

Behind the Algorithm: AI in Media

Gr. 5-7 Activity Write Up

Behind the Algorithm: AI in Media

Terms of Use	3
Activity Summary	4
Achievement Goals	5
Logistics (Timing, Group Sizing, Materials)	5
Safety Considerations	6
Curriculum Links	7
Community Connections	9
Activity Procedure	9
To Do in Advance	9
Opening Hook	11
Section 1: Exploring Algorithms	11
Section 2: Generative AI and Content Creation	13
Section 3: The Ethics of Generative AI	15
Reflection & Debrief	16
Delivery Adaptations	17
Modifications	17
Extensions	17
References & Gratitude	18
Appendices	19
Appendix A: Career & Mentor Connections	19
Appendix B: Background Information	20
Appendix C: Additional Resources	25



Terms of Use

Prior to using this activity or parts thereof, you agree and understand that:

- It is your responsibility to review all aspects of this document and the associated activity write ups, and ensure safety measures are in place for the protection of all involved parties.
- Any safety precautions contained in the “Safety Considerations” section of the write-ups are not intended as a complete list or to replace your own safety review process.
- Actua shall not be responsible or liable for any damage that may occur due to your use of this content.
- You may adapt the content for your program (remix, transform, and build upon the material), providing appropriate credit to Actua and indicating if changes were made. No sharing of content with third parties without written permission from Actua.

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: [Twitter](#), [Facebook](#), [Instagram](#) and [YouTube](#)!



Behind the Algorithm: AI in Media

Activity Summary

Participants will explore how AI is affecting the media landscape, including how they recommend and generate content. Participants will delve into algorithms and how they function in our daily lives. They will then learn about generative AI to understand how it creates images, text, and other media forms, and how these systems operate. They will assess the implications of AI-generated media, discussing potential biases and ethical concerns.

Developed by Actua, 2025.

Delivery Environment	Activity Duration	Intended Audience	Tech
In-Person	1 Hour and 20 Minutes	Grades 5-7 (Ages 10-13)	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 algorithms function to process and recommend content.
- **Explore** how generative AI creates “new” media, such as text and images.
- **Evaluate** the implications of AI’s influence on media, and the ethical considerations involved.

Success Criteria

Following this activity, participants can express:

- **I can explain** how algorithms process and recommend media based on patterns and data.
- **I can create** AI-generated media using accessible generative tools.
- **I can understand** potential biases and ethical concerns in AI-generated media.

Logistics (Timing, Group Sizing, Materials)

Section Title	Time	Group Size	Materials
Opening Hook	5 minutes	<i>Whole Group</i>	Facilitators • AI in Media - Activity Slide Deck (<i>Appendix C</i>)
Section 1: Exploring Algorithms	20 minutes	<i>Small Groups (3-4)</i>	Facilitators • AI in Media - Activity Slide Deck (<i>Appendix C</i>) Per Group • Algorithm Design Template (<i>Appendix C</i>) • Writing Utensils



Section Title	Time	Group Size	Materials
Section 2: Generative AI and Content Creation	20 minutes	<i>Whole Group</i>	Facilitators • AI in Media - Activity Slide Deck (<i>Appendix C</i>) • Computer Device with Internet Access • ChatGPT (Account Optional) • KidGenAI (Account Required) • Conversations with ChatGPT (<i>Appendix C</i>)
Section 3: The Ethics of Generative AI	15 minutes	<i>Whole Group</i>	Facilitators • AI in Media - Activity Slide Deck (<i>Appendix C</i>)
Reflection & Debrief	10 minutes	<i>Whole Group</i>	Facilitators • AI in Media - Activity Slide Deck (<i>Appendix C</i>) • AI Discussion Questions (<i>Appendix C</i>)

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

- This activity involves discussions about Generative AI, including its use in creating content like images. Some participants may feel strongly about the ethical implications of AI using creative works for training data without



consent. Facilitators should encourage open, respectful discussions and acknowledge all perspectives. If participants express concerns, validate their feelings and provide space for them to share their thoughts.

- 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.

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).

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).

This activity can be connected to the following subject areas:

Science

- Understanding the role of science and technology in society and daily life.
- Investigating systems with specific inputs, processes, and outputs.

Language Arts

- Demonstrate an understanding of how media messages are created and how they affect the audience.

Mathematics

- Collecting, organizing, and interpreting qualitative and quantitative data.



Visual Arts

- Use the creative process and a variety of materials and techniques to express ideas, feelings, and/or experiences.

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.



SECTION	PREPARATION
	- 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.
Section 1: Exploring Algorithms	Ensure you have enough Algorithm Design Templates (<i>Appendix C</i>) for the classroom.
Section 2: Generative AI and Content Creation	- Set up either ChatGPT (account optional) and/or KidGenAI (account required) for demonstration. Familiarize yourself with the interface and think of some example prompts to try out with participants. • Note: Both ChatGPT and/or KidGenAI are to be used by the facilitator, not the participants. This is to ensure that the prompts used remain safe and appropriate - If you do not have internet access, familiarize yourself with the Conversations with ChatGPT resource (<i>Appendix C</i>) and prepare to display it to participants.
Reflection and Debrief	Prepare and cut out the questions in the AI Discussion Questions Activity Page (<i>Appendix C</i>).

Opening Hook

1. Begin the discussion by inviting participants to reflect on their own media habits with a few guiding questions:
 - a. “Does anyone use a streaming service like YouTube, Netflix, or Spotify?”
 - b. “Have you ever noticed how after watching or listening to a few things, it starts to recommend content that is similar?”
 - c. “Any thoughts on how that’s possible?”
 - i. Behind all of these recommendations is **an algorithm**.
 - ii. **An algorithm is a set of rules or instructions** a computer follows to make decisions, like figuring out what content you’ll enjoy based on your past choices.
 - iii. For content recommendation, algorithms may look at data like time spent listening to genres of music, the amount of articles clicked about a specific topic, or what influencers are followed on social media.

Section 1: Exploring Algorithms

1. Arrange participants into groups of 3 to 4. Explain that each group will be designing an algorithm (a set of instructions). Each group will be assigned a perspective to design their algorithms from.
 - a. Perspectives can be things like a travel agency, product line, social media, etc.
 - b. Groups can also come up with their own perspectives!
2. Distribute an Algorithm Design Template (*Appendix C*) and writing utensil to each group and explain that their algorithm should answer the following questions.
 - a. What is the **goal** of this algorithm?
 - i. Is it to get more customers, keep users on a platform, or gather information?



- b.** What **data** is this algorithm looking for? (3-5 things)
 - i.** It could be looking for things like travel interests, age, food, location, etc.
 - c.** What **rules** will this algorithm follow?
 - i.** For example: If a user skips music videos, stop recommending.
 - d. Who** is this algorithm for?
 - i.** If it's for youth, the algorithm may focus on entertaining content.
 - ii.** If it's for teachers, it may prioritize educational content.
- 3.** Give participants 5-10 minutes to create their algorithms. Once completed, share the personas they will be “studying” with their algorithms. Let participants know that a persona is a made-up character used for testing things like data collection.
 - a. Persona 1:** This person has recently looked up information on hiking trails, unique architectural styles, and how to pack light for different climates. On social media, they engage with posts about local cuisine, interesting historical facts, and DIY projects for home improvement. Their bookmarks include articles on urban design, photography tips, and eco-friendly travel gear.
 - b. Persona 2:** This person has been exploring tutorials for woodworking, experimenting with digital art apps, and browsing beginner coding courses. On their social feeds, you'll find interactions with tech influencers, artsy memes, and posts about minimalism. They read articles about blending tech-savviness with practical skills and occasionally dive into sustainability hacks for their projects.
 - c. Persona 3:** This person has been learning about music production, checking out reviews of electric bikes, and exploring recipes for international dishes. Their social media likes include posts about concert announcements, local events, and quirky science experiments. They have a tendency to jump between interests, always eager to explore something new.



4. Using Slides 7-9 of the AI in Media - Activity Slide Deck (*Appendix C*), give the groups a few minutes to gather information from each persona based on their algorithms, and fill out their sheet.
5. As a group, review what information each algorithm gathered (Slide 10). Compare the information, highlighting how some may overlap, where other details may be completely unique to one algorithm!
 - a. This is a good time to introduce the topic of **bias**. Each group designed the algorithm from a different perspective, which introduced a bias towards helping that company/persona gather the information it needs to succeed.
6. Briefly discuss what each algorithm would recommend based on each persona (Slide 11). Refer to some examples below.
 - a. For Persona 1, a travel agency may recommend a travel package that includes multiple locations with iconic architecture over two weeks.
 - b. For Persona 2, a product line may recommend woodworking tools, an electronics kit, or even a subscription to a site like Skillshare.
 - c. For Persona 3, a social media platform may recommend musicians for them to follow, and upcoming events in their area!

Section 2: Generative AI and Content Creation

1. Introduce **Artificial Intelligence** – ask if participants can explain what it is.
 - a. **Artificial Intelligence (AI)** is the study of creating computer programs that can mimic different parts of human intelligence. This area of study focuses on recreating human abilities that are normally almost impossible for computers, such as decision-making, speech recognition, or translating languages.
 - b. You can think of AI as a set of constantly adjusting algorithms. Instead of focusing on one goal, it can change its “purpose” to do different things!
2. Do you have any examples of where you might have noticed AI in media, such as social media?
 - a. TikTok, Instagram, Snapchat



3. Some AI is designed for tasks in specific fields, like medicine or engineering, while others are designed as a more general, multi-purpose tool. This type of AI is often referred to as **Generative AI (or Gen AI)**.
4. There are two main types (or models) of Gen AI. (Slides 15-20)
 - a. **Generative Pre-trained Transformers (GPTs)** are a type of language model used for text-based generation. These models do not “understand” language the same way we do - they recognize patterns and correlations (connections)! (e.g., the word blue often goes with sky).
 - b. **Generative Adversarial Networks (GANs)** are a visual-based model used for creating custom images and videos. They are composed of two components - a generator and a validator. The generator creates an image based on a prompt, and the validator approves or denies it, and the process repeats!
5. Most Generative AI starts with a prompt. This is a line written by the user that functions as a request for the AI to create something. It then considers the information it has access to and creates a response! (Slide 21)
6. As a group, demonstrate [ChatGPT](#) (account optional) and/or [KidGenAI](#) (account required). Work with participants to create some unique prompts and check what outcomes you get. Prompts can include writing poetry, asking STEM related questions, or just having it tell a joke!
 - a. **Example prompts:** “Create a poem about...”, “Write a song about...”, “Explain quantum physics, but pretend you’re talking to a 5 year old.”, “Come up with names for...”, “Tell me a joke for youth related to STEM.”
 - b. **Note:** Both ChatGPT and/or KidGenAI are to be used by the facilitator, not the participants. This is to ensure that the prompts used remain safe and appropriate.
7. Using Slides 22-36 of the AI in Media - Activity Slide Deck (*Appendix C*), explain to participants that they are going to be shown some real pictures and AI generated images, and they have to guess which one is which!



Section 3: The Ethics of Generative AI

1. Using Slides 39-41 of the AI in Media - Activity Slide Deck (*Appendix C*), explain that just like how people need to practice and study to get better at a skill, Generative AI “learns” by studying enormous amounts of data, called datasets. The more information it has, the more accurate and efficient it will be when creating content.
 - a. **A dataset** is a collection of organized information. The difference between any collection of data and a defined dataset is that computers can better interpret a dataset and use it. Datasets are often organized in ways that make the most sense for computer programs to utilize it.
2. Ask participants: “Where do you think these datasets come from?”
 - a. Datasets can come from almost anywhere, which introduces an important question - who decides what data is used, and how?
 - b. Larger GenAI companies like OpenAI (ChatGPT/Dall-E) or even Google (Gemini) are not always open about where they source their massive datasets from, leading many people to feel as though they are “stealing” content (like original images and writing posted to the internet).
3. Ask participants: “Can anyone guess why it may be risky not knowing where the AI is getting its information from?”
 - a. There is the concern that the AI may be learning from biased information. For example, if an AI is trained on information only written by someone who dislikes oranges, that AI may be biased against anything to do with the fruit, without any warning to the user!
4. Using Slides 42-51 of the AI in Media - Activity Slide Deck (*Appendix C*), discuss some potential benefits and concerns for Gen AI from different perspectives. These perspectives can include:
 - a. **News Outlets / Journalists**
 - i. Benefit: Can help with faster distribution of information to a wider audience.



- ii. Concern: AI may be studying stories, articles, and information without compensation. They may also unintentionally be introducing bias, depending on the tool used.
- iii. Note: Bill C-18, or the Online News Act, is a Canadian Legislation that came into effect December 2023. Its primary purpose is to ensure that major tech companies, such as Google and Meta, negotiate fair compensation with Canadian news outlets for using their news content on their platforms. As AI continues to develop and improve, more regulations and guidelines will likely continue to emerge and adapt alongside it.

b. Education

- i. Benefit: Can help with ideation, formatting, creating lesson plans, or creating personalized resources for students.
- ii. Concern: Students/Educators may begin to rely too much on AI, potentially reducing critical thinking or creativity.

c. Healthcare

- i. Benefit: Can assist medical practitioners by analyzing data, streamlining admin tasks, or summarizing patient notes.
- ii. Concern: Privacy of patient data and how it is used, as well as risk of errors in decision-making/summaries are two major concerns.

Reflection & Debrief

1. Split participants into five groups. Explain that each group is going to draw two questions from Discussion Questions - AI (*Appendix C*), which they will discuss as a group.
2. Debrief the learning experience:
 - a. How do algorithms shape the media you interact with?
 - b. How could artificial intelligence influence media in the future?
 - c. What steps can we take to ensure AI is used responsibly?
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

SECTION 1: EXPLORING ALGORITHMS

- To shorten the activity, create one algorithm as a class instead of several within groups.

SECTION 2: GENERATIVE AI AND CONTENT CREATION

- If you don't have internet access, use the Conversations with ChatGPT supporting resource (*Appendix C*) instead of live-demonstrating it.

Extensions

SECTION 2: GENERATIVE AI AND CONTENT CREATION

- Facilitators can work with participants to generate images in [KidGenAI](#). Go around taking suggestions, and check what it comes up with!

SECTION 3: THE ETHICS OF GENERATIVE AI

- Have participants develop a set of guidelines for using AI in the world of media and content creation.



References & Gratitude

- Artificial Intelligence for Image Research: How Generative AI Models Work. (2025). University of Toronto Libraries.
guides.library.utoronto.ca/c.php?g=735513&p=5297039
- Bartels, M. (2024). *How to Tell If a Photo Is an AI-Generated Fake*. Scientific American.
scientificamerican.com/article/how-to-tell-if-a-photo-is-an-ai-generated-fake/
- Center for News, Technology & Innovation. (2024). *Artificial Intelligence in Journalism*. Center for News, Technology & Innovation.
innovating.news/article/ai-in-journalism/
- Government of Canada, Department of Justice, Electronic Communications. (2023). *Charter Statement Bill C-18: An Act respecting online communications platforms that make news content available to persons in Canada*.
justice.gc.ca/eng/csj-sjc/pl/charter-charte/c18_1.html
- Davenport, T., Mittal, N. (2022) *How Generative AI Is Changing Creative Work*. Harvard Business Review. hbr.org/2022/11/how-generative-ai-is-changing-creative-work
- Ismail, K. (2018). *AI vs. Algorithms: What's the Difference?* CMSWire.com.
cmswire.com/information-management/ai-vs-algorithms-whats-the-difference/
- Kamali, N., Nakamura, K., Chatzimparmpas, A., Hullman, J., & Groh, M. (2024). *How to Distinguish AI-Generated Images from Authentic Photographs*. arXiv.org.
arxiv.org/abs/2406.08651
- Lawton, G. (2024). *What is Gen AI? Generative AI explained*. Search Enterprise AI.
techtarget.com/searchenterpriseai/definition/generative-AI
- Morrison, S. (2023). *The tricky truth about how generative AI uses your data*. Vox.
vox.com/technology/2023/7/27/23808499/ai-openai-google-meta-data-privacy-nope
- United Nations Educational, Scientific and Cultural Organization. (2024). *AI competency framework for students*. UNESCO.
unesdoc.unesco.org/ark:/48223/pf0000391105
- Simon, F. (2024) *Artificial Intelligence in the News: How AI Retools, Rationalizes, and Reshapes Journalism and the Public Arena*. Columbia Journalism Review.
cjr.org/tow_center_reports/artificial-intelligence-in-the-news.php



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.

ARTIST

- Artists work in a variety of mediums to create original, creative work. An artist can be created for museums, advertising, businesses or a variety of other purposes, such as personal expression.

COMPUTER PROGRAMMER

- A computer programmer is a person who creates computer software. They write code to build websites, computer games, financial analysis and many more.

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.

STORYTELLER

- Storytellers are experts at telling stories using a variety of mediums which can include performing, writing, consulting, and podcasting.



Appendix B: Background Information

COMPUTATIONAL THINKING AND ALGORITHMS

As is described by its name, computational thinking is an approach and a way of thinking. It is structured and systematic and therefore lends itself well to computer science. However, computational thinking is useful beyond computer science as an approach to learning and problem solving. The four stages of computational thinking are:

- **Decomposition:** Breaking down the information into manageable parts.
- **Pattern Recognition:** What is the data doing?
- **Abstraction:** Identifying the rules that dictate the observed patterns.
- **Algorithm Design:** Developing the steps to solve the problem.

An **algorithm** is a set of steps to be taken in order to complete a task. Think of it like a recipe: a set of precise steps that, if followed correctly, will lead to a desired outcome, whether it's baking a cake or sorting a list of names.

In computer science, these are created with a programming language (a language that a computer can understand) in order to input commands and write complex programs. They are the logical blueprints that tell computers how to do things. Algorithms make up our search engines (like Google), our GPS systems, the video games we play and even control our homes.

Computer Encoding and Decoding

Computers are excellent encoders and decoders. Using the programming written for them by programmers and software engineers, computers can “learn” how to interpret information they receive, process it, and return it to a user in a meaningful way.

Computers handle input and generate output. An input is information we give a computer; output is the information a computer gives us back. A simple example is to think of a calculator. Let's say we wanted to calculate the answer to 243 times 342. We give the calculator input data: the number 243, the operation “multiply”, the



number 342, and then the command to calculate (pressing the equal sign). The calculator is programmed to turn those inputs into binary code, run the calculation we requested, determine the answer, convert the answer to numbers we can read (instead of strings of binary), and display the answer. The output (the answer; 83,106) displayed on the calculator's screen.

Examples comparing Input vs. Output:

- A great example of the differences between input and output is digital photography. The camera receives a visual input, translates and stores the information for later transfer to a computer in binary, which can then be presented as a visual output we view on screen. This visual output is presented as pixels on the screen that we are able to edit and manipulate. The story gets even more exciting when taking videos!
- In another example, when geologists use seismic mapping to study features below the Earth's surface computers receive an input of seismic waves from the sensors. The computer converts this information to binary code, and then converts that code into displays of graphical information to the survey technician (the output).

Computers encode inputs to binary data (for example, when we type a letter on a keyboard the computer codes that letter with ASCII) and then decodes binary data to outputs that are easy for us to interpret based on what their programs tell them to do. In this activity, we'll explore a little more about how computers can encode and decode different types of inputs and outputs.

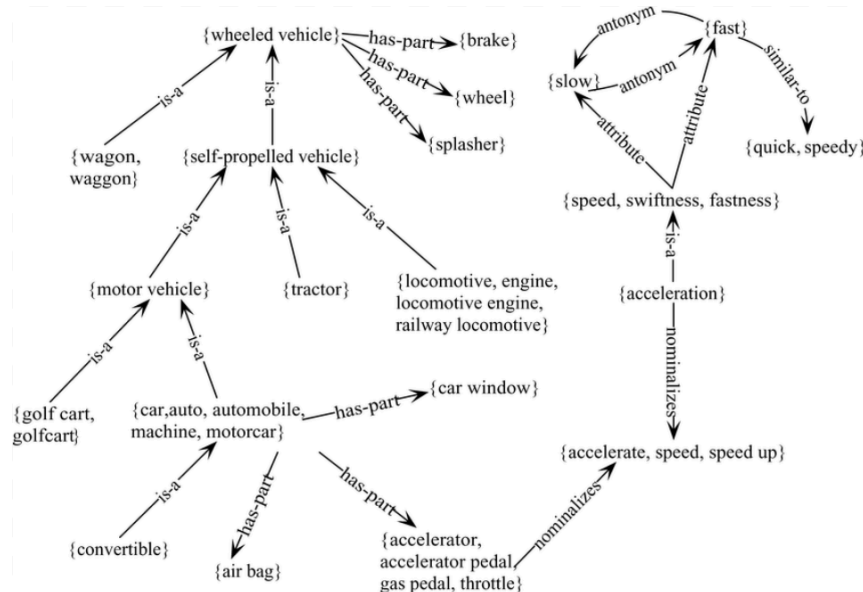
ARTIFICIAL INTELLIGENCE

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.



Navigli, R. (2009). An excerpt of the WordNet semantic network. [Journal]. In *ResearchGate*. researchgate.net/publication/220566219_Word_Sense_Disambiguation_A_Survey

Semantic Networks

Semantic networks are a type of knowledge representation structure. In the context of AI, they are organised maps of information that help computers understand and process things more effectively, similar to how we organise our thoughts to make sense of the world around us.

Semantic networks are organised using two components:

- **Nodes (Representing Entities or Concepts):** Known as the basic building blocks, each node acts as a data point showing a specific idea or concept. For example, if we are talking about vehicles, we might have nodes for “wheeled vehicle”, “brake”, “wheel”, “wagon”, and “tractor”
- **Edges (Representing Relationships):** Edges in a semantic network connect knowledge, showing how various ideas and concepts are related. They represent actions, associations, or attributes that link the nodes together. For

example, we can have an edge to show that “brake” and “wheel” are parts of a “vehicle”. We might also connect “wagon” and “tractor” as a type of “vehicle”.

Semantic networks are able to show complex ideas in a simple manner. It is similar to a structured map of knowledge that AI systems can use to make sense of things. If we ask a digital assistant (e.g., Siri / Alexa) a question such as, “What are other ways to say fast?”, it uses semantic networks to understand what you're asking, find the relevant information (in this case, quick and speed can also mean fast), and give you the right answer.

It is important that our semantic networks can deal with ambiguity and handle very large knowledge bases. Uncertainty happens when a node or relationship can mean different things, and making a network bigger to fit more knowledge can make it more complicated (for example, accelerator, accelerator pedal, gas pedal, throttle are all the same part but different words).

General and Narrow AI

Narrow AI (or specific intelligence) refers to an AI or intelligence that can only do one particular task. A chess-playing computer, a Spotify playlist generator, or a calculator are all examples of specific intelligence. They can do one task very well, but if you asked a chess-playing computer to drive you to work, it would probably end in an accident. Even an advanced computer like IBM's Watson is an example of narrow AI; it is only good at one thing, beating humans at Jeopardy.

General intelligence or general AI is intelligence that is more human and much broader. Something with general intelligence could use its intelligence to solve any problem it was faced with. A human being can play Jeopardy, but can also drive themselves home and cook themselves dinner. General intelligence can learn from their environment and experiences and apply those lessons to different environments and experiences.

Today, we have only created machines capable of narrow intelligence. However, many scientists and engineers are working on creating general intelligence for future use.



GENERATIVE AI

Generative AI is a type of artificial intelligence (AI) designed to create new content, such as text, images, music, or code, by learning patterns from existing data. As a subset of AI, which broadly refers to machines performing tasks that normally require human intelligence, generative AI specifically focuses on producing original outputs rather than just analyzing or recognizing information.

Generative AI models generate new data that resembles the examples they were trained on by understanding underlying patterns and structures. Instead of simply responding to inputs with predefined answers, generative AI can create novel and creative content.

What can generative AI create?

- **Text:** Stories, poems, essays, summaries, chat responses, reports, and even programming code.
- **Images:** Drawings, paintings, photorealistic pictures, designs, and digital art from descriptions or sketches.
- **Audio:** Music compositions, sound effects, voice synthesis, and speech generation.
- **Video:** Short animations, deepfake videos, or video sequences from textual prompts (in emerging applications).
- **3D Models:** Shapes and objects for games, simulations, or design prototypes.

Examples of Generative AI:

- **ChatGPT and other Large Language Models (LLMs):** Generate human-like text based on prompts.
- **DALL-E and Midjourney:** Create images from textual descriptions.
- **Music generation models:** Compose new songs or melodies.
- **Code generation tools:** Produce programming code based on natural language instructions.



Appendix C: Additional Resources

GENERAL

Activity Slide Deck

- [AI in Media - Activity Slide Deck](#)
 - **Note:** This link will automatically download to your device.

SECTION 1: EXPLORING ALGORITHMS

Activity Page(s)

- Algorithm Design Template (refer below)

SECTION 2: GENERATIVE AI AND CONTENT CREATION

Webpages

- [ChatGPT](#) (Account Optional)
- [KidGenAI](#) (Account Required)

Supporting Resources

- Conversations with ChatGPT (refer below)

REFLECTION & DEBRIEF

Activity Page(s)

- AI Discussion Questions (refer below)



Behind the Algorithm: AI in Media

Algorithm Design

(1) Algorithm For

(2) What is the algorithm's goal?

Examples: Get more customers, keep users on a platform, purchase an item, etc.



(3) What data is the algorithm looking for? (3 - 5 things)

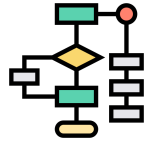
Examples: Travel interests, age, food preferences, location, etc.



-
-
-
-
-

(4) What rules will the algorithm follow?

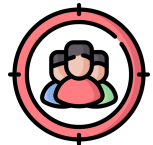
Example: If a user skips music, stop recommending



(5) Who is the algorithm for?

Examples: Educators, youth, parents, etc.

Prioritize recommending content based on this group!



Personas

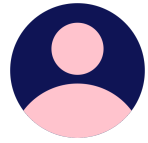
Persona 1

What does your algorithm notice?



Persona 2

What does your algorithm notice?



Persona 3

What does your algorithm notice?



Artificial Intelligence

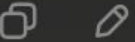
Conversations with ChatGPT

Behind the Algorithm: AI in Media

actüa

Youth · STEM · Innovation
Jeunesse · STIM · Innovation

Tell me a joke for kids!



Sure! Here's a fun one:

Why did the bicycle fall over?

Because it was two-tired! 🚲 😄



Can you tell me how many litres of water are in the arctic ocean?

 The Arctic Ocean contains approximately 18.75 million cubic kilometers of water. CIA
To express this in liters, we can use the fact that one cubic kilometer equals one trillion (1,000,000,000,000) liters. Therefore, the Arctic Ocean holds about 18.75 quintillion liters of water, which is 18,750,000,000,000,000,000 liters.

Sources



Wow, thats a lot. How many pools would that fill?!

 The Arctic Ocean could fill approximately **7.5 trillion Olympic-sized swimming pools!** 🏊‍♂️🌊 That's a lot of water! 🤖



Can you write a short song explaining the acronym for STEAM?



STEAM Song

(To the tune of "Twinkle, Twinkle, Little Star")



S is for Science, it helps us explore,
T is for Technology, opening doors.
E is for Engineering, building so strong,
A is for Arts, where creativity belongs.
M is for Math, the logic we need,
Together in STEAM, we all can succeed!



A catchy and fun way to remember STEAM! ✨



Suggest three creative names for a robot that helps clean your room.



Here are three fun and creative names for a room-cleaning robot:

1. **TidyTron 3000** – Because it sounds high-tech and ready to tackle any mess!
2. **Dusty Buster** – A playful name for a bot that keeps dust and dirt away.
3. **Neat-o-Matic** – Perfect for a robot that makes cleaning automatic and neat!

Let me know which one's your favorite! 😊



Explain how rainbows form, but pretend you're talking to a 5-year-old.



Alright, imagine this: the sky is like a giant piece of paper, and the sun is a big flashlight. When it rains, teeny-tiny water drops hang out in the air like little glass balls.

Now, when sunlight shines through those water drops, something magical happens! The light bends and splits into all its colors—red, orange, yellow, green, blue, indigo, and violet. It's like the water drops are tiny prisms, breaking the sunlight apart into a beautiful rainbow.

So, a rainbow is like nature's way of painting the sky after the rain! 🌈✨



Behind the Algorithm: AI in Media

AI Discussion Questions

What do you think makes AI different from other types of technology you use every day?

What are some tasks you think AI would struggle with, and why?

If AI can recognize patterns in data, do you think it can ever truly be “creative”? Why or why not?

How would you improve GenAI’s responses? What kind of data or training might it need?

Can you think of a profession or hobby where Generative AI could be helpful? How?

If you could create your own AI tool, what would it be designed to do? Why?

If AI creates a news article or a piece of art, who should get the credit for it: the AI, its developers, or the person who wrote the prompt? Why?

What are some risks of relying on AI for important tasks? How could these risks be reduced?

Do you think AI can ever truly understand human emotions? Why or why not?

What do you think happens to jobs when AI can do tasks faster or cheaper than people? How could we prepare for this?