AI and Data Bias

Grade 2-7 Activity Write Up

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DAY OF AI

AI and Data Bias

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About Actua

Actua is creating a Canada where every child has the skills and confidence they need to achieve their full potential. As a leading science, technology, engineering and mathematics (STEM) outreach organization, Actua includes over 40 universities and colleges, engaging 500,000 youth in 600 communities each year. For 25 years, Actua has focused on identifying and removing the barriers for entry into STEM and now have national programs dedicated to engaging Indigenous youth, girls and young women, Black youth, those facing economic barriers and youth in Northern and remote communities. For more information, please visit us online at www.actua.ca and on social media: Instagram, LinkedIn, Facebook and YouTube! For more information, please visit us online at www.actua.ca and on social media: Instagram, Facebook, LinkedIn, TikTok and YouTube!

AI and Data Bias

Activity Summary

In this activity, participants learn how AI systems use data and how mistakes or bias can happen if the data is incomplete or unbalanced. They will look at examples of AI making decisions, notice errors or unfair patterns, and talk about why they matter. Through hands-on activities and discussions, they will explore ways to provide more complete and diverse data to help AI make fairer and more accurate choices, understanding how humans play an important role in shaping how AI behaves.

Developed by Actua, 2025.

Delivery Environment	Activity Duration	Intended Audience	Tech
In-Person	50 minutes	Grades 2-7 (*Ages 6-12*)	**Facilitators should have access to a laptop, projector, speakers, and a screen or blank wall to project onto.** • Projector • Speaker • Screen/Blank Wall • Laptops/Tablets

Achievement Goals

Learning Goals

Following this activity, participants will:

- **Understand** how AI systems learn from data provided by humans and how bias can arise in AI tools.
- **Analyze** AI systems to spot bias, who may be affected, and recognize how human decisions shape outcomes.
- **Apply** strategies to reduce bias and improve fairness, accuracy, and inclusivity in AI systems.

Success Criteria

Following this activity, participants can express:

- **I can explain** that AI learns from data people give it, and if the data is missing some examples, it can make mistakes.
- **I can identify** when AI is being unfair, say who might be affected, and notice patterns in its mistakes.
- **I can suggest** ways to make AI fairer, help it learn from many different examples, and use my own judgment to make it better for everyone.

Logistics (Timing, Group Sizing, Materials)

Section Title	Time	Group Size	Materials
Opening Hook	10 minutes	*Whole Group*	**Facilitators** • AI and Data Bias 2-7 - Activity Slide Deck (*Appendix C*)
Section 1: Spot the Bias	15 minutes	*Whole Group*	**Facilitators** • AI and Data Bias 2-7 - Activity Slide Deck (*Appendix C*)

Section Title	Time	Group Size	Materials
Section 2: Data Detectives	20 minutes	*Pairs or Small Groups (3-4)*	**Facilitators** • AI and Data Bias 2-7 - Activity Slide Deck (*Appendix C*) **Per Pair or Small Group** • Paper • Writing Utensil
Reflection & Debrief	5 minutes	*Whole Group*	• N/A

Safety Considerations

Safety considerations have been provided below to support safety during this activity, however they are not necessarily comprehensive. It is important that you review the activity and your delivery environment to determine any additional safety considerations that you should be implementing for the delivery of these activities.

Emotional Safety

- Facilitators should understand that participants have different lived experiences and prior knowledge about AI safety, AI, and digital citizenship. This activity may involve or lead to discussions of sensitive topics, such as ethical implications of AI. Facilitators should encourage open, respectful discussions and acknowledge all perspectives. Facilitators should always keep the participants' emotional safety in mind in these discussions, and defer to training from their institution and training received.
- Approach these topics with sensitivity. Participants may have negative and/or traumatic experiences related to bias and stereotypes. Keep discussions broad and avoid focusing on a participant's individual experiences with the topic. Ensure you maintain a safe space for all participants.

    - ***Note:*** If difficult conversations do arise, refer to your organization's policies and training related to navigating difficult conversations with participants.
- This activity could lead to discussion on misinformation, and disinformation, which may be a sensitive topic. Thinking about these issues might remind participants of past experiences or bring up strong feelings. In addition to the suggestions above, facilitators should:
    - Make it clear that participants can step back from any activity, discussion, or resource that feels too heavy.
    - Build in space for reflection, questions, or quiet processing.
    - Offer the following resource on the topic of gendered misinformation and disinformation if relevant, Tackling Online Gendered Disinformation: Youth Guide, which discusses what it is and how to take action. More resources can be found on actua.ca/misinformation.

Curriculum Links

This activity aligns with these components found in the UNESCO AI Competency Framework for Students:

Human-Centered Mindset: Human Agency

- Learners are expected to be able to recognize that AI is human-led and that the decisions of the AI creators influence how AI systems impact human rights, human-AI interaction, and their own lives and societies (p. 29-30).

Human-Centered Mindset: AI Society Citizenship

- Learners are expected to be able to build critical views on the impact of AI on human societies and expand their human-centred values to promoting the design and use of AI for inclusive and sustainable development (p. 45-47).

Ethics of AI: Embodied Ethics

- Learners are expected to be able to develop a basic understanding of the ethical issues around AI, and the potential impact of AI on human rights, social

justice, inclusion, equity and climate change within their local context and with regard to their personal lives. They will understand, and internalize the following key ethical principles, and will translate these in their reflective practices and uses of AI tools in their lives and learning: Do no harm, Proportionality, Nondiscrimination, Sustainability, Human determination, and Transparency (p. 31-32).

Ethics of AI: Safe and Responsible Use

- Learners are expected to be able to carry out responsible AI practices in compliance with ethical principles and locally applicable regulations. They are expected to be conscious of the risks of disclosing data privacy and take measures to ensure that their data are collected, used, shared, archived and deleted only with their deliberate and informed consent. They are also expected to be conscious of typical AI incidents and the specific risks of certain AI systems, and be able to protect their own safety and that of their peers when using AI (p. 39-41).

AI Techniques and Applications: AI Foundations

- Learners are expected to develop basic knowledge, understanding and skills on AI, particularly with respect to data and algorithms, and understand the importance of the interdisciplinary foundational knowledge required for gradually deepening understanding of data and algorithms. They should also be able to connect conceptual knowledge on AI with their activities in society and daily life, concretizing a human-centred mindset and ethical principles through an understanding of how AI works and how AI interacts with humans (p. 32-34).

AI Techniques and Applications: Application Skills

- Learners are expected to be able to construct an age-appropriate knowledge structure on data, AI algorithms and programming, and acquire transferable application skills. (p. 41).

AI Systems Design: Problem Scoping

- Learners are expected to be able to understand the importance of 'AI problem scoping' as the starting point for AI innovation. They are also expected to acquire the knowledge and project-planning skills needed in order to conceptualize and construct an AI system (p. 35).

This activity can be connected to the following subject areas:

Science

- Understanding the role of science and technology in society and daily life.
- Demonstrate an understanding of systems that involve input, process, output, and feedback.
- Classify organisms according to similarities and differences in visible characteristics and behaviors.

Mathematics

- Collect, organize, and interpret data to identify patterns and make informed decisions.

Community Connections

Community connections are suggestions from Actua, grounded in our approach, on how facilitators can adapt the activity to reflect the strengths, interests, and priorities of the community where or with whom it is delivered. Consider the following guiding questions to adapt the activity in meaningful ways:

- **Consult with community:** Are there local organizations, Knowledge Keepers, or community members who could contribute insight or context to this topic?
- **Draw on youth experience:** How can you give participants opportunities to share, reflect on, and apply how this learning is relevant to them or their community? Invite participants to identify what knowledge, who, and where they already learn from.

- **Integrate local examples:** How can you tailor this activity to local or regional interests, industries, or community priorities (e.g. land and environment, health, technologies)?

Activity Procedure

To Do in Advance

SECTION	PREPARATION

General	• **Think ahead and be ready to adapt:**
	  ◦ Determine your **delivery method** and leverage ideas from the delivery recommendations and adaptations sections.
	  ◦ While **estimated times** are provided, it will be helpful to think about how much time you would like to spend on different activities and discussions.
	  ◦ While **group sizes** (individual, pairs, groups) are suggested, many activities are flexible for whatever will work in your classroom.
	• **Prepare for the content:**
	  ◦ Have **answers in mind** to share with participants for the various reflection questions asked.
	  ◦ Examine the provided materials to determine if they are **suitable** for your participants.
	• **Equipment:**
	  ◦ Ensure device, screen and projector are set up.

Opening Hook

1. Using the AI and Data Bias 2-7 Activity Slide Deck (*Appendix C*), share a series of optical illusions to participants. Invite them to share what they notice in each image, and encourage them to discuss and compare their observations with others, asking whether they can identify what their peers can recognize.

2. Ask participants: “When people notice different things in the same image, does that mean someone made a mistake, or could multiple answers be right?”
    a. Explain to participants that what people notice in an image often depends on their **perspective** - a particular way of thinking about or making sense of something, shaped by their experiences and point of view.
3. Ask participants: “Why is it helpful to understand how someone else interprets or understands something?”
    a. Possible Responses: Helps us understand each other better, learn new ideas we missed or did not think of ourselves, prevents misunderstandings, to be more respectful and open-minded, recognize that there isn’t always just one “right answer”, and it can make teamwork easier.
4. Ask participants: “Do machines have perspectives? Can they understand the world like we do?”
    a. Explain to participants that machines “see” the world only through the **data** and information people give them.
        i. For example, imagine you teach a machine to sort blocks by color. You give it lots of red and blue blocks, and it learns to put reds in one pile and blues in another.
        ii. But if you show it a green block or a yellow one, it won’t know what to do, because it only learned from the colors you gave it. The machine doesn’t “see” colors like we do; it searches for patterns in the data (blocks) it was shown.
    b. This data shapes a machine’s “perspective”, which is the patterns it has learned.
5. Ask participants: “What can go wrong if a machine doesn’t have all the information it needs?”
    a. When those patterns are incomplete or misleading, the machine can misidentify or misrepresent something - and that’s how **bias** can show up.

b. Explain that **bias** is when a person or system supports or opposes someone or something in an unfair way. It doesn't always happen on purpose, but it can still lead to unequal or harmful outcomes. When we understand how bias works, we can make better choices and design systems that are more fair.
c. Let participants know that in the rest of the activity, they'll explore how bias can slip into AI systems and how we can reduce or prevent it.

Section 1: Spot the Bias

1. Inform participants that they will explore how an AI robot sorts animals using two simple rules, and their job is to see whether those rules work well or lead to mistakes. The rules are:
    a. If the animal has wings and feathers : Sort as Flying Friends
    b. If the animal has four legs and fur: Sort as Furry Walkers
2. Using the AI and Data Bias 2-7 Activity Slide Deck (*Appendix C*), present each example and have the whole group determine how the robot would sort it based on its rules.
3. Ask participants: "Did the robot's rules work for every animal, or did it get confused anywhere?"
    a. No, the robot's rules didn't work for every animal. Some animals didn't fit neatly into the rules. For example, bats have wings but no feathers, and penguins have feathers but can't fly.
    b. The robot got confused with these tricky cases because its rules were too simple to cover all types of animals.
4. Ask participants: "Was the robot's rules fair to every animal? Why or why not?"
    a. No, the robot only looks at wings, feathers, fur, and legs, it ignores other important features. This shows that simple rules can treat some animals unfairly or leave them out.
5. Ask participants: "What can we do to help robots make better and fairer decisions?"

a. Possible Responses:
    i. Give the robot more examples so it learns about many different animals, not just a few.
    ii. Use more detailed rules, not just one simple rule that doesn't fit everything.
    iii. Check the robot's mistakes and help it learn from them.
    iv. Include different kinds of animals so the robot doesn't assume all animals look the same.
    v. Test it with tricky cases to make sure it works for everyone.
    vi. Make sure people with different backgrounds help design the robot, so it doesn't get stuck with one point of view. For example, this could include people with different subject expertise, or from varied cultural backgrounds.

6. Explain to participants that real AI systems can have the same problem as our robot. If it doesn't have all the examples or if some groups are missing, it can make mistakes or treat some things unfairly. This is called **algorithmic bias**.
    a. Algorithmic bias happens because an AI system learns from the data it's given. If that data is incomplete, unbalanced, or missing certain groups, the AI may behave in unfair ways without realizing it. It's not doing it "on purpose", it's just repeating patterns from the data given by people.

Section 2: Data Detectives

1. Explain to participants that we're going to take a closer look at the data an AI uses. We'll see what's included, what might be missing, and how that can affect the AI's decisions.
2. Using the AI and Data Bias - 2-7 Activity Slide Deck (*Appendix C*), review that AI systems often learn through a process called **machine learning**, where computers improve their performance by finding patterns in data.
    a. One common type of machine learning is **supervised learning**. In supervised learning, an AI is given many labeled examples and learns to recognize the patterns linked to each label.

b. Machine learning engineers typically use two sets of data:
    i. **Training Data:** The examples the AI learns from. These include both the inputs (like images or text) and the correct labels (such as “dog” or “cat”).
    ii. **Testing Data:** A separate set of examples used *after* training to check whether the AI can make accurate predictions on new information it has never encountered before.
c. A model is trained by analyzing many labeled examples and learning the features that define each category (for example, images labeled “cat” may share features like whiskers or pointed ears). Once trained, the model can make predictions on new, unlabeled data by choosing the label that best matches the patterns it has learned.
d. This type of machine learning is commonly used in image recognition apps and email spam filters.

3. Explain to participants that they will be taking on the role of a machine learning engineer who is testing an AI image-recognition app designed to identify different types of animals.
4. Present the training data to participants.
    a. Ask participants: “Based on these examples, what patterns do you think the AI will learn about animals?”
        i. Bear: Large, stocky body, dark/brown fur, rounded ears, lives in forests and rocky/leafy grounds.
        ii. Fox: Slender body, reddish-orange fur, bushy tail, pointed snout and ears, lives in forests and rocky/leafy grounds.
        iii. Dog: Snout/face structure, and lives in domestic places such as homes or yards.
        iv. Rabbit: Small, compact shape, long ears, often white/fluffy fur, lives in snow.
5. Present the testing data to participants.
    a. Explain that the labels under each image represent what the *AI thinks each animal is*.

b. Ask participants: “What do you notice from the AI’s responses?"
    i. Highlight the pattern: In the training data, the only animal shown in snowy environments was a white rabbit. So when the model is tested, the AI begins labeling any white animal in the snow, such as foxes, bears, or dogs, as “rabbit”.
    ii. Point out that the AI learned a biased pattern because the training data linked “white + snow” only with rabbits.
c. Ask participants: “What could be the impacts of animals being labeled incorrectly?”
d. Explain to participants that this is an example of an algorithmic bias, when an AI makes a wrong or unfair decision because the training data did not fully or accurately represent the variety of situations or examples it needs to understand.

6. Ask participants: “What are some ways we could reduce the AI bias of this animal detector?”
    a. Possible Responses:
        i. Show it more examples of other animals that appear white or live in snowy environments.
        ii. Include images of animals in different seasons, backgrounds, and lighting conditions.
        iii. Add images of rabbits in many different environments, not just snow, to prevent the AI from relying on the background.
        iv. Include look-alike animals so the AI learns to distinguish small details rather than broad patterns.
    b. **Note:** Highlight that while it’s almost impossible to eliminate AI bias completely, we can reduce it by creating the most diverse and complete training dataset possible.
7. Divide participants into pairs or small groups and distribute writing utensils and sheets of paper. Explain that their task is to design an AI image-recognition app that can identify different types of shoes. Their goal is to brainstorm and list the kinds of images they would include in the training

and testing data to make the AI as accurate and fair as possible, creating a dataset that helps reduce AI bias.

   a. Ask participants to think about what makes shoes different, such as style, color, size, season, angle, or environment. Encourage them to consider unusual cases too, such as worn shoes, sandals in snow, or shoes on different surfaces.
   b. Remind participants that AI learns from patterns in the data. If the dataset only shows certain types of shoes or angles, the AI may mislabel others. Diverse and complete data helps prevent bias.

8. Gather participants and ask each group to share a few examples from their training and testing dataset lists. To guide the discussion, you can highlight some factors that are important to include in the data:
   a. **Style:** sneakers, sandals, boots, dress shoes, flip-flops, high heels, cleats
   b. **Colour and patterns:** solid colors, stripes, polka dots, multicolored, prints
   c. **Size and shape:** adult vs. kids' shoes, wide vs. narrow, tall boots vs. short boots
   d. **Angles:** top view, side view, front view, worn on feet, on shelves
   e. **Lighting & background:** indoor, outdoor, shadows, bright sunlight, different floor surfaces
   f. **Cultural or regional variations:** traditional shoes, local brands, seasonal shoes
   g. **Condition:** new, worn, dirty, wet

Reflection & Debrief

1. Ask participants: "What might happen if an AI system is built using data that is missing, limited, or unbalanced?"
   a. The AI could learn the wrong patterns, which might lead to biased or unfair results.

2. Ask participants: “Why is it important to have people with different backgrounds, experiences, and perspectives involved in creating AI?”
    a. When teams are more diverse, they can include a wider range of voices, cultures, and needs, which leads to AI tools that work better for more people.
    b. With a mix of perspectives, AI becomes more accurate, more trustworthy, and more helpful for everyone.
3. Discuss the different careers listed in *Appendix A: Career & Mentor Connections*.

Delivery Adaptations

How might you adapt the time, space, materials, group sizes, or instructions to make this activity more approachable or more challenging? **Modifications** are ways to make the activity more accessible, **extensions** are ways to make the activity last longer or more challenging.

Modifications

GENERAL

- Each part of this activity can be delivered as a short, 10-30 minute session, spread out over multiple days / class sessions.

OPENING HOOK

- If time is limited, choose 1-2 optical illusions to discuss in depth with participants.

SECTION 2: DATA DETECTIVES

- Lead the activity as a full-class discussion, guiding everyone together to brainstorm the shoe images they would include in the training and testing data to create a fair, accurate AI model.
- Post category cards around the classroom (e.g., styles, colors, angles, environments, condition). Have participants move between stations and add sticky notes with examples of shoe images they'd include in their dataset. After the walk, regroup and discuss which categories were well-covered and which were missing. Highlight how gaps in data can lead to biased AI predictions.
- Instead of shoes, consider using other everyday items that participants can easily recognize and that have clear variations, such as:
    - Toys (e.g., toy condition, regional toys, size and shape, types of toys)
    - Books (e.g., book condition, book type, colours and patterns, book binding, lighting and background, angles)

Extensions

OPENING HOOK

- Ask participants to share examples of AI in their daily lives (e.g., recommendation systems, video games, spell check, voice assistants) and discuss potential bias.

SECTION 1: SPOT THE BIAS

- Instead of doing it as a whole group, have participants work in pairs or small groups to sort animals and encourage them to discuss their reasoning.
- Invite participants to design a new set of rules or categories that could sort animals more fairly, including tricky cases like bats, penguins, or platypuses.
    - Encourage them to think about features beyond just wings, feathers, fur, or legs.
    - Ask participants to share their own animal examples and check if the robot could sort them correctly using their new rules.
- Lead participants through the Most Likely Machine (mostlikelymachine.artefactgroup.com), an interactive online simulator that demonstrates how algorithms make decisions and how bias can emerge.
    - **Group Decision - Awards:** As a group, choose which historical figures would likely win specific awards (for example: 'Go to a Top University,' 'Go Viral,' or 'Be the Biggest Troublemaker').
    - **Define Traits:** Identify the traits (e.g., adaptability, playful, funny) associated with each award. Work together to rank these traits in order of importance so the algorithm can prioritize them.
    - **Run the Algorithm:** Train the algorithm and review its predictions for which historical figures are most likely to win each award. Compare these results to the group's own decisions.
    - **Reflect and Discuss:** Analyze the outcomes and discuss why and how algorithms can make mistakes.

SECTION 2: DATA DETECTIVES

- Have participants work in small groups using laptops or tablets. Ask them to search for sample shoe images online and sort them into two folders: training and testing. Then have groups compare datasets to notice what is missing or overrepresented.
- Have participants use Google Teachable Machine to create an image-recognition model that identifies different types of shoes. They'll collect online images and organize them into training and testing sets that are clear, balanced, and aligned with what they want the AI to learn, helping reduce and prevent bias.

ONLINE SAFETY CONSIDERATION

Some components of these extensions require the use of devices connected to the internet.

- Facilitators should review the provided videos and read/explore provided websites and materials to determine if they are suitable for their participants.
- Where applicable, facilitators should remind participants to stay on task and only use links provided within this activity.
- Facilitators should also model and encourage appropriate online behaviour by all participants in the group (e.g., using chat boxes to answer and ask questions, using positive and encouraging language, using devices for the purpose of the task).

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Appendices

Appendix A: Career & Mentor Connections

AI/MACHINE LEARNING ENGINEER

- Builds and trains artificial intelligence systems that can learn from data to make predictions or perform complex actions. They support the machine learning researcher.

COMPUTER PROGRAMMER

- Computer programmers write, modify, and test code and scripts in a variety of programming languages that allow computer software and applications to function properly.

MACHINE LEARNING RESEARCHER / DATA SCIENTIST

- Machine learning researchers or data scientists clean and interpret data while building models using a combination of that data and machine learning algorithms.

Appendix B: Background Information

DATA AND DATASETS

Data comes in many forms, including numbers, images, words, and other types of information. They provide insights about individuals, groups, and the world around us. It is a key resource for understanding patterns, making decisions, and predicting outcomes. Specifically, data can be used to:

- Identify correlations and trends that might not be obvious at first glance.
- Develop a deeper understanding of complex systems and behaviors.
- Inform decisions in real time or future planning.
- Make decisions based on past patterns or observed information.

Datasets are also essentials for creating algorithms, which are sets of instructions or rules that a computer follows to solve problems or make decisions. By analyzing and learning from data, algorithms can help humans understand and act on information more effectively.

Some applications of how data drives algorithms include:

- **Traffic and navigation apps:** Analyzing road and traffic patterns to suggest the fastest routes.
- **Outer space and weather systems**: Studying patterns to predict astronomical events or weather changes.
- **Shopping and media recommendations**: Using purchase and viewing history to suggest products or content that people may like.
- **Healthcare and diagnostics**: Analyzing medical data to identify health risks, suggest treatments, or support research.

ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is a branch of Computer Science that deals with a machine's ability to simulate intelligent behaviour. This includes cognitive functions we associate with human minds, such as perceiving, reasoning, learning, and adapting.

AI is becoming increasingly vital in our lives. From digital assistants, GPS navigation, and autonomous vehicles to tools like Siri/Google Home and generative AI tools (e.g., OpenAI's Chat GPT), its impact on our daily lives is growing. AI plays a crucial role in various aspects of work, enhancing efficiency, and taking on hazardous or monotonous tasks. As AI applications grow, discussions on AI ethics and responsible practices are increasingly important.

MACHINE LEARNING

Machine learning (ML) is a type of artificial intelligence where computers learn from data, improve at tasks over time, and adapt without being programmed step by step. Instead of giving the computer every possible instruction, we give it ways to learn from experience, similar to how people practice and improve.

For example, you might teach a computer to play checkers. Rather than listing every possible move, you could program it to learn from playing many games. Eventually, it could get so good that it plays better than the person who wrote the program

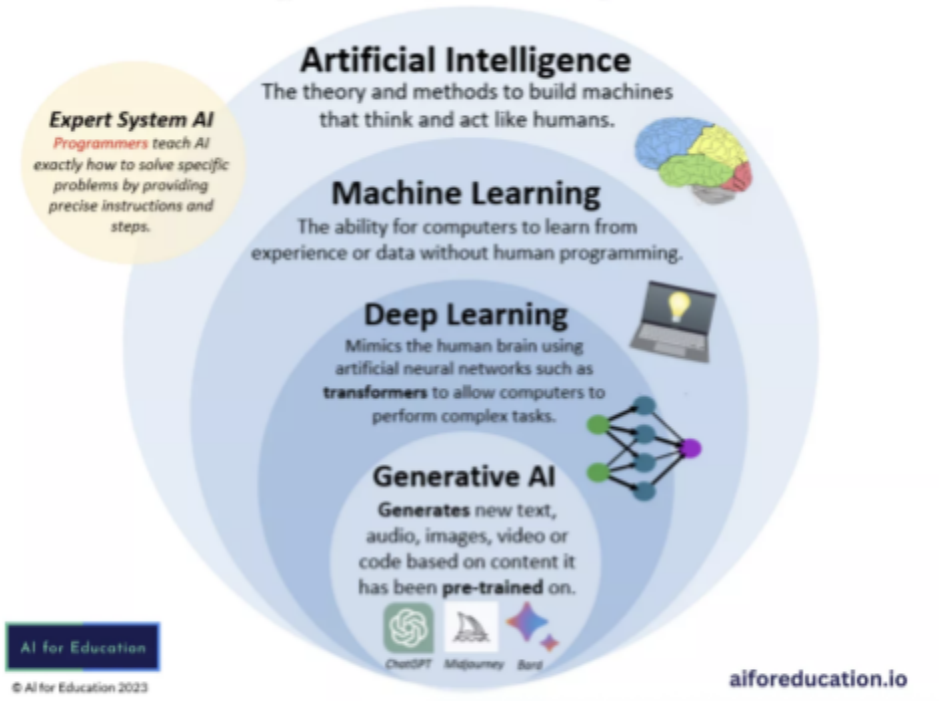
The learning process usually includes a few steps:

1. **Give it Data:** First, the computer is given a lot of data to process. This could be pictures, numbers, text, or sounds.
2. **Find the Patterns:** The computer then analyzes all this data and starts to find patterns, building its own “rules” based on experience.
3. **Make Predictions or Actions:** Using these patterns, the computer can make decisions or predictions when it encounters new data.
4. **Get Better and Better:** As the computer gets more data, it can adjust its patterns to become more accurate. The more data and computing power it has, the better its predictions become

Machine learning is used across different fields and in our everyday lives. In your daily life, ML works quietly behind the scenes in many of the tools and apps you use. It powers autocorrect and predictive text on your phone, suggests videos to watch on streaming platforms, and runs the filters on social media apps that recognize and

track your face. It also helps your phone unlock through facial recognition by learning your unique features, and it keeps your email inbox clean by filtering out junk mail.

In addition, ML is making an impact in the wider world. In healthcare, it helps doctors diagnose illnesses more accurately, such as spotting broken bones in X-rays. It is also the "brain" behind self-driving cars, enabling them to observe and respond to the world around them. In industries like agriculture and manufacturing, ML supports smarter ways to grow food and produce goods more efficiently.



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aiforeducation.io/ai-resources/generative-ai-explainer

Artificial Intelligence VS Machine Learning VS Deep Learning

You might come across the terms "artificial intelligence" and "machine learning" used together, but they aren't exactly the same thing. AI is the broad idea of creating machines that can act or think in ways similar to humans. This can range from simple tools like a smart thermostat that adjusts the temperature based on rules, to more advanced systems like voice assistants or even robots. AI systems can learn over time, sense their environment, and make decisions on their own. Within AI, there are different types:

- **Classification AI**: Systems that identifies and sorts things (e.g. Tiktok or Snapchat face filters).
- **Predictive AI:** Systems that use data to make decisions about the future (e.g. Spotify and Apple Music recommendations).
- **Generative AI:** Systems which create new things, such as text, images, or music (e.g. CoPilot and ChatGPT).

Machine Learning is a specific approach within AI. It's a specific way of achieving AI by having computers learn from data instead of being programmed with a long list of rules. So, all machine learning is AI, but not all AI uses machine learning.

Deep Learning (DL) is a more advanced type of ML that uses structures called neural networks, designed to work a bit like the human brain. Deep learning is what enables high-performance AI systems, including many generative AI tools that can create new and transformative outputs.

ETHICS AND AI

Artificial intelligence offers powerful tools and new possibilities. As these systems learn from data, make decisions, and shape our world, it is important to consider their ethical impacts.

Actua has developed a resource (*Appendix C*) to support facilitators in leading discussions with youth about ethics and responsible AI use. Facilitators are encouraged to engage youth in meaningful conversations that empower them to think critically about how AI is designed, used, and experienced in the world around them. This resource emphasizes human agency and responsibility, supports values-based reflection, and creates space for curiosity, dialogue, and informed decision-making as digital citizens.

Appendix C: Additional Resources

GENERAL

Activity Slide Deck

- AI and Data Bias 2-7 - Activity Slide Deck
    - ***Note:*** This link will automatically download to your device.

Supporting Resource

- AI in Context: Responsibility and Ethics in Artificial Intelligence