Welcome!

MCCE - AI for Educators

Artificial Intelligence Introduction

Maryland Center for Computing Education

Supporting Maryland Computer Science Education

University System of Maryland

Find this presentation at cs4md.com/ai

Where are you on the AI journey?

1= Is this all new to you?

2= Have you dabbled a bit?

3= Have you started to experiment, read up and use AI?

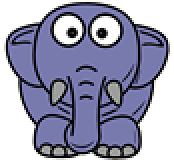
4= Is AI your new best friend?

Visit cs4md.com/ai

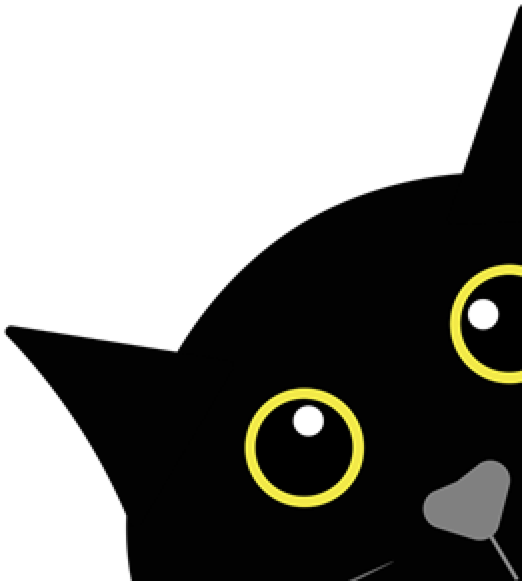
Something new is here. Generative AI using Large Language Models.

Topics

1. What AI is and is not. The basics.
2. How AI is used in the 21st Century
3. How students use AI
4. How educators can use AI
   a. use AI to jazz up assignments
   b. great AI tools to make life easier as an educator
   c. great AI tools for differentiation

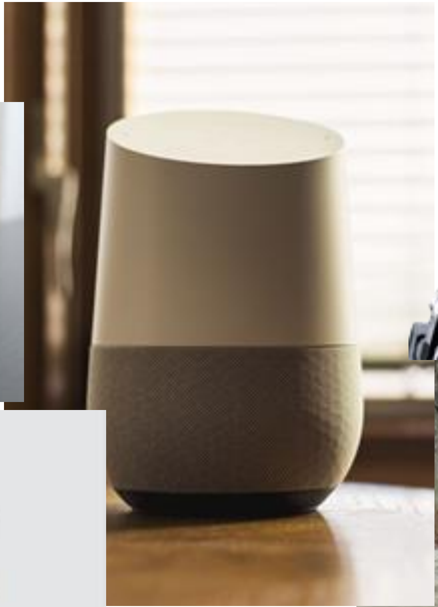


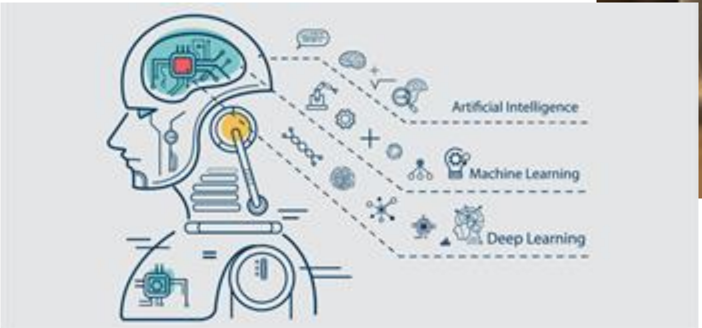
5. Things to beware of
   a. Don’t hide from it. It’s not going away. AU
   b. legal and ethical concerns, equity of access
   c. the problem of bias in AI generated content



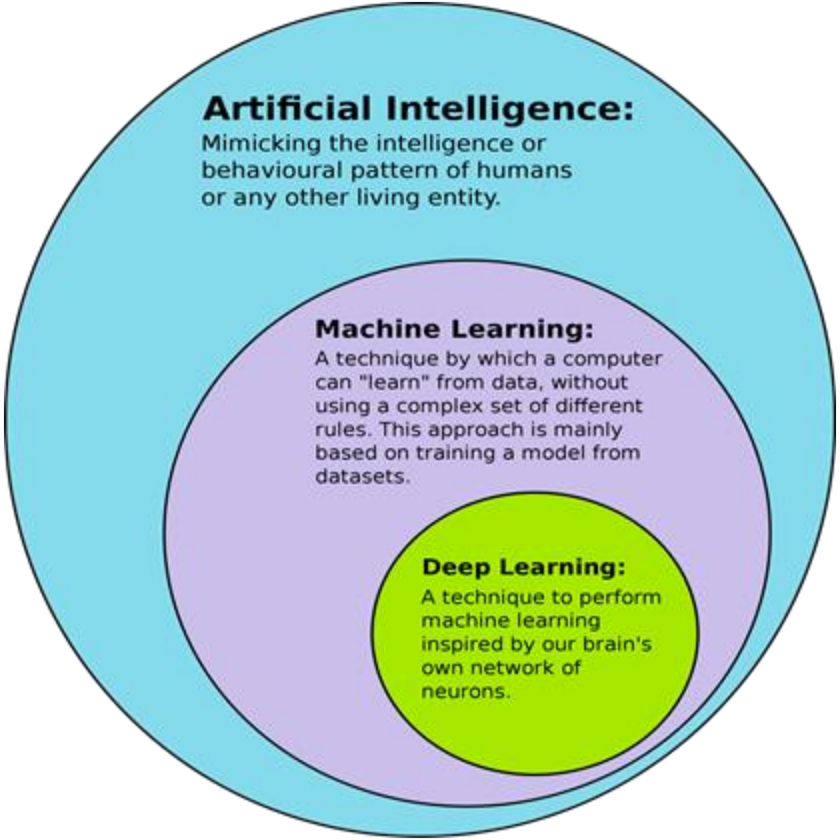
What is artificial intelligence?

Part of the challenge is that people have different definitions, even experts!





What is AI? One view…

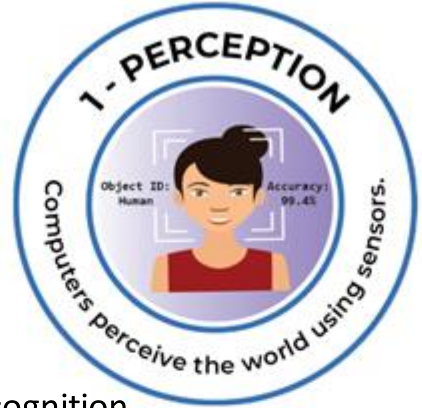


Artificial Intelligence: The ability to sense, reason, engage and learn: voice recognition, natural language processing, computer vision, robotics and motion, planning and optimization, capturing knowledge.

Machine Learning: The ability to learn. Patterns can be discovered using large quantities of data in ways that humans might not discover. Supervised: Humans can offer feedback or definitions, Unsupervised: the AI discovers its own patterns.

Deep Learning can be thought of as a way to automate predictive analytics. While traditional machine learning algorithms are linear, deep learning algorithms are stacked in a hierarchy of increasing complexity and abstraction.

AI4K12 Five Big Ideas to understanding AI



Facial recognition, sensors

Algorithms, neural networks

LLM, supervised and unsupervised learning

Natural language processing

Law, bias and ethics

How AI is used?

In the 21st century

- This is a future job skill for your students.
- We are at the dawn of AI tools.
- Diverse voices will create the tools we really need.

AI is being added to Bing, Microsoft Office products, Google workspace, Khan Academy, Canva, Adobe, and so much more….

In the not-too-distant future it'll be an ordinary part of everyday interaction.

What is generative AI?

- Generative AI can take what it has learned from the examples it’s been shown and create something entirely new based on that information.
- Hence the word “generative!” Large language models (LLMs) are one type of generative AI since they generate new combinations of text in the form of natural-sounding language.
- There are also generative AI tools to generate music, pictures, videos, powerpoints, spreadsheets, code, and even virtual worlds for the Metaverse.
- Prompt engineer is a job of getting good results using AI

AI Model	Developer	Cost	Signup Process	Capabilities
Copilot	Microsoft	Free. Only 30 chats per session and 300 per day total.	Integrated with Microsoft's search engine; Google Chrome and Safari	Can search the web and incorporate the results into its answers. It can also generate images with DALL·E 3 Runs GPT4 Turbo
ChatGPT	OpenAI	Free for 3.5, Plus version for $20/month. Various version have various limits	Accessible through OpenAI's website and as a stand alone app (iOS and Android)	Can search the web, access to plug-ins for expanded features, Can generate images with DALL-E 3.Can accept files and photos to analyze.
Claude	Anthropic	Free, Paid version for $20/month	Accessible through a chat interface via Anthropic's website	Generates responses on the fly, based on the context and the user's input. Can express emotions and empathy with text and emojis. Large context window
Bard	Google	Free	Accessible through Google's platform	Pulls information from the internet to provide answers to questions. Can also include images in its answers. Uses Gemini Pro. Accepts images as input.
Pi.ai	Inflection AI	Free	Can make an account or try for free with no chat history	Generates responses on the fly, based on the context and the user's input. It can also express emotions and empathy, using natural language and emojis.

How students use AI

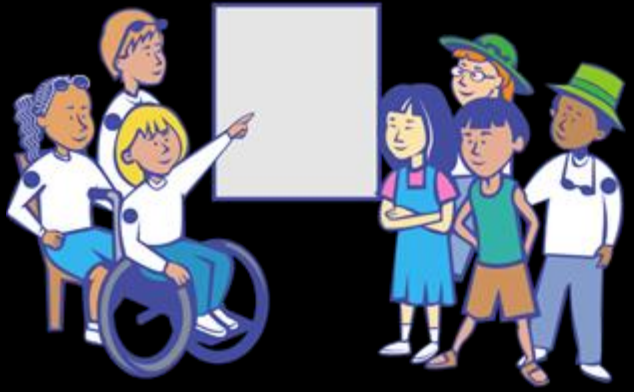
Cheating

Creativity

Plagiarism

Interaction

Summarize your work without looking at it.
Answer questions about your report
Give a presentation about your topic
Create multiple versions and explain which you like best and why.
Write an argument and counter-argument, which is stronger and why?



How can students use AI?

(So can you!)

- To answer questions, do math problems, and write essays, poems, songs, stories, code, drafts, and final versions
  - You can alter the length, style, and even introduce intentional errors
- To refine or summarize an article, video, paper, etc.
- Rewrite something in a different language, easier reading level, generate a vocabulary list or questions and answers for a text….
- Brainstorm ideas or outline a project
- Generate, expand on, and critique content
- Compare and contrast

What’s a good AI to use in CCPS?

More and more it’s being incorporated into the tools we already use

1. Bing Copilot
2. Adobe Express (Built in Firefly, an AI generative art tool)
3. Canva (Under Review for District Licensing)
4. Dreambox and IXL Math (examples of adaptive learning)
5. Turnitin (piloting an AI writing detection tool)
6. More coming out every month!

Jazz up something dull

Pick a lesson that tends to be dull

Choose 1 thing to add pizzazz:

Ex. Differential Equations

- Ask for a catchy title to the lesson
- Generate a limerick
- Generate an image

The Beauty and Mystery of Differential Equations

A differential equation
Is a relation of rates
It tells how things change
In a system or range
And how they depend on the states

How Educators can use AI to their advantage

- Generate lesson plans, providing a structured starting point.
- Creating presentations, checklists, and other instructional materials.
- Automate feedback on student assignments, saving grading time.
- Drafting and automating responses to parent emails.
- Generate templates for common tasks, such as emails, using AI assistance.

Artificial intelligence is already changing how teachers teach

Educators have ChatGPT and other software spitting out lesson plans and posing as characters from novels

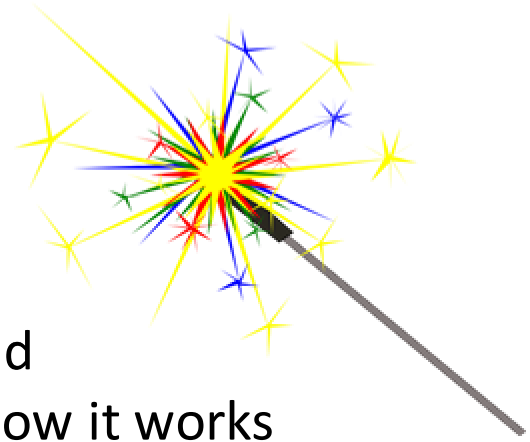
By Donna St. George and Susan Svrluga
July 13, 2023 at 6:00 a.m. EDT

https://www.washingtonpost.com/education/2023/07/13/ai-education-teachers-lesson-plans/

Strong suggestions

- Be informed and teach students how to responsibly use and understand AI tools COMMUNICATE about AI - Don’t HIDE from AI (it won’t go away)
- Be aware of not putting any PII or protected content into an AI tool
- Try out your own assignments with AI tools.
- Think of AI as a tool to work with, not to do the work instead
- Learn how to do quick and easy things that AI can help add fun, differentiation and creativity to your work.
- Experiment! Learn how AI can take over some mundane tasks and make life easier.
- Be aware of the bias, limitations, and hallucinations of AI

Teach students



To recognize when AI is making decisions

To reason about impacts of using AI in the world

To understand that AI is not magic but rather how it works

To be critical of what AI generates and fact check

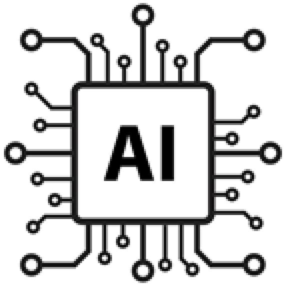
To cite AI sources and and use it to learn and enhance their work, not replace it

What is AI Snapshots?

What is AI Snapshots?

AI Snapshots is an assortment of classroom warmups that will give your students a basic understanding of AI. In only **5 minutes of class time**, students will learn to define, identify, and think critically about artificial intelligence.

AI Snapshots



Why AI?

In the next few decades, AI will affect **any career field** your students pursue, **any consumer product** they use, and **policies** that will shape their lives. In fact, you can bet your students are already interacting with AI in their day-to-day lives. A daily dose of AI will **empower your students** with the knowledge they need to succeed.

Get some conversations started. Try the AI snapshots https://www.aiedu.org/ai-snapshots

Start conversations: AI snapshot activities

1. ELA
2. Math
3. Social Studies
4. Science
5. AI challenges
6. AI & arts (+ more)
7. AI + CS

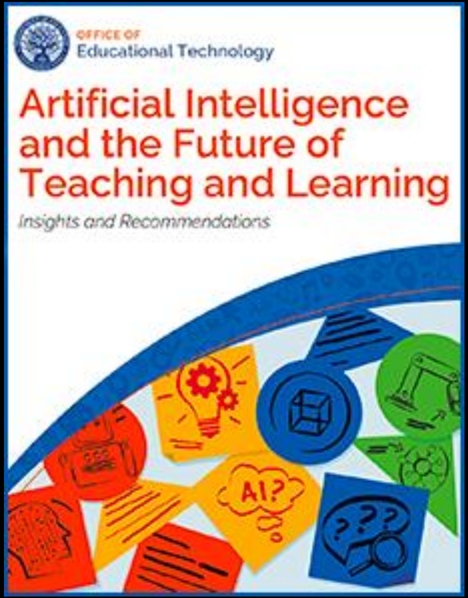
Henn Na Hotel **replaced 243 staff members with AI-powered robots**...and it didn't go well. **Check-in robots** couldn't answer questions or scan IDs. **Bellhop robots** ran into walls. **Concierge robots** woke guests every time they snored because they thought the guests needed help.

How would you **teach a robot to perform one of these tasks** more effectively?

AI Snapshots

Beware

- Being proactive
- Knowing problems and limitations



Summary of US office of Ed Tech Guidance on AI

Limitations and concerns

Hallucinations: Generative AI makes things up

(and sounds very authoritative when it does!)

Bias: internet content does not equitably represent all voices

AI will only build on what's already out there and, in spite of all attempts to filter, can include offensive, non-inclusive content.

Legal concerns:

Do NOT put in anything with PII or that cannot be freely shared

You're responsible for what you submit, AI is only a tool.

Equity of Access:

If kids don't have access in school, only some have access at home

There is a cost to many AI tools. Students who communicate well can take greater advantage of AI tools.

Sample acceptable use policy

Acceptable Use Agreement for AI Technology in Grades K-12

Welcome, students!

Artificial Intelligence (AI), specifically tools such as ChatGPT, Google Bard, Bing, and Canva Write, bring fantastic opportunities to enhance and deepen our learning journey. Whether engaged in creative brainstorming, analyzing texts, refining our grammar and writing techniques, or helping with homework, these innovative instruments offer support and foster innovation. The use of AI tools such as those listed above can help build critical thinking, problem-solving, and analytical skills. However, it's essential to utilize them in a manner that maintains the standards of academic honesty, always keeping in mind that the genuine objective of our educational endeavors is to learn and grow in mind and spirit.

Here are the guidelines for our class::

1. **Use Only for Learning:** ... etc

Parent/Guardian Guidelines:

1. **Monitor Usage:** etc.

Find the link on cs4md.com/ai

Recommended resources

1. Educating for an AI enabled world
2. Discover AI for educators
3. Sample acceptable use document
4. US Department of Ed AI recommendations
5. What's an educator to do? Common Sense
6. AIEdu warmups & curriculum
7. Watch the 60 Minutes episode on AI.
   a. It is a great primer and you'll understand this technology better than 90% of people just by watching this episode

MCCE - AI for Educators PD is offered throughout the year - there’s more after this!

Every spring, summer and fall.

A stack of 3 microcredentials to earn a badge as a CS Educator.

1. Using AI effectively
2. Teach AI 1 - intro
3. Teach AI 2 - Applying AI in the classroom

Visit [cs4md.com/pd](cs4md.com/pd)

Thank you!

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