiarism on internal servers.

He says departmental control also means responses generated are aligned with the state's curriculum – the algorithm is taught to believe it is a NSW teacher.

If students ask NSWEdUChat to help them cheat, or for advice unrelated to school, it will tell them “I can only assist you with educational purposes”.

But it is a learning curve, with the app being continually tested for bugs as students test it. Ponds high school deputy principal James Laird hopes the app has the potential to reduce the significant administrative burden of teachers.

He says staff have already used it to design complex course content, including lesson plans and worksheets.

“Outside the classroom, it has the potential to complete administrative tasks ... assist with marking,” he says. “Inside the classroom, we can use it to engage critical thinking.

“The way it works is the way teachers would work – putting things back on the students.”

Doc 3:

The ‘Human-Computer Intersection’

The shift in the relationship between humans and computers implies an active transition from ‘Human-Computer Interaction’ to what we can perhaps refer to as ‘Human-Computer Intersection’.

The Interaction Design Foundation defines Human-Computer Interaction as the design and study of creating processes that seamlessly facilitate the interaction between users and digital artefacts. Human-Computer Interaction recognizes the separation between humans and computers, with humans interacting with computers as external entities. On the other hand, what we are referring to as Human-Computer Intersection implies a convergence of humans and computers, blurring the line between humans and machines.

The shift from Human-Computer Interaction to Human-Computer Intersection represents an evolution in the relationship between humans and computers. It acknowledges that technology is becoming more integrated into our lives, transforming how we work, communicate, and navigate the world. The focus then moves beyond mere interaction to a point where humans and computers intersect, collaborate, and mutually shape each other’s capabilities and experiences.

Instantly access and analyze information

This increased integration now allows us to access and analyse information instantly. Humans are interconnected, through the internet, readily accessing knowledge and communication networks through wearable devices, smartphones, and other connected technologies. Advanced AI algorithms enable us to process increasing amounts of data, helping us to make informed decisions. We’re now harnessing the power of AI to augment our cognitive abilities.

Becoming superhuman

AI-powered systems assist in tasks like complex data analysis, predictive modeling and decision-making, giving us almost superhuman computational capabilities.

Having instant and continuous access to systems with human-like intelligence will supercharge human ability and allow us to work smarter. An example of this is Neuralink, an implantable, brain/computer interface that translates thoughts into action. Neuralink is a literal integration of technological device with a human being, entirely erasing the blurred line between humans and machines.

According to Neuralink's founder, Elon Musk, if humans want to continue to add value to the economy, they must augment their capabilities through a merger of biological and machine intelligence. Musk further contends that if we fail to do this, we'll risk becoming "house cats" to artificial intelligence.

What are the ethical implications?

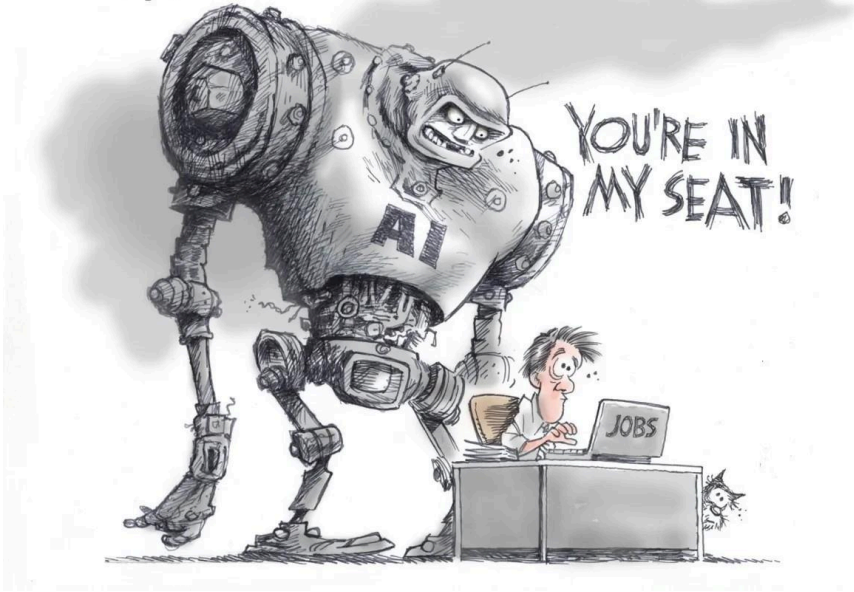
As we become increasingly intertwined with technology, questions have arisen about the ethical implications. The boundaries between humans and computers are becoming less distinct; challenging us to consider the impact on personal autonomy, privacy, and societal norms.

As we essentially become cyborgs, will what we perceive as the essence of humanity be eroded? Will we need to ensure that we keep human purpose in mind when we design and deploy technology in a business setting?

There are other ethical and moral considerations surrounding the development and use of future technologies. According to IBM's paper on AI Ethics In Action, it's important to establish a moral standard to help machines empathetically distinguish between right and wrong. There is a fear that this integration could lead to unequal access, exacerbate social inequalities, or enable unethical uses of technology.

Doc 4:

Frank Wright CARTOONS



Doc 5:

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