Lincoln East BN affirms the resolution resolved: In the United States, the benefits of the use of generative artificial intelligence in education outweigh the harms.

One definition:

Dictionary.com defines education as

"Dictionary.com", Dictionary, https://www.dictionary.com/browse/education

==the act or process of imparting or acquiring general knowledge==, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life.

AI is on a positive path— don't let short term problems undermine long term benefits

Jakob Nielsen of Norman group 25 [Jakob Nielsen is a Danish web usability consultant, human–computer interaction researcher, and co-founder of Nielsen Norman Group. He was named the "guru of Web page usability" in 1998 by The New York Times and the "king of usability" by Internet Magazine , AI Hallucinations on the Decline, UX Tigers, https://www.uxtigers.com/post/ai-hallucinations, 2.13.25] doa: 3.5.25 //ejs squad

Bigger AI Models Hallucinate Less ==As AI gets more powerful with each generation, hallucinations are on the decline==. **The same study that found 40% made-up literature references in output from ChatGPT 3.5 (from 2022) found only 29% false references from ChatGPT 4, released half a year later.** The Hugging Face Hallucinations Leaderboard has subjected 102 AI models to the same hallucination benchmark, making comparisons possible. The following chart shows the hallucination rate for the 72 models for which I could find the release date. Each dot indicates the hallucination rate of one AI model according to the HHEM-2.1 hallucination detection model. (Data from the Hugging Face Hallucination Leaderboard.) The regression line shows that hallucination rates decline by 3 percentage points per year. If we project the regression line into the future, it "predicts" **that AI will hit zero hallucinations in February 2027,** which coincidentally is when I expect next-generation AI to reach the much-hyped "AGI" (artificial general intelligence). Obviously, a regression line is not a true predictor of the future, particularly for a dataset like this, with large variability in the underlying data. However, I do expect the next-generation models that we'll likely get in 2027 to exhibit a very low hallucination rate. **It's getting better every year — also with respect to AI hallucinations, which have been dropping steadily. (Ideogram) Hallucinations are dropping for two main reasons: AI providers are conscious that hallucinations are one of the main impediments for lucrative enterprise applications, so they have a strong incentive to design their newer models to avoid hallucinating as much as possible.** ==AI models are getting bigger== and bigger, which ==allows the AI to know more== and be ==less likely to hallucinate.== The following chart replots the Hugging Face Hallucination Leaderboard for the 62 AI models for which I could find size estimates, as measured by each model's parameter count. **The size of an AI model, measured by the number of parameters, impacts that model's hallucination rate.** Note that the x-axis is logarithmic, as is appropriate for most things relating to the AI Scaling Laws. (Data from the Hugging Face Hallucination Leaderboard.) Here, the regression line shows that hallucinations drop by 3 percentage points for each 10x increase in model size. The new reasoning models also seem to reduce hallucinations, with a low 0.8% hallucination rate from OpenAI's o3-mini-high-reasoning. However, there are too few reasoning models in the data to make firm estimates of the degree to which moving further up this 3rd AI Scaling Law might help by using more inference compute to reduce hallucinations. **The jump to a new AI generation usually happens every two years and requires scaling AI by a factor of 100x, which would correspond to a 6% drop in hallucinations. Large AI models have fewer hallucinations than smaller models.** (Leonardo) Projecting out the regression of hallucinations by model size "predicts" that we'll reach zero hallucinations once AI models have about 10 trillion parameters. This is expected to happen around 2027. Thus, our two estimates of when AI hallucinations will stop being a serious problem (derived from release dates and model sizes) are the same. To Err Is Also Human Are hallucinations unique to AI? Not if we restate the problem as an information source providing incorrect information. Humans do this all the time. For example, a meta-analysis of three medical studies in 2014 estimated that 5.08% of adult primary care patients are misdiagnosed in the United States. Worse, the discharge information prepared by internal medicine residents for patients leaving the hospital had high inaccuracy rates, given that people who require hospital treatment are usually worse off than people who simply see their primary care doctor. One study found the following rates of inaccurate information in this information: Discharge medication list: 36% Follow-up instruction for family physicians: 18% Discharge diagnosis: 5% Interestingly, the diagnosis error was the same (5%) in the two studies. Much research shows that AI is better at medical diagnosis than human doctors, even though it's currently worse at interviewing patients. Many studies now show that AI does better than human doctors when diagnosing patients from clinical data. The question is not whether AI is perfect (it's not), but how it performs relative to humans. (Leonardo) Turning to the legal domain, the outcome of criminal and civil cases was often worse than predicted by the lawyers. Attorneys who stated a confidence level of 86% or higher of winning their minimally desired outcome in court only achieved this result 70% of the time. A review of 6,000 death-penalty cases found that the defense attorney had made errors in 68% of the cases (with 37% being judged as "egregiously incompetent"). Possibly worst of all, a 2005 study of American newspapers found factual errors in 61% of 3,287 stories across 14 metro newspapers. In fact, studies from 1936 to 1999 found error rates ranging from 46% in 1936 to 55% in 1999 in American newspaper articles. Are present-day journalists more accurate? Given that the error rate in the 8 studies cited were all in the 41-61% range across many decades, you have to be an extreme optimist to believe that things are better now. Furthermore, the 2005 study found that the 61% inaccurate articles contained an average of three errors each. Humans also say things that seemingly come out of nowhere and are false, even when they don't intend to mislead. Fortunately, other humans are used to this fact and have developed mitigation strategies that also somewhat work against AI hallucinations. (Midjourney) Since erroneous information is so common, people have developed ways of dealing with errors in the most important cases. In medicine, it's common to request a second opinion from an independent doctor before talking drastic action, such as undergoing surgery. In a study of patients who sought a second opinion from the Mayo Clinic (a respected medical institution in the United States), 88% of patients ended up with a changed or refined diagnosis. The concept of double-checking information can be taught. In one case study, college students who took a 4-hour course on evaluating internet sources dramatically improved their ability to identify incorrect information on websites: scores on a 13-point test increased from 4 to 7. (Obviously, this means that the students still missed identifying much inaccurate information, even after the training.) Is AI better or worse than humans when it comes to providing erroneous information? That's hard to say, because the available studies have measured so many different topics with so many different definitions of "errors." But two things are certain: Humans also make errors and provide wrong information. This is not at all infrequent. Because people are accustomed to receiving error-prone answers, they have evolved strategies to partially alleviate this problem. When assessing the acceptability of AI hallucinations, we should compare AI with the humans who are realistically available

to perform the same tasks, not the world's most perfect human for that task. AI scales, but humans don't, so you can run the best possible current AI product, but you cannot hire the world's best human to do the job for you.

And, Adam Zewe, of MIT News 24 12-11-2024, "Researchers reduce bias in AI models while preserving or improving accuracy", MIT News | Massachusetts Institute of Technology, https://news.mit.edu/2024/researchers-reduce-bias-ai-models-while-preserving-improving-accuracy-ejs squad

Machine-learning models can fail when they try to make predictions for individuals who were underrepresented in the datasets they were trained on. For instance, a model that predicts the best treatment option for someone with a chronic disease may be trained using a dataset that contains mostly male patients. That model might make incorrect predictions for female patients when deployed in a hospital. To improve outcomes, engineers can try balancing the training dataset by removing data points until all subgroups are represented equally. While dataset balancing is promising, it often requires removing large amount of data, hurting the model's overall performance. **MIT researchers developed a new technique that identifies and removes specific points in a training dataset that contribute most to a model's failures on minority subgroups.** By removing far fewer datapoints than other approaches, **this technique maintains the overall accuracy of the model while improving its performance regarding underrepresented groups.** In addition, **the technique can identify hidden sources of bias in a training dataset that lacks labels**. Unlabeled data are far more prevalent than labeled data for many applications. **This method could also be combined with other approaches to improve the fairness of machine-learning models deployed in high-stakes situations**. For example, it might someday help ensure underrepresented patients aren't misdiagnosed due to a biased AI model. "Many other algorithms that try to address this issue assume each datapoint matters as much as every other datapoint. In this paper, we are showing that assumption is not true. **There are specific points in our dataset that are contributing to this bias, and we can find those data points, remove them, and get better performance**," says Kimia Hamidieh, an electrical engineering and computer science (EECS) graduate student at MIT and co-lead author of a paper on this technique. She wrote the paper with co-lead authors Saachi Jain PhD '24 and fellow EECS graduate student Kristian Georgiev; Andrew Ilyas MEng '18, PhD '23, a Stein Fellow at Stanford University; and senior authors Marzyeh Ghassemi, an associate professor in EECS and a member of the Institute of Medical Engineering Sciences and the Laboratory for Information and Decision Systems, and Aleksander Madry, the Cadence Design Systems Professor at MIT. The research will be presented at the Conference on Neural Information Processing Systems. **Removing bad examples** Often, machine-learning models are trained using huge datasets gathered from many sources across the internet. These datasets are far too large to be carefully curated by hand, so they may contain bad examples that hurt model performance. Scientists also know that some data points impact a model's performance on certain downstream tasks more than others. The MIT researchers combined these two ideas into an approach that identifies and removes these problematic datapoints. They seek to solve a problem known as worst-group error, which occurs when a model underperforms on minority subgroups in a training dataset. **The researchers' new technique is driven by prior work in which they introduced a method, called TRAK, that identifies the most important training examples for a specific model output.** For this new technique, they take incorrect predictions the model made about minority subgroups and use TRAK to identify which training examples contributed the most to that incorrect prediction. "By aggregating this information across bad test predictions in the right way, we are able to find the specific parts of the training that are driving worst-group accuracy down overall," Ilyas explains. Then they remove those specific samples and retrain the model on the remaining data. **Since having more data usually yields better overall performance, removing just the samples that drive worst-group failures maintains the model's overall accuracy while boosting its performance on minority subgroups cv. A more accessible approach** Across three machine-learning datasets, their method outperformed multiple techniques. In one instance, it boosted worst-group accuracy while removing about 20,000 fewer training samples than a conventional data balancing method. Their technique also achieved higher accuracy than methods that require making changes to the inner workings of a model. **Because the MIT method involves changing a dataset instead, it would be easier for a practitioner to use and can be applied to many types of models.** It can also be utilized when bias is unknown because subgroups in a training dataset are not labeled. By identifying datapoints that contribute most to a feature the model is learning, they can understand the variables it is using to make a prediction. "This is a tool anyone can use when they are training a machine-learning model. They can look at those datapoints and see whether they are aligned with the capability they are trying to teach the model," says Hamidieh. Using the technique to detect unknown subgroup bias would require intuition about which groups to look for, so the researchers hope to validate it and explore it more fully through future human studies. They also want to improve the performance and reliability of their technique and ensure the method is accessible and easy-to-use for practitioners who could someday deploy it in real-world environments. "When you have tools that let you critically look at the data and figure out which datapoints are going to lead to bias or other undesirable behavior, it gives you a first step toward building models that are going to be more fair and more reliable," Ilyas says. **This work is funded, in part, by the National Science Foundation and the U.S. Defense Advanced Research Projects Agency.**

Our first argument is the classroom

Gen AI improves secondary/higher education in 3 key ways

The first is through personalized learning improving critical thinking/creativity

Professor Capraro of Milan-Bicocca 24 finds Valerio Capraro, Austin Lentsch, Daron Acemoglu, Selin Akgun, Aisel Akhmedova, Ennio Bilancini, Jean-FrançOis Bonnefon, Pablo BrañAs-Garza, Luigi Butera, Karen M Douglas ... Show More, 6-11-2024, "The impact of generative artificial intelligence on socioeconomic inequalities and policy making", OUP Academic, https://academic.oup.com/pnasnexus/article/3/6/pgae191/7689236ejs squad

The integration of generative AI in education represents a continuation of the technological evolution that began with Massive Open Online Courses and similar initiatives. **Massive courses have** increased access to education to some degree (86). However, they have **often fallen short of their anticipated transformative impact for various reasons, including minimum learning by doing and lack of personal support** (87). **Generative AI brings a distinctively novel element to educational technology: the role of chatbot tutors, which interact with students to foster skills ranging from prompt engineering to critical thinking and creative ideation**. This shift towards using technology as a dynamic partner **paves the way to truly skill-adaptive and personalized teaching and on-demand**

student guidance and support that does not require continuous, intensive investment from educators to repackage content to best meet students' needs. These **uses could be particularly effective in large class settings, with significant opportunity to scale-up implementation beyond the capabilities of traditional educational practices**. Consequently, **generative AI could bridge complex and persistent educational gaps. A review of AI applications in education identified several use cases that produced higher test scores when students used personalized learning systems** (88). **These systems**, unlike traditional approaches like static worksheets with standardized questions, **detect areas where students lack foundational understanding by adapting educational resources and tools to foster their development.** Furthermore, **assessment algorithms can expedite grading of written assessments, which supports students by offering timely feedback that can be applied immediately. Students themselves perceive AI as potentially beneficial to their education. College students reported that generative AI provided personalized learning, supported their writing and brainstorming, and assisted with research and analysis** (89). However, students also expressed concerns about the accuracy, privacy, and ethical implications of generative AI tools—including how this technology could adversely impact their personal development and career prospects.

The second is through reducing barriers to education

Allan Golston of Gates Foundation 24 explains Allan C. Golston, Allan C. Golston leads the foundation's efforts to help all students in the United States graduate from high school, earn a college degree, and find a good job. He joined the foundation in 2000 as its chief financial officer. In 2006, feeling a deep connection to the U.S. Program's work, he moved into his current role. Allan believes that education provides a crucial bridge to opportunity in the U.S. and is committed to ensuring that all young people have access to the education and opportunity they deserve. The division he leads focuses deeply on equity and using data and technology to support decision-makers, teachers, and students in ways that result in more equitable outcomes.Allan's professional background includes consulting, public accounting, consumer packaged goods, software development, finance, and healthcare, in addition to education. He has an MBA from Seattle University and a bachelor's degree in accounting from the University of Colorado. 12-17-2024, "Unleashing AI's Potential for Equitable Academic Outcomes and Economic Opportunity", Gates Foundation, https://usprogram.gatesfoundation.org/news-and-insights/articles/unleashing-ais-potential-for-equitable-academic-outcomes-and-economic-opportunityejs squad

From the student's perspective, education is one linear journey with different phases that lead to the workforce. However, as students navigate complex transitions, gaps in advising and career planning create barriers. Because advising supports are often unavailable in public high schools, particularly those in under-resourced communities**, students from low-income households who have the greatest guidance needs can experience uneven access to counselors and support.** Additionally, access and opportunity gaps have resulted in only 61% of Black and 58% of Latino high school graduates immediately transitioning into a postsecondary program after high school compared with 70% of their white peers. Evidence shows that advising, early college coursework, dual enrollment, internships, and work-based learning opportunities increase students' chances of succeeding across these transitions. **AI-enabled and mobile-friendly chatbots and virtual assistants are helping students, particularly those from low-income households, understand their postsecondary options and apply for financial aid.** I'm excited about the work we've done with our partner Shift to understand how to expand the reach of college and career advising to all students by augmenting human support with AI. Shift collaborated with the following organizations focused on integrating AI technology into human-centered advising – Bottom Line, OneGoal, KIPP Public Schools, Let's Get Ready, College Advising Corps, and Mainstay – and produced resources to benefit the field.

Moreover, Professor Dai of (CUHK), et. al 23 finds Yun Dai , Ang Liu , Cher Ping Lim, 8-7-23, Yun Dai is an Assistant Professor of Curriculum and Instruction at The Chinese University of Hong Kong (CUHK), Ang Liu is an assistant teaching professor of energy and mineral engineering at Penn State University, LIM Cher Ping is Chair Professor of Learning Technologies and Innovation at The Education University of Hong Kong and the Editor-in-Chief of The Internet and Higher Education."Reconceptualizing ChatGPT and generative AI as a student-driven innovation in higher education", Procedia CIRP, https://www.sciencedirect.com/science/article/pii/S2212827123004407 // DOA: 2/9/2025 ejs squad

ChatGPT can potentially enhance educational access and resources and contribute to social justice in general Within higher education institutions, ChatGPT can support instructors and complement teacher–student interactions especially for large classes in which it is challenging for instructors to provide individualized attention and support to students. It can serve as a supplementary resource to answer students' questions, provide explanations, and offer additional learning opportunities tailored to students' needs. In a more general sense, **AI tools can help reduce the cost of education by automating certain tasks and offering more efficient learning experiences Lower costs can make higher education more affordable for students from low-income backgrounds or those who struggle to meet the financial demands of traditional programs** As such, ChatGPT has the potential to make educational opportunities accessible to a diverse range of learners, including those who may face barriers due to geographical location, socioeconomic status, disability, or other factors. 4. Learning to learn with AI Although ChatGPT has rich potential, this potential will not be actualized naturally or automatically. Higher education stakeholders need to be prepared for informed and responsible adaptation of ChatGPT. We argue that this preparation can start by shifting our perspective on and approach to AI. This shift in perspective is rooted in the interactive and adaptive relationship between humans and AI; that is, AI is no longer a passive, static tool that is simply manipulated by students but an active participant that significantly shapes students' learning experience. The changing role and position of AI implies new directions for research and theories. Yun Dai et al. / Procedia CIRP 119 (2023) 84–90 87 4.1. Shifting from learning via AI to learning with AI Human adoption and adaptation to ChatGPT indicates a shift in conceptualizing the human–technology relationship when researching education technology. During its initial stage, research on education technology focused on observing changes in teaching and learning by comparing face-to-face and online or hybrid settings [12]. As technology became more interactive and powerful, however, the focus shifted toward understanding the role and affordances of technology in promoting meaningful learning as well as studying our interactions with the technologies themselves. More recently, due to the advent of AI and personalized algorithms, an emerging theme is overcoming the traditional one-size-fits-all approach and adapting to the needs of individual learners [13]. This theme is also reinforced by mobile and social media, as teenagers and young adults have changed their behaviors, habits, and practices to accommodate and take advantage of technology [14]. Empirical evidence shows a tendency to treat AI as if it is an autonomous social actor [15]. **This evolving research agenda implies a transition from technology-based learning to learning with technology** As for ChatGPT, **learning with AI has become more salient than ever** especially considering the significant role of prompts in eliciting quality outputs from ChatGPT. Prompts refer to the input text or message provided by the user in ChatGPT, and they act as a cue or instructions to guide the model to generate responses. That is, the quality of ChatGPT's output is largely influenced by the quality of students' prompts. As such, to unleash the full capability of ChatGPT, students need to understand how to write effective prompts and adapt their prompting practices in alignment with the working mechanisms of GPT models. In this process, human–AI interactions are no longer one-way interactions from questions to answers but a negotiation process in which both parties (humans and AI) constantly observe each other's output and adjust their input accordingly. In this regard, ChatGPT and Aldriven tools have transcended their traditional role as mere instruments and evolved into active participants that co-shape educational experiences with students. 4.2. Learning to learn with AI For students, learning with AI is a learning task in itself. Students often experience a learning curve as they gain more proficiency and efficiency with technological tools over time [16]. From our preliminary observations,

students' learning curve with ChatGPT can be represented in two interdependent dimensions, as shown in Figure 2. Learning to use ChatGPT, as represented by the red line, refers to general methods for operating the tool. As the user interface is straightforward and intuitive, it is generally not difficult for most students. However, learning to learn with ChatGPT implies more effort beyond operations, as it requires students to frame appropriate prompts and questioning strategies and to understand the capacity and limitations of this AI tool. Most likely, this is not a linear process but an iterative and recursive one in which students explore, experiment with, and identify effective (or not) strategies that can elicit desired outputs and fulfill their personal goals. This process might not be smooth but full of setbacks and stagnation, as students need to test worst or best practices for interacting with GPT models, adjust their expectations of the level of assistance from ChatGPT, and improve their own capacity as self-regulated and selfmotivated learners. Fig. 2. Students' learning curve with ChatGPT. The mutually adaptive relationship between humans and AI implies that more research is needed to investigate the processes and patterns of student–AI interactions. As AI tools are increasingly integrated into students' everyday lives, it is especially crucial to gain more insight into how students interact with AI and their interactional styles, patterns, and preferences. This research can provide valuable insight into students' behaviors, cognitive processes, and emotions when interacting with AI, greatly enhancing the knowledge and theory of learning sciences and technology. Moreover, interdisciplinary research collaboration between learning scientists, computer scientists, psychologists, and other experts is needed. Such interdisciplinary research can further advance the theoretical knowledge and empirical foundations in this field and inform the design and development of AI-driven educational systems. 5. Changing expectations of students' skillsets and competencies Against the multifaceted and cumulative impacts of ChatGPT, students are positioned at the frontier of coping with changes and challenges. On the one hand,

The third is through Decreasing educator burdens thus increasing the quality of education

Alexander Slagg of CDW 23 notes:, Alexander Slagg is a freelance writer specializing in technology and education. He is an ongoing contributor to the CDW family of magazines. 11/14/2023, "AI for Teachers: Defeating Burnout and Boosting Productivity", Technology Solutions That Drive Education, https://edtechmagazine.com/k12/article/2023/11/ai-for-teachers-defeating-burnout-boosting-productivity-perfcon//ejs squadThe past several years have been a rollercoaster ride for teachers. Hailed as heroes at the height of the COVID-19 pandemic, the return to the classroom has been rocky, and teacher shortages continue to make headlines. HMH's 9th Annual Educator Confidence Report suggests a reason and a solution: "**Burnout is a critical issue, with 82% of educators citing that what they need most is a more balanced workload**." Jamie Lewsadder, associate superintendent of technology services for La Cañada Unified School District in California, says, "As a society, we underestimate the effort it now takes to be a teacher." "Expectations are very high for student outcomes," she continues. "Teachers take their mission to heart, but there are more challenges today in education than ever, especially coming out of COVID. There's greater diversity in the classroom, across cultures, ability and learning styles. Today's student is different from students even five years ago." **Some educators believe that technology, specifically artificial intelligence, could bring relief to teachers carrying heavy workloads.** A 2020 McKinsey report backs up that claim, noting that **20 to 40 percent of the tasks that teachers spend time on — grading, lesson planning, general administration — could be outsourced to tech**nology. For Francie Alexander, chief research officer at HMH, the benefits of automated technologies such as AI are clear. "There are four primary upsides to AI in the classroom," she says. "The **first is productivity, helping the teacher be more productive in all aspects of teaching. The second is the social aspect, being able to connect with families, students and colleagues more easily. The third is data, being able to accumulate and review data to improve learning. The fourth upside is being able to use technology to assist in classroom instruction.**" Fortunately for educators, they do not necessarily need to acquire new hardware or software to make the most of AI. "**A lot of solutions that are already on the market use AI technology**," says Jennette Vanderpool, a CDW education strategist and a school board member for Lake Elsinore (Calif.) Unified School District. "Manufacturers are jumping on the current popularity of AI technology and rebranding to make it more obvious that they are using this technology. Microsoft 365 and Google Workspace for Education have been using AI in their products. GoGuardian and Merlyn Mind also have AI features." **AI can help teachers lighten their workloads. For example, Microsoft 365 offers a variety of AI-powered learning accelerators, which are assistive tools built into the OS to help support foundational learning skills. One example is Reading Coach**, which analyzes a student's reading and then produces a personalized program for improvement, lending a hand to overstretched teachers. Google Workspace for Education is a favorite among educators, and for good reason. The tech tool uses AI to automate repetitive tasks, such as class creation and management, document template creation, and calendar reminders. This unloads some of the time-consuming administrative duties that teachers are responsible for. In March 2023, Google added practice sets to Google Workspace for Education. Practice sets use AI to help teachers transform their existing lesson content into interactive assignments. This is another AI win for teachers who support personalized learning in the classroom, a critical task too often influenced by time and resource constraints. In partnership with Google Cloud, GoGuardian recently rolled out several AI-fueled features including Edulastic, which identifies student learning gaps; serves up differentiated assignments to remediate, reinforce or challenge learning; and then monitors progress toward mastery. **Being able to quickly align identified learning gaps with specific, individualized assignments saves teachers a great deal of time and effort.** Merlyn Mind is a digital assistant designed specifically for education that offers the kind of task-oriented classroom support that a paraprofessional might provide to a teacher. It is used with Promethean Symphony Classroom Hub, a learning tool that includes a smart speaker, microphones and a remote control. The AI assistant responds to voice and touch commands, allowing the teacher to use connected software and hardware from anywhere in the classroom. Being able to activate or use classroom technology on the go offers another timesaving win for teachers. "Merlyn Mind can now help teachers organize an efficient day for their classrooms," Vanderpool says. "When they walk through the door, lesson plans and resources are cued up and ready to go. All of the resources and data for kids are already loaded into their devices**. This opens up increased classroom time for direct instruction and decreases planning time. Teachers become more productive more easily, and they are able to free up more time to provide direct instruction and build relationships with students."**

Our Impact is Poverty

Education lifts people out of poverty

Junjunia 23 explains: [Zubair Junjunia, Generation17 Young Leader and founder of ZNotes, "The transformative power of education in the fight against poverty," october 16 2023, https://www.undp.org/blog/transformative-power-education-fight-against-poverty DOA 3/26/25]//ejs squad

Time and again, **research has proven the incredible power of education to break poverty cycles and economically empower individuals** from the most marginalized communities with dignified work and upward social mobility.

Millions could be lifted

Census Bureau 25 [United States Census Bureau, January 2025, "National Poverty in America Awareness Month: January 2025", https://www.census.gov/newsroom/stories/poverty-awareness-month.html DOA 3/26/25]//ejs squad

In 2023, **the official poverty rate fell** 0.4 percentage points to 11.1 percent. **There were 36.8 million people in poverty in 2023,** not statistically different from 2022 (Figure 1 and Table A-1).

Between 2022 and 2023, the official poverty rate decreased for White and non-Hispanic White individuals; women; 18- to 64-year-olds; unrelated individuals; all workers; less than full-time, year-round workers; and those with some college. The only group to experience a statistically significant increase in their official poverty rate was the Two or More Races population (Figure 2 and Tables A-1 and A-2).

Our second argument is The Lab

Gen AI Supercharges research
Professor Maslach of FSU 23- December 13, 2023, David Maslach is an associate professor at Florida State University specializing in organizational learning and innovation. He holds a PhD from the Ivey School of Business and serves on multiple academic journal boards. Maslach is also the founder of the R3ciprocity Project, a platform that provides solutions and hope to the global research community, Harvard usiness Publishing, "Generative AI can supercharge your research", https://hbsp.harvard.edu/inspiring-minds/generative-ai-can-supercharge-your-academic-research//doa: 02/13/2025//ejs squad

While the initial results may not be on point, starting from scratch without AI is still more difficult. **By incorporating AI into this data gathering and analysis process, researchers can gain valuable insights and solve difficult problems that often have ambiguous and equivocal solutions. For instance, learning how to program more succinctly or think of different data sources can help discovery.** It also makes the process much less frustrating and more effective. 3. Use AI to help verify your findings and enhance transparency AI tools can document the evolution of research ideas, effectively serving as a digital audit trail. This trail is a detailed record of a research process, including queries, critical decision points, alternative hypotheses, and refinements throughout the entire research study creation process. One of the most significant benefits of maintaining a digital audit trail is the ability to provide clear and traceable evidence of the research process. This transparency adds credibility to research findings by demonstrating the methodical steps taken to reach conclusions. For example, when I was writing some code to download data from an external server, I asked, "Can you find any bugs or flaws in this software program?" and "What will the software program's output be?" One of the problems I ran into was that the code was inefficient and required too much memory, taking several days to complete. When I asked, "Could you write it in simpler and more efficient code?" the generated code provided an alternative method for increasing data efficiency, significantly reducing the time it took. "Prior to AI, I would spend far more time debugging software programs than I did writing." What excites me the most is the possibility of making it easier for other researchers to replicate what I did. Because writing up these iterations takes time, many researchers skip this step. With generative AI, we can ask it to simplify many of these steps so that others can understand them. For example, I might ask the following: Can you write summarized notations of this program or of the previous steps so that others can understand what I did here? Can we reproduce these findings using a different statistical technique? Can you generate a point-by-point summary diary of what I did in the previous month from this calendar? Can you create a step-by-step representation of the workflow I used in this study? Can you help generate an appendix of the parameters, tests, and configuration settings for this analysis? In terms of qualitative data, I might ask, "Can you identify places in this text where this idea was discussed? Please put it in an easy-to-understand table" or "Can you find text that would negate these findings? What conditions do you believe generated these counterfactual examples?" You could even request that the AI create a database of all the prompts you gave it in order for it to generate the results and data. With the advent of AI-generated images and videos, we may soon be able to ask it to generate simple video instructions for recreating the findings or to highlight key moments in a screen recording of researchers performing their analyses. This not only aids validation but also improves the overall reliability and credibility of the research. Furthermore, because researchers incur little cost in terms of time and resources, such demands for video instructions may eventually be quite reasonable. 4. Use AI to predict and then parse reviewer feedback I try to anticipate reviewer concerns before submitting research papers by asking the AI, "As a skeptical reviewer who is inclined to reject papers, what potential flaws in my paper do you see? How can I minimize those flaws?" The results help me think through areas where my logic or analysis may be flawed, and what I might want to refine before submitting my paper to a skeptical scientific audience. The early detection of problems in a competitive scientific arena with high time pressure can be effective and time saving. Once I receive reviewer feedback, I also like to use ChatGPT to better understand what reviewers expect of me as an author. I'll ask, "Help me identify key points in this review, listing them from the easiest and quickest comments to address, up to the most challenging and time-consuming reviewer comments." It's surprising how much more enjoyable the review process becomes once I have a more holistic understanding of what the reviewer or editor is asking. Balancing AI's strengths and weaknesses to improve academic research As educators, we must learn to coexist and co-create with these technological tools. LLMs have the potential to accelerate and improve research, resulting in ground-breaking ideas that push the limits of current possibilities. But we must be careful. When used incorrectly, AI can speed up the process of achieving surface-level learning outcomes at the expense of a deeper understanding. Educators should approach generative AI with skepticism and curiosity, like they would with any other promising tool. AI can also democratize

research by making it accessible to people of all abilities and levels of expertise. This only makes our human essence—passions, interests, and complexities—even more important. After all, AI might be great at certain tasks, but the one thing it can't take away is what makes you, well, you.

Specifically, Gen AI has advanced pandemic forecasting post COVID

Dr. Tariq 25 Muhammad Usman Tariq, 2025, **Muhammad Usman Tariq** has more than 16+ year's experience in industry and academia. He has authored more than 200+ research articles, 110+ case studies, 95+ book chapters and several books other than 4 patents. He is founder and CEO of The Case HQ, a unique repository for courses, narrative and video case studies. He has been working as a consultant and trainer for industries representing six sigma, quality, health and safety, environmental systems, project management, and information security standards. His work has encompassed sectors in aviation, manufacturing, food, hospitality, education, finance, research, software and transportation. He has diverse and significant experience working with accreditation agencies of ABET, ACBSP, AACSB, WASC, CAA, EFQM and NCEAC. Additionally, Dr. Tariq has operational experience in incubators, research labs, government research projects, private sector startups, program creation and management at various industrial and academic levels. He is Certified Higher Education Teacher from Harvard University, USA, Certified Online Educator from HMBSU, Certified Six Sigma Master Black Belt and has been awarded PFHEA, SMIEEE, and CMBE. "(PDF) Enhancing Pandemic Preparedness With AI-Driven Risk Prediction Models", ResearchGate, https://www.researchgate.net/publication/386343073_Enhancing_Pandemic_Preparedness_With_AI-Driven_Risk_Prediction_Models ejs squad

Promoting health security since the occurrence of such diseases is hard to predict and given the fact that the consequences could be disastrous. It is in view of this that the COVID-19 has highlighted the need for proper preparedness plans to contain and address comparable situations. Merger pandemic preparedness entails going beyond simple establishment of the Intensified Public Health Surveillance and Response (IPHSR) to fast disaster response augmented by improved technological prospect to improve on risk assessment and mitigation. **As the globe heeds infectious disease pandemics**, among other afflictions, **the application of artificial intelligence in transforming those approaches has emerged quite clearly. A strong and easily implemented system for pandemic preparedness has been another critical issue that emerged after the COVID-19** pandemic. **The pandemic exposed deficiencies in** surveillance and **early detection, response corridors, explaining why novel approaches to the problem are needed** (Chiu, Sridhar, & Yuen, 2023). These gaps can only be closed with a combination of strategies, of which is the incorporation of technology into the planning and responding models. First, the application of **AI and big data analytics has revolutionized the science of responding to the dynamics of epidemics** (Pham et al., 2020). **Information systems created with AI have the ability to process substantial amounts of data and define patterns related to disease outbreak, which will enable the authorities in public health to intervene at the right time**. One of the groundbreaking phenomena in the field of pandemics has become **generative AI technologies.** They **employ machine learning to design and produce realistic probabilistic models and forecasts with the ability to picture probable pandemics and their effects**. Such **technologies thus let health authorities gain better assessments of the risks involved and formulas the right approaches for preventing outbreaks** (Demirbaga et al., 2024). For instance, **AI-based risk assessment tools have been used in assessment of COVID-19 risks and determine vulnerable regions for future outbreaks** (Sarker et al., 2021). Through the adoption of these technologies, the makers of public health policies and interventions can improve the ways in which they implement actions for prevention and response to new threats to the health of populations. AI application in preparation for a pandemic is not only about the use of analytics to predict the likelihood of the event. For instance, **AI technologies are being applied to better surveillance systems, collect data, and also to upgrade the information dissemination between health organizations and the general population** (Ye et al., 2020). For instance, **generative AI can create an environment in which an epidemic spread in different models and so observe how specific approaches will affect the advancement of the outbreak**. This is important in the formulation of intervention policies that will help reduce the effects of epidemics on the health of a country's populace (Burns, 2020). Besides, **AI in pandemics will also help in making better allocations and coordination of resources for approaching the situation.** Using a reverse search, AI systems can mine several types of data including medical history, travel log, and social media to predict what could happen next. The obtained results can be used for the prioritization of resources that can be helpful in combating the virus, like vaccines and medical equipment, for regions requiring them most, thus increasing the efficacy of actions against the pandemic (Allami & Yousif, 2023). Thus, COVID-19 pandemic has shown why mechanisms of pandemic preparedness and response have to be enhanced. As it has been identified, generative AI technologies can be a great solution to the problem by significantly changing risk prediction and resulting in improved risk management scenario. The use, therefore, of **AI in the management of future health pandemics are necessary in order to improve future global health security significantly.** The continuous development of AI and more so, the usage of AI in the field of public health is a clarification of the need to step up and incorporate these technologies in the enhancement of the worldwide health system.

Scientific research, a subset of education, has created tools to combat disease.

Tulane University 23, 12-12-2023, "Is AI the Right Tool for Fighting Pandemics?", School of Science and Engineering, https://online.sse.tulane.edu/articles/can-ai-prevent-the-next-pandemic-tulane-mscs/ ejs squad

AI researchers are at the forefront of AI and machine learning development. They are pushing the boundaries of what's possible with technologies like neural networks and natural language processing. **Recent advances include generative AI models like ChatGPT**. ChatGPT uses massive amounts of data collected from public internet sites to generate text in response to prompts. **Language models l**ike those behind ChatGPT **have also been used to improve antibody therapies** against COVID-19, Ebola, and other viruses. AI lab DeepMind has **trained an AI system** to control and sculpt a superheated plasma inside a nuclear fusion reactor. AI researchers do meaningful work and their skills and knowledge command high salaries. If you are an early- to mid-career computer science professional, you may be interested in specializing in this realm.

However, success in this field often requires advanced training and expertise, which you can acquire in a graduate-level program, such as Tulane's Online MS in Computer Science.

And, AI helps individuals educate themselves about disease spread.

Professor Bharel of Boston University 21 Monica Bharel, Monica Bharel was the commissioner of the Massachusetts Department of Public Health, appointed in February 2015. On May 27, 2021, Bharel announced she will be stepping down effective June 18. Bharel is an associate professor of medicine at Boston University, 06-24 "Transforming Public Health Practice With Generative Artificial Intelligence", Health Affairs, https://www.healthaffairs.org/doi/10.1377/hlthaff.2024.00050 ejs squad

Governmental public health plays an important role in educating and informing the public about health issues, including health promotion, risks, emergencies, health care, and access to benefits. Extensive resources are spent ensuring that authoritative, high-quality information is available on multiple platforms, presented in different languages and literacy levels. **The need to engage constituents through** a variety of **distribution channels has** only **increased in recent years** with the waxing and waning of preferred social media platforms among different segments of the population. Real-world capacity constraints make it impossible to effectively meet the diverse information needs of constituents across every communication channel. **Generative AI has the potential to offer a more personalized experience.** Some experts have argued for the importance of precision public health, and **generative AI will provide tools to meet the specific information needs of individuals and the public at large.** Generative AI tools can more easily create materials at multiple literacy levels and in a range of languages spoken by communities. Materials can also be personalized to suit different geographic locations and cultural factors. Content can be shared across multiple media formats, including text, audio, and images. Image generators such as Image FX and DALL-E use language prompts to generate images. **These could be used by public health officials to rapidly produce visuals to aid communication efforts.** For instance, **COVID-19-era images depicting social distancing, washing hands, and wearing a face mask are ingrained in the minds of billions** of people around the world, crossing all international boundaries. These **images were, arguably, more universally effective at communicating important health information** than text or speeches in specific languages. With text-to-image AI image generators, the barrier to creating and testing visual resources has fallen dramatically for the average health department. In addition, **generative AI has the potential to summarize health information into easy-to-understand formats** so that **residents** can **get answers** to their specific questions more effectively and efficiently. Instead of clicking across a public health website to answer complex questions or engaging in a complicated exchange of phone tag with staff at the health department, a **constituent can simply initiate a conversation within an AI interface and receive factually grounded responses in a more accessible question-and-answer format twenty-four hours a day.**

This is essential, as the next pandemic could be catastrophic

Professor Hearn at Kansas City 23 James D. Hearn, Rev. Dr. James D. Hearn, J.D., LL.M., M.A., M.A.T., MPH, D. Bioethics, D.Min., is currently an assistant professor of Bioethics at Kansas City University. He is a graduate of the Gould School of Law at the University of Southern California (U.S.C.) and obtained his Master of Laws (LL.M.) in Taxation from the University of San Diego School of Law. He also earned a second LL.M. in Alternative Dispute Resolution and Negotiation Theory from the Straus Institute at the Pepperdine School of Law and has served as a mediator for the Federal District Court in Los Angeles. At Straus his work focused upon the mediation of end-of-life disputes and his research included spending a year mediating such disputes in the ICU of a local hospital. Dr. Hearn also received his Master of Theology degree from Fuller Theological Seminary in Pasadena and his Diploma in Anglican Studies and Doctor of Ministry from Trinity School for Ministry in Ambridge, Pennsylvania, where his doctoral work focused on the area of pastoral bioethics. In 2020 he was ordained to the priesthood in the Anglican Church in North America and until leaving Los Angeles served as an assisting priest at All Saints Cathedral in Long Beach, California. He possesses a second doctorate in Bioethics from Loyola University – Chicago. In addition, he holds a Master's in Public Health from the Gillings School of Global Public Health from the University of North Carolina at Chapel Hill. He was a Lecturer in the Health Sciences Department at the California State University, Northridge for the 16 years before leaving for Missouri where he taught a variety of courses at the undergraduate and graduate levels including courses in death and dying, bioethics, and healthcare law. He has also taught at the Bioethics Center at Loyola-Marymount University in Los Angeles. Additionally, he taught in the Patient Advocacy Program offered through the U.C.L.A. Extension Program. Prior to leaving Los Angeles he was also teaching bioethics at Fuller Theological Seminary. 5-11-2023, "A Proposal for the Cause of the Next Great Pandemic and Recommendations for Preparing to Survive It", DigitalCommons@KCU, https://digitalcommons.kansascity.edu/facultypub/543/ ejs squad

May 11, 2023, marked the end of the federal COVID-19 Public Health Emergency. **COVID-19 resulted in the death of almost seven million people.** After such an ordeal, it is normal to feel a sense of relief, the need to relax. Some are afforded this luxury but not so for those who must prepare us for the next pandemic. A pandemic of the same, or greater, magnitude is not statistically expected for some time. Yet, it is a fact that **the next pandemic can occur at any time.** Thus, **we must be ever vigilant** and in a state of constant preparation. **The benefits of such preparation will be greatly enhanced if the most likely type and magnitude of the next pandemic can be anticipated.** The author believes that there are signs pointing to this source. In pandemic preparation the worst-case scenario employed by many planners is based on the 1918 Spanish influenza. The highest mortality estimates indicate that the pandemic resulted in the death of between 50 and 100 million people. It is difficult to imagine a more intense pandemic. Yet we must. **While the 1918 pandemic was the most intense we have experienced, it is certainly not the most intense that we can experience.**

"Disease X" is a placeholder name which represents a hypothetical pathogen that the World Health Organization lists as a priority disease on its R&D Blueprint which is a global

strategy and preparedness plan. The author believes that **it is both naïve and dangerous to employ the 1918 pandemic as a worst-case scenario. It is necessary to think beyond this level**. Granted when one does so one is venturing into hypothetical territory. Yet, this must be done to even have a chance at adequately preparing for the next pandemic. This article proposes avian influenza as Disease X. The virus is known but is not currently transmissible between humans. If this becomes possible (and nature is working to make this a reality) the estimated death toll can be expected to exceed a world-changing 1.3 billion. While this article looks at avian influenza as Disease X it also recommends the preparations necessary to be made for the global society to even hope to survive it.

Rebuttal:

AI won't pop the bubble - it's unique Verd 24

Nicky Verd [Technology Speaker, AI Keynote Speaker, and Digital Transformation Consultant], 10-14-2024, "The AI Bubble Won't Pop Because It's Not a Bubble", Medium, https://medium.com/@nickyverd/the-ai-bubble-wont-pop-because-it-s-not-a-bubble-3b52169786ac, 3-6-2025 //ejs squad

It's easy to draw parallels between AI and past bubbles because humans tend to fear the unknown, especially when it involves technology. There's also a lot of skepticism whenever a new, groundbreaking technology comes along.

But here's the thing: **bubbles are usually based on speculation without substance. AI has substance.** A lot of it. Unlike the **dot-com bubble**, which **saw inflated valuations of companies with no real business models, AI has already proven its value in real-world applications.** From self-driving cars to predictive analytics in healthcare, AI is solving problems that humans simply can't tackle on their own or at least not as efficiently. AI isn't just a tech trend, **it's the backbone of the future we're heading into,** whether we realize it or not. We're talking about a technology that learns, evolves and improves over time. If anything, AI is the least static technology we've ever seen.

It's constantly getting better, constantly finding new ways to integrate itself into our world in ways that create real value. This adaptability means **AI has longevity.** It's not something that will peak and then vanish; it's more like a living organism, growing and morphing to meet the demands of a rapidly changing world.

Schools quickly make more money than before after integrating AI Leger 24

[Matthew Leger (Research Manager, IDC Worldwide Education Digital Strategies, IDC), 3-2024, Microsoft,

https://www.microsoft.com/en-us/education/msdownloads/Finding-High-Impact-Opportunities-for-AI-in -Education.pdf] accessed 2-16-2025 //ejs squad

While it is still early for many institutions, **education respondents** believe they **are getting** an average **return of 3.4 times on** their **investment for AI** initiatives, and they are seeing these returns j**ust 15 months after implementation**. They cited benefits such as faster innovation, reduced institutional risk, and faster time to market for new education services and experiences.

It is easy for schools to integrate AI

Butler-24 (Cody Butler (Cody Butler is an award-winning multimedia journalist. He came to Florida to launch the Gray Florida Capitol Bureau in May 2023, covering state government for several Gray-owned stations in Florida. Prior to living in the Sunshine State, Cody worked at WILX-TV in Lansing, Michigan. During his time in Lansing, he covered major events including the plot to kidnap Michigan Governor Gretchen Whitmer, the fallout from the 2020 presidential election, and reported live from the shooting at Michigan State University in 2023. Before working in Michigan, Cody was the senior reporter at WFFT-TV in Fort Wayne, Indiana. While working in Fort Wayne, he was recognized for his breaking news coverage by the Indiana chapter of the Society of Professional Journalists. He also worked as a news producer at WTVG-TV in Toledo, Ohio, and as a reporter for KWYB-TV in Bozeman, Montana. Cody is a graduate of Ball State University in Muncie, Indiana with a degree in Journalism/Telecommunications. He is also a member of Investigative Reporters and Editors.), 8-29-2024, "New Florida law provides schools grants for AI in classrooms," https://wctv.tv, https://www.wctv.tv/2024/08/29/new-florida-law-provides-schools-grants-ai-classrooms/, accessed 2-28-2025) //ejs squad

TALLAHASSEE, Fla. (WCTV/Gray Florida Capital Bureau) - Artificial Intelligence is becoming more and more common in our lives. And now, the state is making money available to help teachers integrate the technology into classrooms. "The challenge we have with AI is there needs to be some boundaries," Florida Education Association president Andrew Spar said. A ==new law== is ==mak==ing ==it easier for school districts across the state to integrate AI== in classrooms. It ==provides more grant options to pay for== subscription ==fees and== professional learning ==resources==. Spar said this could help teachers. "AI can help in terms of teachers writing lesson plans using AI. It can probably help in some other ways integrating into the classroom," Spar said. It's a move incoming Florida PTA President Jude Bruno said is needed in education today. "It's definitely an early frontier as it comes into the education system and is definitely a worthy investment to be able to support school districts in that avenue." Meanwhile, Spar said teachers are already coming up with ways to make sure students are learning as they adopt the new technology.

Juli **Sardi**, January, 10, 20**25**, Universitas Negeri Padang, Sumatera Barat, Indonesia
https://online-journals.org/index.php/i-jep/article/view/53379 //ejs squad

==Generative artificial intelligence== (AI), particularly tools such as ChatGPT, ==is transforming education by enhancing critical thinking skills==, two essential competencies in the digital era. This study systematically analyzes the impact of generative AI on these skills using the PRISMA (Preferred Reporting Items for Systematic Reviews and ==Meta-Analyses==) framework to identify, evaluate, and synthesize relevant studies. Document searches were conducted in Scopus, Web of Science, and ScienceDirect, focusing on publications from 2022 to 2024, when ChatGPT was first widely adopted. Of the 3,214 documents identified, 557 met the initial screening criteria, and ==38 studies== were selected for detailed analysis. The findings reveal that ==71.4% of studies reported AI's positive role in SRL==, mainly through personalized learning, metacognitive support, and adaptive feedback. Likewise, ==62.5% of studies reported its significant role in critical thinking==, supporting the process of analysis, evaluation, and reflection. However, researchers cautioned against an overreliance on technology, which one said could take away some students' ability to think for themselves. Such findings indicate that educational institutions need to change their ways and include generative AI in a model that focuses on areas that foster learner independence. This approach will assist teachers and decision-makers in harnessing the distinctive kitsch of AI technology by creating new learning spaces that are creative and future-oriented.

Regulations are Coming -- postdates

Ball 25 (Dean Woodley Ball is a Research Fellow in the Artificial Intelligence & Progress Project at George Mason University's Mercatus Center and author of Hyperdimensional. His work focuses on emerging technologies and the future of governance. He has written on topics including artificial intelligence, "The Coming Year of AI Regulation in the States", Tech Policy Press, https://www.techpolicy.press/the-coming-year-of-ai-regulation-in-the-states/, 1-7-2025, DOA: 2-21-2025) //ejs squad

American ==AI policy in 2025 will== almost certainly be ==dominate==d, yet again, by state ==legislative proposals== rather than federal government proposals. Congress will have its hands full confirming the new Trump administration, establishing a budget, grappling with the year-end expiration of Trump's earlier tax cuts, and perhaps even with weighty topics like immigration reform. Federal AI policy is likely to be a lower priority. Thus, statehouses will be where the real action can be found on this vital topic.

In 2024, state lawmakers introduced hundreds of AI policy proposals. Only a small fraction passed, and of those, the vast majority were fairly anodyne, such as creating protections for malicious deepfakes or initiating state government committees to study different aspects of AI policy. Few constituted substantive new regulations. An AI transparency bill in California and a civil-rights-based bill in Colorado are notable exceptions.

In the coming year, expect to see far more major, ==preemptive AI regulatory proposals.== These will look more like European Union regulations than the more modest US proposals that predominated in 2024.

Already, there have been rumors of New York **legislators working on proposals** similar to the vetoed SB 1047 in California, **which would** have **impose**d **negligence liability on** frontier AI **model developers when** their models were **misused** by others. It also sought to create an auditing regime for the same firms, among other provisions. Meanwhile, the original bill's author, State Senator Scott Wiener, has indicated that he might take a second stab at it during California's next legislative session. While SB 1047 was the only major attempt at "frontier" AI regulation in 2024, we are very likely to see multiple similar proposals in these and other states.

But perhaps the largest number of major AI proposals will more or less mimic Colorado's civil rights-based bill. Similar bills failed in Connecticut and Virginia last year, and it would be unsurprising to see them re-introduced. New states will bring their own iterations. **Texas** Representative Giovanni Capriglione, **for example, has introduced the Texas Responsible AI Governance Act** (TRAIGA), which he describes as a "red state model" **for AI policy**, despite its striking similarity to proposals from blue states like Colorado and Connecticut.

These bills differ in some important details but share the same broad framework. Developers of AI models or systems that may be used in "consequential decisions" (in industries like financial services, health care, insurance, electricity, and numerous others, as well as common business activities like hiring) will need to write lengthy "algorithmic impact assessments" and, often, implement "risk management frameworks."

The same requirements also usually apply to AI deployers—that is, businesses choosing to use AI systems in ways that may affect a person's access to or the terms of service for the industries and business practices mentioned above. These documents all need to be written prior to the release or deployment of AI systems.