Real AI solutions helping people now

By Elena Bras, ASU News

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AI may be everywhere, but its impacts on day-to-day life are more surprising — and beneficial — than you might realize. From scanning thousands of images to prevent crop shortages to creating advances in women's health care, AI is making impacts beyond the computer screen, thanks to ASU research.

About this story

There's a reason research matters. It creates technologies, medicines and other solutions to the biggest challenges we face. It touches your life in numerous ways every day, from the roads you drive on to the phone in your pocket.

The ASU research in this article was possible only because of the longstanding agreement between the U.S. government and America's research universities. That compact provides that universities would not only undertake the research but would also build the necessary infrastructure in exchange for grants from the government.

Here's a snapshot of just some of the ways human-centered AI is changing your world for the better:

Improving women's health care

Cardiovascular disease affects more women than all forms of cancer combined, causing 1 in 3 deaths each year. But life-saving medications, such as statins, were developed using clinical trials that largely recruited male subjects, leading to women more frequently suffering from adverse reactions to these drugs.

Now the ASU IMPACT Lab (Intelligent Mobile & Pervasive Applications & Communication Technologies) is exploring ways AI can be implemented in the medical sector and fill gaps in underserved areas of study with personalized medical care.

- One of the first applications of IMPACT Lab's research is a reader for electrocardiograms, or ECGs. An ECG is a fast and simple test to assess the electrical activity of a heart.

- The AI-enabled reader will analyze the results of an ECG and provide the statistical likelihood that the female patient has coronary artery disease, or CAD.

- Researchers believe that the work will reduce unnecessary and stressful cardiac imaging in women at low risk and will ensure that doctors have accurate information when making care recommendations.

The IMPACT Lab researchers have conducted successful demonstrations of the system for teams of clinicians and are busy applying expert feedback.

Read more on ASU News.

Providing accessibility

More than 6 million Americans live with partial vision loss. People with visual disabilities that can't be remedied with glasses or contacts can sometimes struggle to safely navigate the world.

ASU student researcher Kelly Raines has developed AI that can work with smart glasses to assist those with visual disabilities.

(Video: {https://www.youtube.com/watch?v=7JxX854Bceg})

That agreement and all the economic and societal benefits that come from such research have recently been put at risk.

Learn about more solutions to come out of ASU research at news.asu.edu/research-matters.

The research team created an AI-powered assistant that acts as a visual guide. As the smart glasses collect images, the wearer can speak questions aloud and ask for more details such as how many steps of a staircase are ahead, or identify an object off in the distance or read the text of a street sign.

The project seeks to combine smart glasses' existing capabilities, like capturing photos and video, with digital information about visible objects.

Read more on ASU News.

Food security

How can we improve the quality of human life without exceeding the resource budget of the Earth?

ASU researcher Hannah Kerner believes artificial intelligence can address many of these global challenges — especially in cases where we already have the data needed to do so.

Satellite data grows at a nonstop rate, to the point where no human could feasibly sort through it all. Kerner's research uses machine learning (a type of AI) that takes this data and turns it into models that predict gaps in local food supply or risk assessment with climate disaster.

This means faster and more accurate help when it's needed and can lead to smarter, more sustainable farming, which can provide better food availability for your neighborhood grocery store.

Watch on Instagram and read more on ASU News.

Handling the dirty work

Fantasy writer Joanna Maciejewska recently took to the social media site X to opine: "I want AI to do my laundry and dishes so that I can do art and writing, not for AI to do my art and writing so that I can do my laundry and dishes."

The Autonomous Agents and Intelligent Robots Lab at ASU is creating an AI tool kit that will create instructions that robots use to do the dirty work.

This new AI tool kit will accomplish two things.

- First, it will allow the robot to operate in any area, without an engineer preprogramming or manually inputting information about the space.

- Second, it will make the deployment of robots substantially less expensive and less time consuming, as it will reduce the amount of manual programming required.

Read more on ASU News.

Working with humans, not robots

AI can make quick, lifesaving decisions — such as finding the fastest route to victims in a collapsed building — but it cannot understand why the rescue team diverts from that route or predict how the team might act in certain situations.

ASU researchers teamed up with Aptima — a company that develops solutions to improve human performance in mission-critical, technology-intensive settings — to improve artificial intelligence and make it better able to assist humans working in complex environments, including national security missions.

To accomplish this, ASU researchers generated data from 1,160 Minecraft games, which represents the largest publicly available human-AI team research dataset in history.

Read more on ASU News.

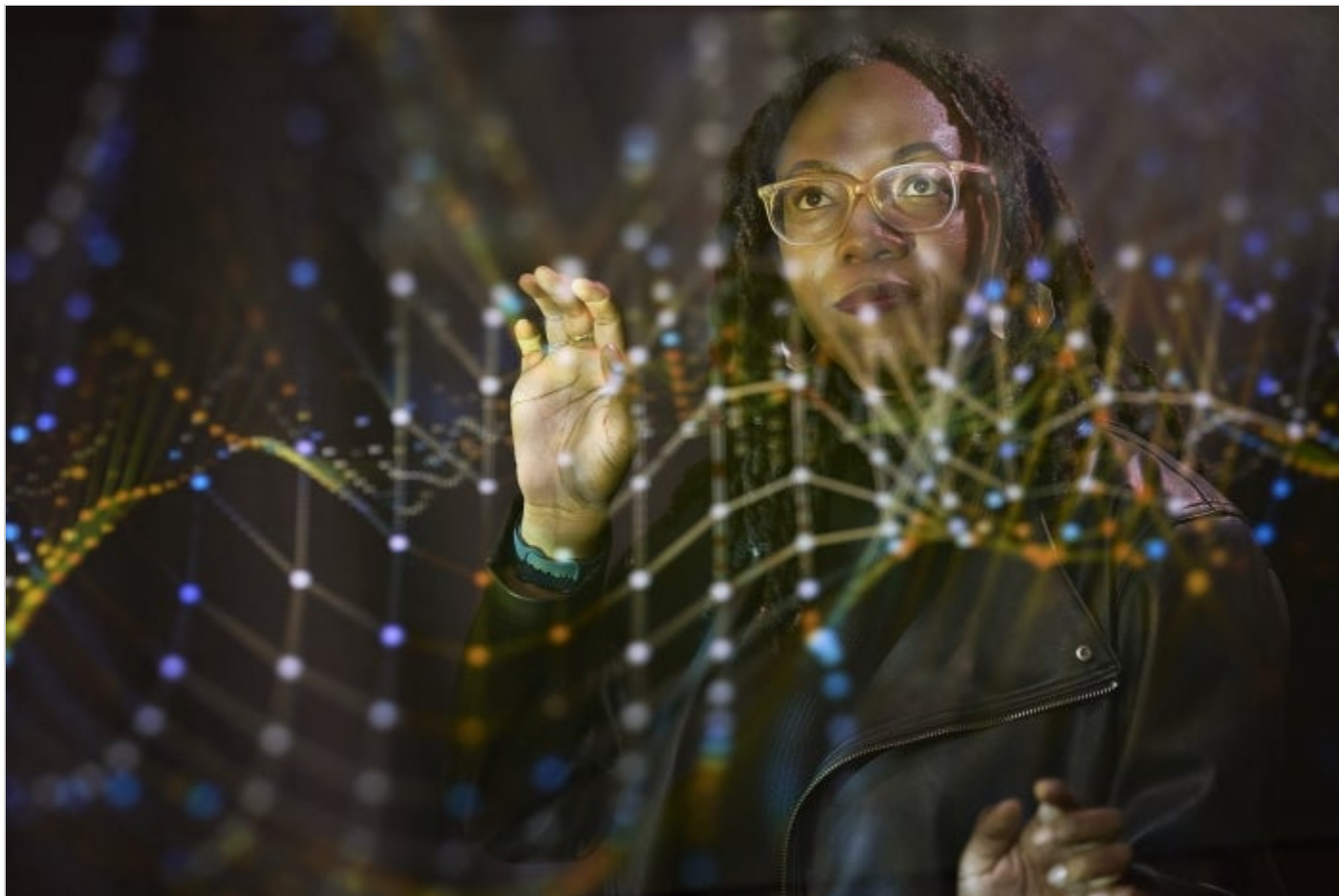*This story originally appeared on ASU News.*

Main image

Image by Jeff Newton/ASU