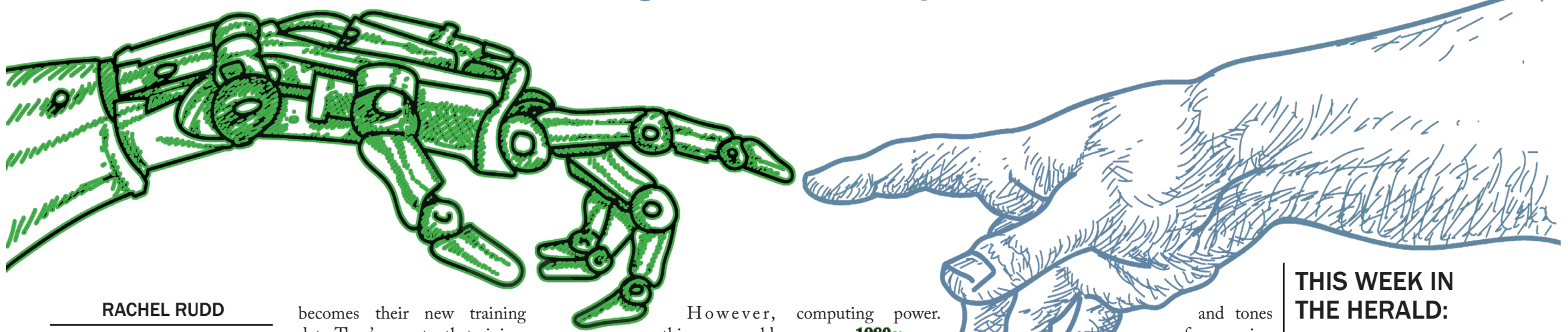


WHAT'S UP WITH ARTIFICIAL INTELLIGENCE?

An A-State professor talks AI:

"It's more exciting than scary at the moment."



RACHEL RUDD

EDITOR-IN-CHIEF

An Arkansas State University computer science professor said artificial intelligence is nothing new.

Jason Causey, Ph.D., an associate professor, added that AI has been around for longer than people think.

"This term 'AI' we tend to call machine learning. Machine learning has been around for a long time and using that to make decisions and some data-driven decisions. It's everywhere. It's in everything," Causey said. "We've been building systems that learn from datasets for a long time."

AI programs have to be trained. The program is given data depending on what the model is intended to do. For ChatGPT, text-based information is fed into the model. For image-generators like Stable Diffusion or DALL-E, various pictures train the software.

Ross Carroll, Ph.D., an associate professor of physics spoke about how AI worked in the Nov. 14 AI in Higher Education Faculty Learning Community meeting.

"It's only as good as the model and the data that you use to train it," Carroll said. "When you put something into ChatGPT, that



PHOTO COURTESY OF ARKANSAS STATE UNIVERSITY
Jason Causey, Ph.D., associate professor of computer science

becomes their new training data. They're constantly training, you're giving them that data."

Causey said AI is a computer that is programmed to think or act like a person. "When you think of modern AI, you're thinking of neural networks, large language models and ChatGPT. All of that is based on these neural networks and that's been around

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since 1943," Causey said. "But we couldn't really do it back then because the technology wasn't good enough."

A neural network is a method of teaching computers to process information in a similar fashion to the human brain. Large language models are a type of AI trained using large datasets, like ChatGPT.

History:
1950s:

Research about AI has been ongoing since the 1950s. British mathematician and computer scientist Alan Turing discussed how to build machines and test their intelligence in his 1950 paper "Computing Machinery and Intelligence." Turing suggested the possibility of an "electronic brain."

Turing's ideas could not be tested at the time due to computers being unable to store commands. Computers could "be told what to do but couldn't remember what they did," according to the Graduate School of Arts and Sciences at Harvard University.

In addition, leasing a computer was expensive, costing up to \$200,000 a month at the time, which is over \$2,600,000 adjusted for inflation.

However, this would change in 1956, when researchers Allen Newell, Cliff Shaw and Herbert Simon created the Logic Theorist program, which mimicked human problem-solving skills in machines. The program was fed 52 math theorems from "Principia Mathematica" and it proved 38. In addition,

Logic Theorist provided more detailed proofs than the authors of "Principia Mathematica."

That same year, the term "AI" was coined by John McCarthy of the Massachusetts Institute of Technology (MIT) and Marvin Minsky of Carnegie-Mellon University, defining it as "the construction of computer programs that engage in tasks that are currently more satisfactorily performed by human beings because they require high-level mental processes such as perceptual learning, memory organization and critical reasoning."

1960s:

Joseph Weizenbaum created the first "chatterbot" in 1966, later shortened to chatbot. Named ELIZA, the bot acted as a mock therapist that used natural language processing to talk with people.

1970s:

The Stanford Cart, created in 1961 by James L. Adams, was one of the earliest examples of an automated vehicle. In 1979, it successfully navigated a room full of obstacles without human assistance.

AI development hit a roadblock by the mid-1970s due to a lack of funding and

computing power.

1980s:

AI research reignited with John Hopfield and David Rumelhart popularizing deep learning, which allows computers to learn from experience.

Computer scientist Edward Feigenbaum introduced expert systems, in which the program asked an expert in a field how to respond to a given situation until all situations had been exhausted. Then, this information could be passed on to non-experts.

From 1982-1990, the Japanese government heavily funded these expert systems, along with other AI projects, as part of the Fifth Generation Computer Project. The project aimed to develop computers with elementary reasoning capabilities, perform more complex tasks and improve ease of use, according to a 1996 New York Times article.

The government invested nearly \$850 billion into the project, however, it fell short of its goals and failed to produce much commercial value.

"We're going to start relying on these technologies in ways that we've never thought of before. Right now, we don't even know how we're going to be using these things in two or three years," Causey said.

1990s:

The International Business Machines (IBM) chess-playing program Deep Blue defeated world chess champion and grandmaster Garry Kasparov in 1997.

2000s:

AI capable of displaying human emotions emerged in 2001 with the creation of Kismet, a robotic head that could interact with humans using facial expressions, head positions

and tones of voice.

"I'm building a robot that can leverage off the social structure that people already use to help each other learn. If we can build a robot that can tap into that system, then we might not have to program in every piece of its behavior," Cynthia Breazeal, leader of the Kismet team at MIT's Artificial Intelligence Laboratory told MIT News.

Present Day:

Nowadays, Causey said AI is ingrained in everyday activities such as predictive text on phones, spell checkers, voice-to-text and more.

He said part of the reason AI has expanded so much is due to Moore's law. This is computer science law stating that every 18 months, computing power doubles.

"This is the next big paradigm shift. We're going to start relying on these technologies in ways that we've never thought of before. Right now, we don't even know how we're going to be using these things in two or three years and so it's

going to change things," the computer science professor said.

In the classroom, Causey said AI can be used to break down complicated topics in an easy-to-read summary.

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THIS WEEK IN THE HERALD:

OPINION, 2A

- Artificial intelligence will be the end of life as we know it
- The many benefits of artificial intelligence

NEWS, 3A

- Professors embrace artificial intelligence in the classroom
- Access and Accommodation Services uses assistive technology to accommodate students
- Can Canvas tell if you've used AI?

NEWS, 4A

- A timeline of the development of artificial intelligence

SPORTS, 1B

- Sports industry and artificial intelligence: a roundup on the use of AI in the sporting industry

ARTS & E, 2B

- The response of creative industries to the rise of artificial intelligence
- Pop Pick
- Why does AI reflect racial bias?

LIFE, 3B

- Cybersecurity 101: how to protect yourself
- Student Speak: how does technology help you?

PHOTO, 4B

- Artificial intelligence enhances A-State