

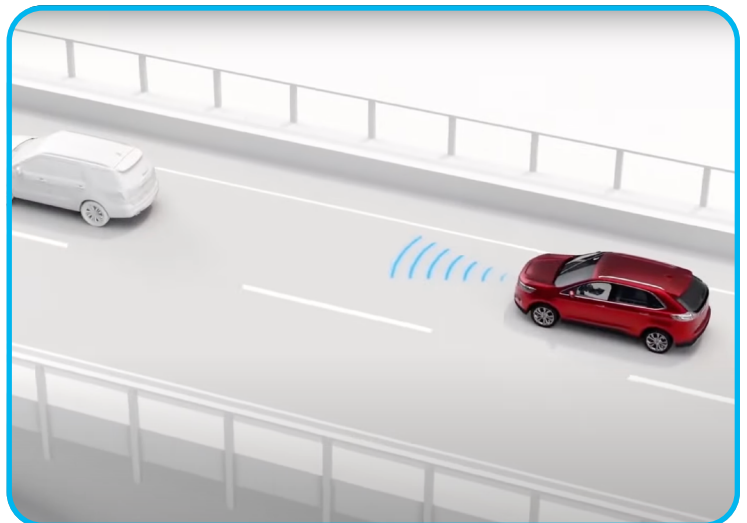
DISCUSSION GUIDE

AI for Global Good

Grade Levels: 4-12

Duration: 40 min

Examine several organizations using AI in their work. Consider the strengths and limitations of using AI to create change.



Grade Levels: 4-12

Duration: 40 min

Concepts/Skills

Artificial intelligence, data science, machine learning, computer vision

Objectives

Students will:

- Understand what artificial intelligence (AI) is.
- Explore how AI is used by different organizations to create change.

Background Information

Artificial intelligence (AI) most often refers to a device or program designed to mimic aspects of human intelligence to complete complex tasks, such as learning, problem solving, and decision making.

AI is also used for tasks like:

- visual recognition (facial recognition, visual image search).
- speech recognition (used in software like Siri and a virtual assistant like Amazon's Alexa).
- machine translation (i.e., Google Translate).

Machine learning is a branch of AI where the goal is to create a program that improves over time or “learns” as it processes more data. Engineers provide training data (e.g., numbers, photos, text) which the AI uses as the basis for an algorithm: the set of rules for making classifications or predictions. Engineers can then provide more data, rules, or both, to test and adjust the algorithm to ensure that it is performing accurately. Some examples of machine learning are self-driving cars and recommendation systems, like you might see while using Netflix or shopping on Amazon.

To see more examples of AI and machine learning, and learn about how some of The Tech for Global Good laureates are using AI in their work, see thetech.org/ai.

Directions

Part 1: What is AI? (15 min)

- Provide students with a basic introduction to AI and ML. Use the **Background Information** above and discussion questions below:
 - *What comes to mind when you think of AI?*
 - *When do you see AI being used?*
 - *What do you think of when you hear the words "machine learning"?*
- Share the three videos below with students and have them take notes on the [Handout](#).
- Lead a brief discussion about the organizations and individuals and the role of artificial intelligence in their work.
- **Discussion Questions:**
 - *Can you think of other examples of when a computer makes a task easier?*
 - *How does AI help these laureates create change?*
 - *Why is data important for solving problems in the world?*
 - *When could images be used as data?*
 - *How was data important in the videos for developing their solution?*



Videos for Part 1

These short videos provide an introduction to the concepts of artificial intelligence and machine learning.

<p>Wild Me The Tech For Global Good Laureate 2021-2022 "Wild Me: Artificial Intelligence," The Tech Interactive, YouTube (1:23 min)</p>	<p>Buzz Solutions The Tech for Global Good Laureate 2021-2022 "Buzz Solutions: Computer Vision," The Tech Interactive, YouTube (0:44 sec)</p>	<p>Srvani Yajamanam Kidambi Automated Driving Research Engineer "Tech for Tomorrow Virtual Field Trip," The Tech Interactive, YouTube (Start at Chapter 2 min 4:42-9:35)</p>
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Part 2: AI for Good (25 min)

- Divide students into teams of 2-3. Ask each group to take a closer look at one of The Tech for Global Good Laureates using AI to create change.
- Students can take notes on their [Handout](#) about how each of these laureates uses AI.
 - Have them consider the strengths and limitations of using AI to create change.
 - Have each team share what they learned with another group or the larger class.
 - Lead a discussion which encourages students to make connections between these examples and other uses of AI in their own lives.
- **Discussion Questions:**
 - *What are the strengths of using AI to create change?*
 - *What are some of the limitations of using AI?*
 - *What are some questions or considerations that companies or people should have as they use and develop AI programs?*
 - *What problems are you passionate about solving and how could AI help you create change for good?*



Videos for Part 2

These short videos provide an introduction to the concepts of artificial intelligence and machine learning.

AI4ALL

The Tech for Global Good Laureate 2019-2020

"AI4AI"

The Tech Interactive, YouTube
(4:50 min)

Wild Me

The Tech For Global Good Laureate 2021-2022

"Wild Me: Exhibit Films,"

The Tech Interactive, YouTube
(8:08 min)

"Wild Me (Spanish),"

The Tech Interactive, YouTube
(8:08 min)

Buzz Solutions

The Tech for Global Good Laureate 2021-2022

"Buzz Solutions"

The Tech Interactive, YouTube
(7:45 min)

"Buzz Solutions (Spanish),"

The Tech Interactive, YouTube
(7:45 min)

Bias in Artificial Intelligence

It's important to understand that AI models can be biased if they do not include a wide range of data. Try to guide students in understanding that the wider the range of data the model has, the better the AI program will be.

A simple example of this is the Animaker exhibit at The Tech Interactive, which has developed a clear bias for giraffes. The AI in the exhibit was trained to identify animal models built by visitors at The Tech Interactive. Because it's simple to build giraffes, Animaker has been shown more giraffes than any other animal. The bias in this giraffe-heavy data set has taught Animaker that most animals are giraffes, especially those that have horse-like bodies and even slightly long necks.

The impacts of bias in AI can be significant when applied to the real world. For example, when policing tools that identify likely areas of criminal activity are built using arrest data, they overinflate predicted crime rates in minority communities. This is because the data chosen reflects the use of racial profiling and disproportionate targeting of these communities by law enforcement.

In order to combat AI bias, it is important to think critically about AI and the data it uses. Encourage students to consider who is creating this AI, why it was created, where the data is coming from, if it is being checked for accuracy, and most importantly, who or what is not represented.



Extensions

More AI and Problem Solving

Are your students asking for more AI content? Continue exploring how they can use AI to solve problems they are passionate about.

- Take students' responses from the Discussion Questions in **Part 2** as a starting point to brainstorm how they can use AI to solve the problem and use technology for global good.
- Do more research on some of these organizations or check out more laureates from [The Tech for Global Good](#) on our website to see what they are working on and how AI can support the problem they are solving.



The Tech for Global Good

[The Tech for Global Good](#) is an initiative to create the next generation of innovators ready to tackle the toughest challenges facing our planet. Every year, The Tech recognizes innovators who use technology to improve lives.

Their stories are the inspiration for resources that engage learners in taking a systematic and empathetic approach to addressing social and engineering problems faced around the world.



Computational Problem Solving

Interested in learning more about Computer Science, AI, and Programming? Check out some of our Computational Thinking resources and lessons at thetech.org/ctlessons.

Name:

Date:

The word AI, artificial intelligence, comes up a lot lately. It seems like everything and everyone is using it!

But what does it actually mean, and how can it be used for good?

Explore these videos and examples. Take notes and then ask yourself what you notice and wonder about the use of AI to create change around the world.

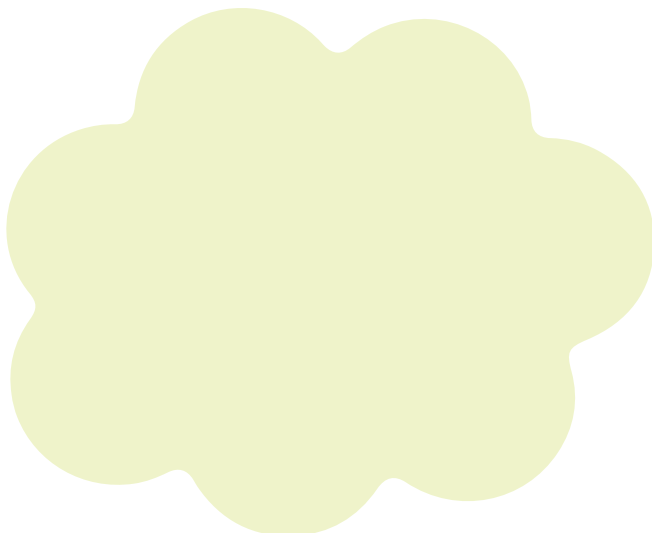
Part 1: What is AI?

Name of person or organization	What problems are they trying to address?	How are they using artificial intelligence or machine learning?	What do you notice and wonder about their work?
Wild Me			
Buzz Solutions			
Srvani Yajamanam Kidambi			

Part 2: AI for Good

Name of laureate:
Who are the innovators?
What's the problem they're trying to solve?
How are they using AI to solve the problem?
What's the impact of their solution?
What do you notice and wonder about their work?
What do you think they had to consider when using AI?

What are some problems you are passionate about solving?



How could AI help you create change for good?

