

# Elevating Artificial Intelligence Literacy in the Classroom

**Kiri L. Wagstaff**

Special Advisor on Artificial Intelligence

Oregon State University Libraries

NWELearn Conference, October 16, 2025



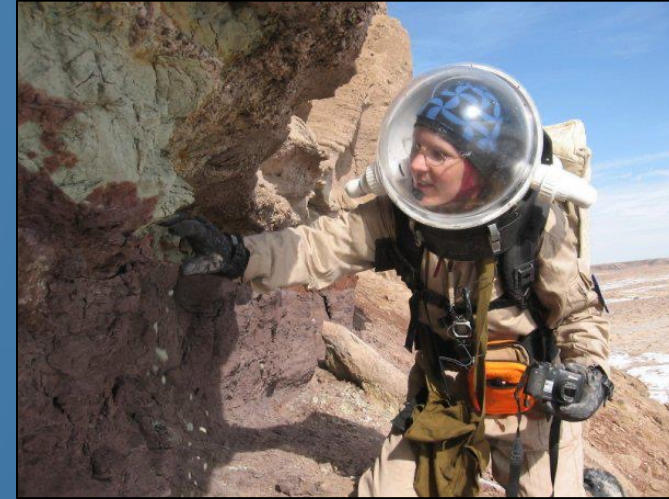
# Dr. Kiri Wagstaff

- Researcher – Ph.D. Computer Science

- NASA Jet Propulsion Laboratory (2003-2022)
- AI and machine learning for space exploration
- Mars rover operations (Opportunity rover)
- Fellow of the Assoc. for the Advancement of Artificial Intelligence (AAAI)

- Educator – Oregon State University since 2019

- “Machine Learning Challenges in the Real World”
- “How to Be Less Wrong: A Study in Common Misconceptions”
- AI Advisor to U.S. Senator Mark Kelly (2023-2024)
- Special Advisor on AI for the OSU Libraries



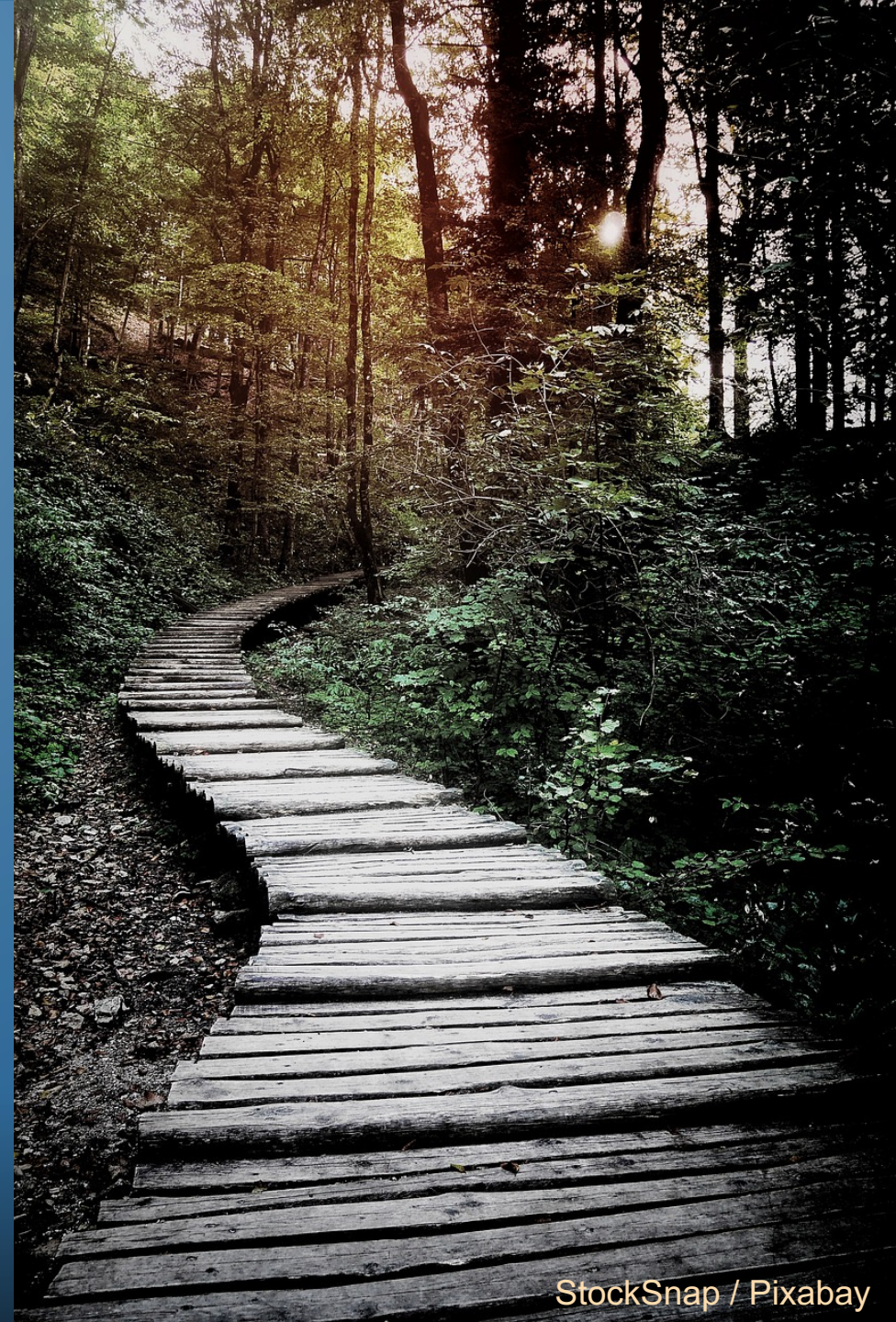
Mars Desert Research Station



U.S. Congress

# Topics for today

1. Demystify – help students understand AI
2. Develop guidance – for us and our students
3. Discuss – your fears, hopes, and ideas



# AI in the News

 Australian Broadcasting Corporation

University caught out using AI to wrongly accuse students of cheating with AI



Trust

 OECD

Leveraging artificial intelligence to support students with special education needs



Special needs

 unesco.org

AI and the future of education.  
Disruptions, dilemmas and directions



Disruption

 Verizon

Artificial Intelligence (AI) in Education:  
The Role of AI in Schools



Advertising

# What is AI?

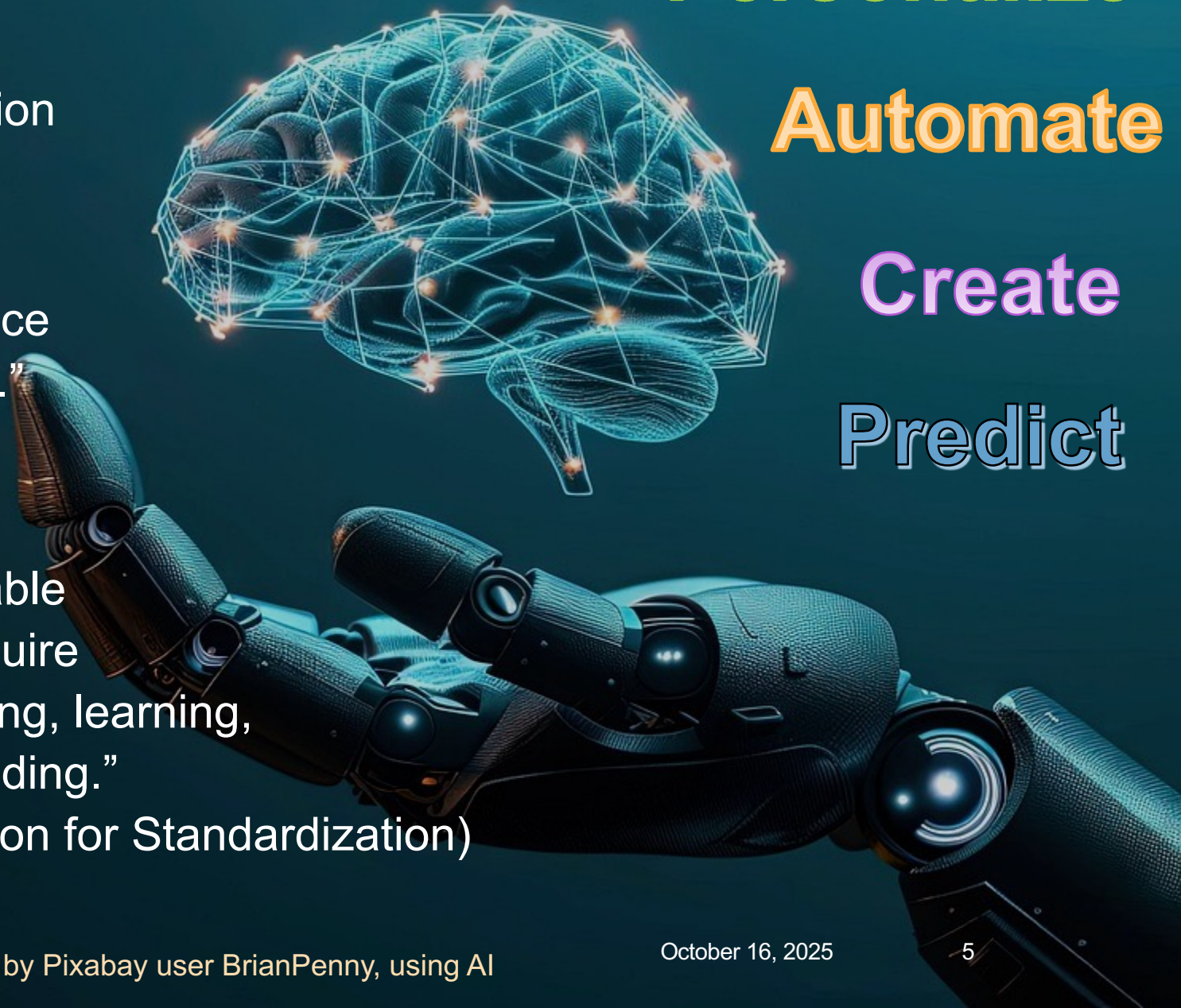
- There is no widely agreed-on definition
  - Even among AI researchers
- “Artificial intelligence is the intelligence exhibited by machines and software.”
  - Wikipedia
- “AI refers to computer systems capable of **performing tasks** that typically require **human intelligence**, such as reasoning, learning, perception, and language understanding.”
  - ISO (International Organization for Standardization)

Personalize

Automate

Create

Predict



# When you hear “AI”, do you think of...



ChatGPT

“Try ChatGPT to become an expert on any topic”



Claude

“Next generation AI assistant”



perplexity

“AI-powered answer engine”



AI Overview

Google search



zoom AI Companion

Work happy with Zoom AI Companion

Zoom AI Companion

All of these tools use generative AI

What are these tools?

# What are examples of non-generative AI?



Unlock your smartphone  
Gustavo Wandalen / Pixabay



Take dictation  
mcmurryjulie / Pixabay



Email spam filtering

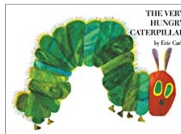


Robot dogs!  
James Maskell / Flickr

## Frequently bought together



+



Total price: \$17.30

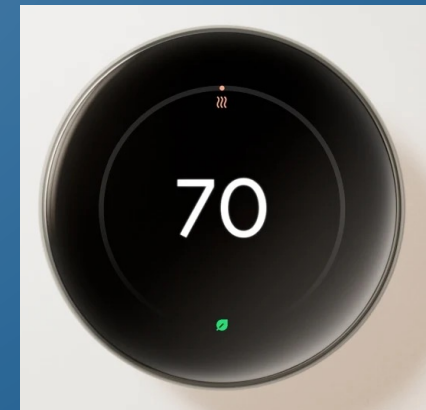
Total Points: 36 pt

Add both to Cart

✓ **This item:** The Giving Tree by Shel Silverstein Hardcover \$10.74 22 pts

✓ The Very Hungry Caterpillar by Eric Carle Board book \$6.56 14 pts

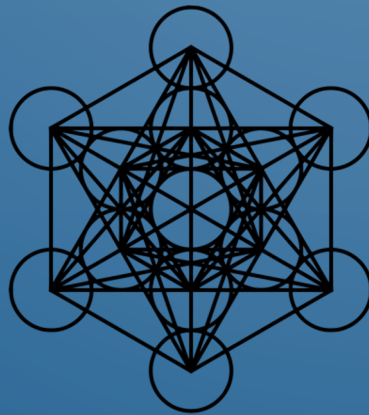
Book recommendations



Nest thermostat

# What is generative AI?

- “Generative” because it generates new data (text, image, music, etc.)
  - Learn probabilities from previous data and create new outputs
- “Large language model” = Generative model learned from (a lot of) text



LLM



## Fill in the blank

“The cat sat on the \_\_\_\_\_.”



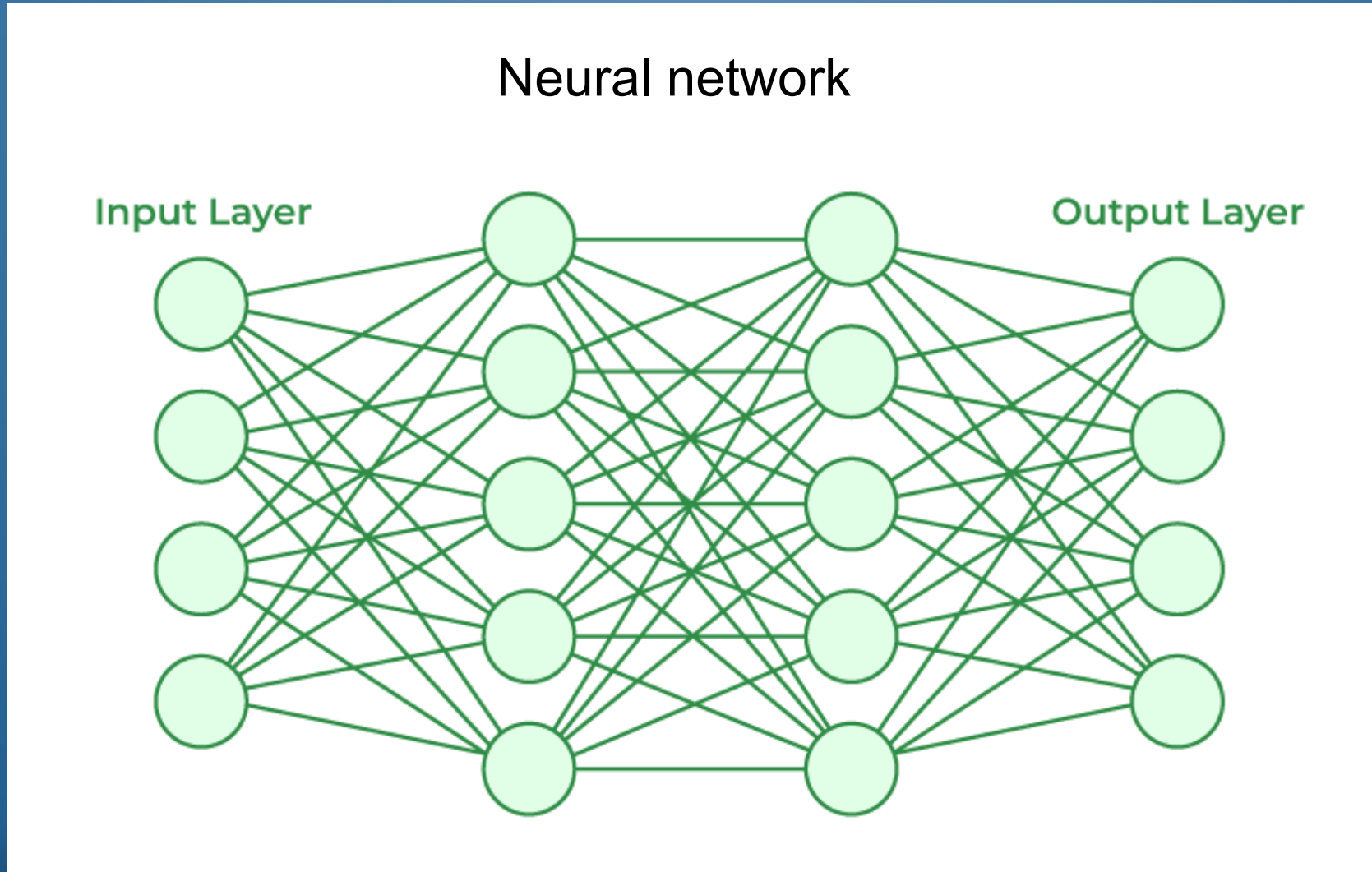
Possibly:

mat, hat, chair...

Unlikely:

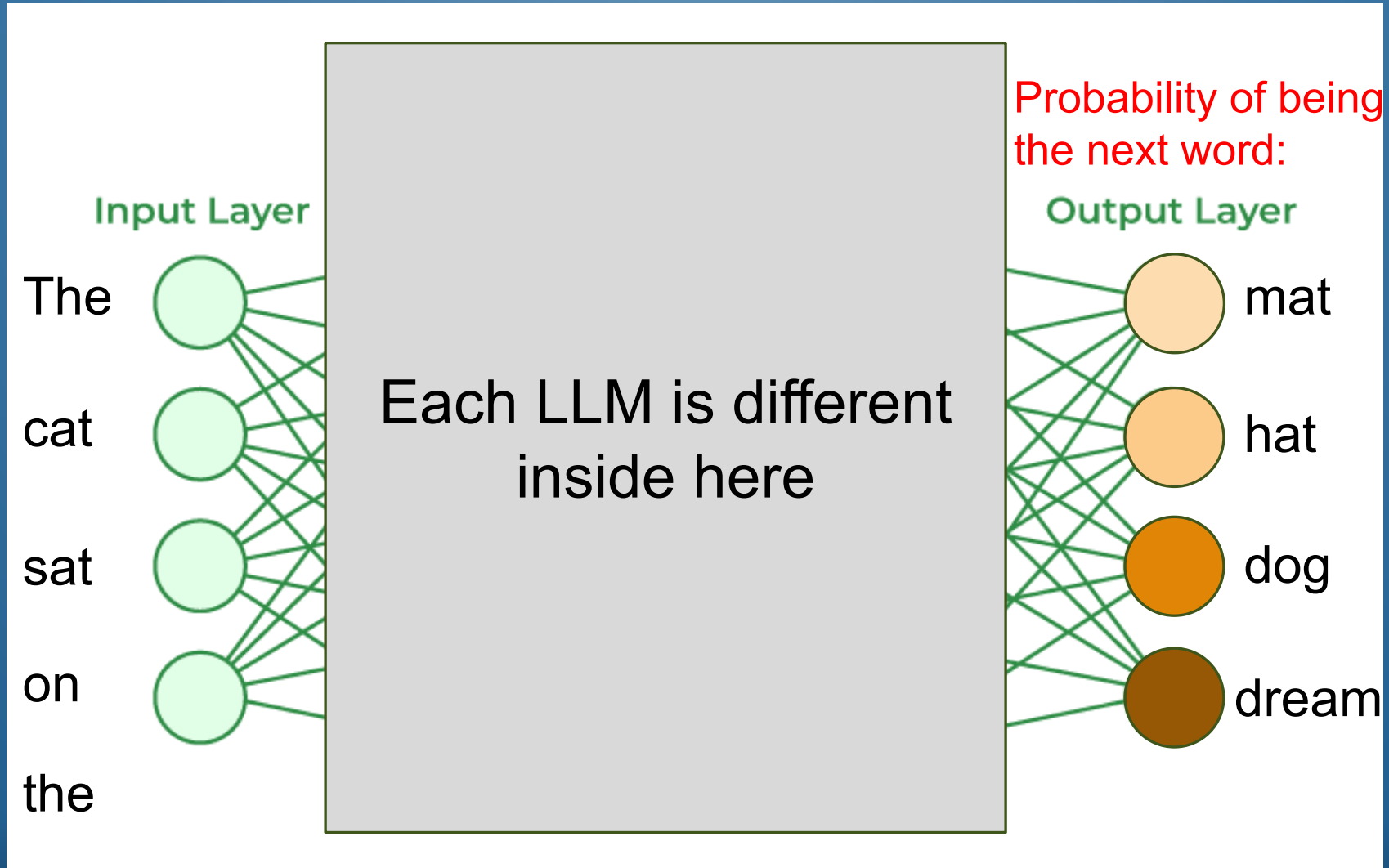
xylophone, dream, golf...

# 1. The LLM predicts what could come next



# 1. The LLM predicts what could come next

The LLM prompt becomes the input:



## 2. The “generative” part picks one choice

Each word is weighted by its modeled **probability**, shown here by brightness.



The LLM spins the (weighted) wheel and **picks** a word.

This is why **the same prompt can give different results each time** (different spin of same wheel).

### 3. To get more words, repeat the process

The LLM continues to generate words based off **its own output**.  
You only see the final result when it's done.

Prompt (input)

LLM output

The cat sat on the

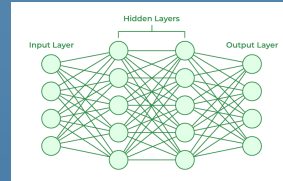
The cat sat on the **mat.**

The cat sat on the mat. **The**

The cat sat on the mat. The **dog**

The cat sat on the mat. The dog **howled.**

...



mat.

The

dog

howled.

After

...

# I tried this example with ChatGPT

Me:

the cat sat on the

 Attach  Search  Study

I pressed “enter” and  
ChatGPT wrote:

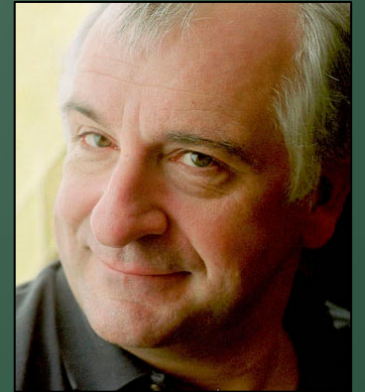
mat. 🐱 🧘

# Technology and change

Anything that existed when you were born is **normal and ordinary**; anything invented between 15-35 is **exciting and revolutionary**; anything after 35 is **against the natural order of things.**”

## How do we grapple with new technology?

- Build on what we already know
- Find useful metaphors – how does it fit in?
- Experiment and learn



Douglas Adams  
(picture Michael Hughes)

# AI in the classroom: Are you concerned about:

Student use of generative AI tools  
that interferes with learning

How to use AI tools  
as an educator

Vision or mission statements like:

"Redwood Valley University is pioneering a transformative vision for the future of higher education — one where artificial intelligence is seamlessly woven into the fabric of every undergraduate experience."

Fatigue and stress from constantly  
adapting to what's out there

# Good news!

- Your students want to learn from you
- You can guide students on when AI is an appropriate tool and when it isn't
- You don't need to be an AI expert to succeed

## What is AI literacy?

- “The essential knowledge and skills needed to **understand**, **interact** with, and **critically assess** AI technologies.” – Digital Education Council (2025)
- Not just the ability to **use** AI, but to decide **whether** to use it
  - Need not assume that use of AI is “inevitable and desirable”
  - Demystify AI to enable informed decisions



Dani Dilkes  
(Western University)

# AI literacy in higher education

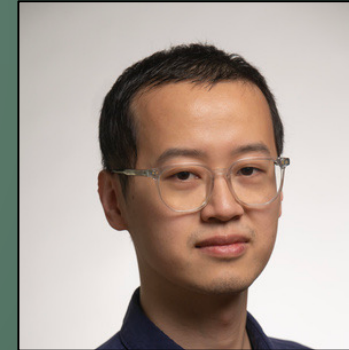
RESEARCH-ARTICLE | OPEN ACCESS | CC BY

## AI Literacy in K-12 and Higher Education in the Wake of Generative AI: An Integrative Review

Authors:  Xingjian (Lance) Gu,  Barbara J. Ericson | [Authors Info & Claims](#)

ICER '25: Proceedings of the 2025 ACM Conference on International Computing Education Research V.1

Pages 125 - 140 • <https://doi.org/10.1145/3702652.3744217>

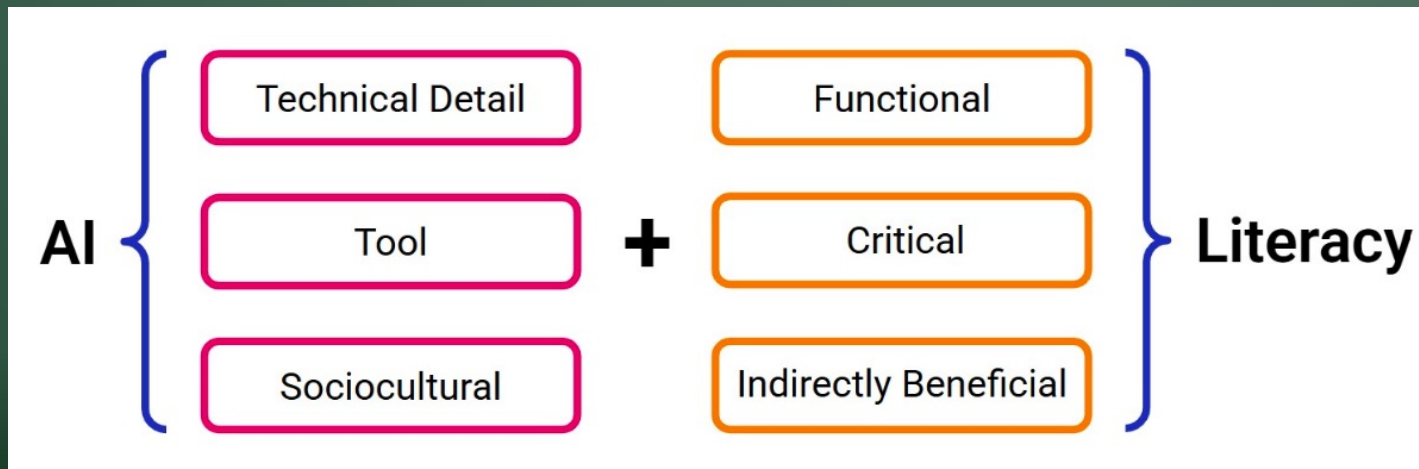


Lance Gu  
(Univ. of Michigan)



Barbara Ericson  
(Univ. of Michigan)

## Review of 124 studies on AI literacy



[Gu and Ericson (2025)]

# Gaps in AI literacy cause harm

## Two US lawyers fined for submitting fake court citations from ChatGPT

Law firm also penalised after chatbot invented six legal cases that were then used in an aviation injury claim

“We made a good-faith mistake in failing to believe that a piece of technology could be making up cases out of whole cloth.”  
The Guardian, June 23, 2023

## California attorney fined \$10k for filing an appeal with fake legal citations generated by AI

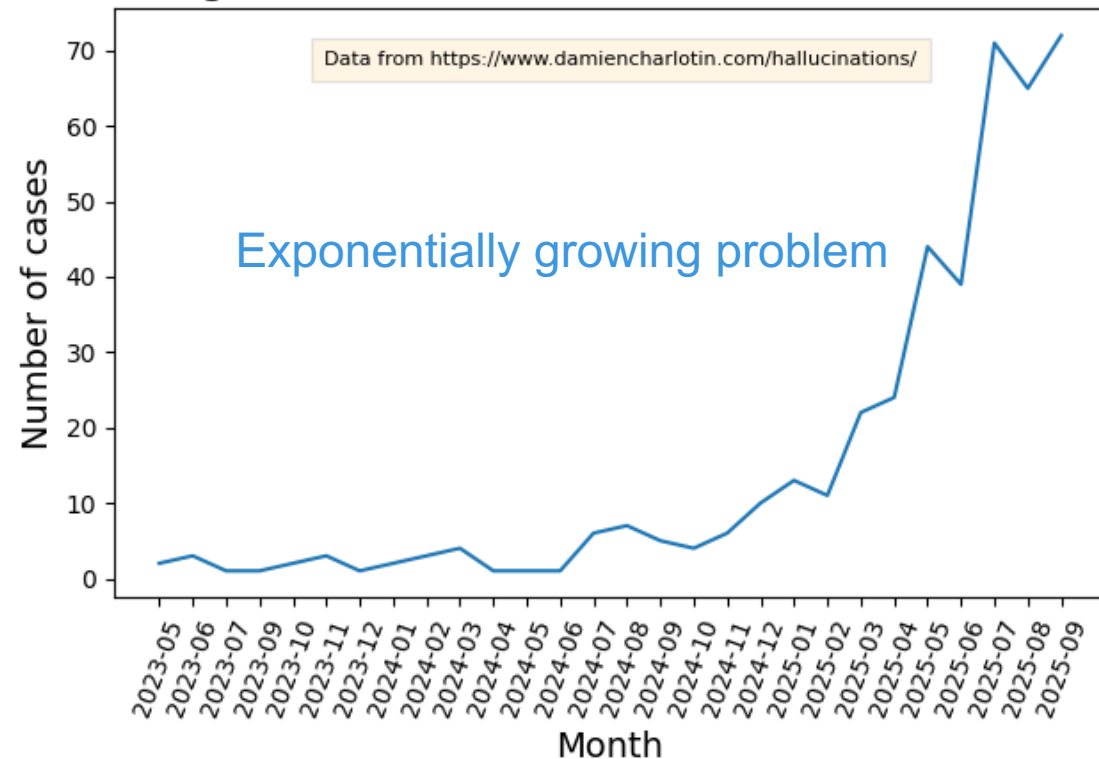
“Amir Mostafavi told the court that he did not read text generated by the AI model before submitting the appeal [...] he didn’t know it would add case citations or make things up.”  
Associated Press, October 13, 2025

Kiri L. Wagstaff

**AI Hallucination Cases**  
(generative AI issues mentioned in legal decisions)  
432 cases to date

<https://www.damiencharlotin.com/hallucinations/>

Legal decisions that mention AI hallucinations



# When does student use of AI cause problems?

## Increased AI use linked to eroding critical thinking skills

by Justin Jackson, [Phys.org](#)

“Frequent AI users exhibited diminished ability to critically evaluate information and engage in reflective problem-solving.” (January 2025)

## The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects From a Survey of Knowledge Workers

Microsoft study (April 2025)

## Cognitive offloading

Updated: JUN 23, 2025 7:16 AM PT

## ChatGPT May Be Eroding Critical Thinking Skills, According to a New MIT Study

ChatGPT users had the lowest brain engagement and “consistently underperformed at neural, linguistic, and behavioral levels.” (June 2025)

# AI Literacy: Guiding your students

1. Share useful metaphors
  - Discuss strengths and limitations of AI systems
2. Build generative AI expertise
3. Discuss key ethical and privacy issues

# Bad metaphors create bad outcomes

If you think of generative AI as...

- A magic wand
- A brain
- A search engine
- A coach / friend / assistant

You get:

- “I don’t need to understand it”
- “Why does it make silly mistakes?”
- “I didn’t know it could make things up”
- “Why did it give me bad advice?”



Helplessness

Frustration

Betrayal

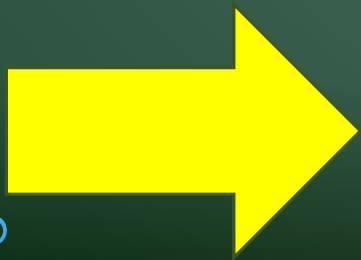
# Good metaphors help set realistic expectations

If you think of generative AI as...

- A word generator
- An improv artist
- Echo chamber
- Roulette wheel

You get:

- “I can try this out and see what I like”
  - Poetry, fan fiction, brainstorming help
  - Revise and edit text for style/tone
- “I love the crazy things it comes up with!”
  - Entertainment (suspend disbelief)
- “I should do a separate reality check”
- “I should ask multiple times, and ask multiple sources”



Empowerment

Confidence

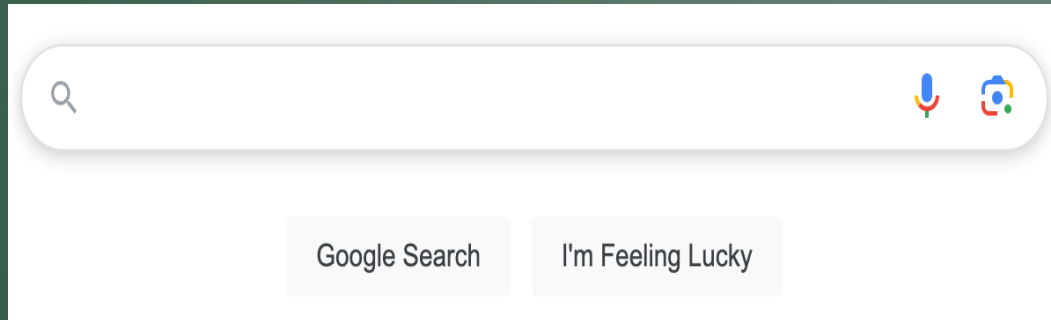
Efficacy

# Metaphors for search vs. chatbot

These **tools** look almost the same, but they aren't!



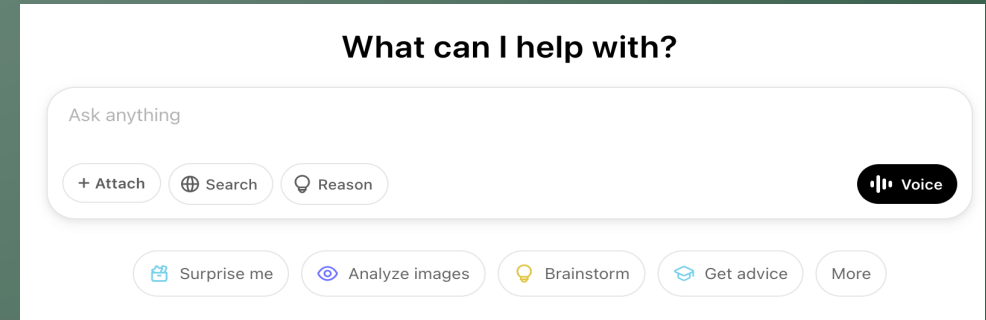
kerut / Pixabay



**Search engine** - finds real matches



Detective



**Generative AI (chatbot)** - generates new content



Artist

Choose your tool  
to fit the task

# Also: our human strengths and weaknesses

- **Cognitive offloading** – reduction in critical thinking and engagement
- Generative AI is an effective tool **if you already have expertise** in the topic you are using it to investigate
  - Using it to “tutor” you in a new subject is dangerous
  - Un-learning incorrect things is hard!
- **Confirmation bias** and generative AI sycophancy

## 2. Build critical generative AI expertise

### 3 Core Human Skills to Build Before AI Use

Common Sense Media

- Critical Thinking
- Creativity
- Connection (Communication)

<https://www.commonsense.org/education/articles/3-core-human-skills-to-build-before-ai-use>

## 2. Build critical generative AI expertise

- **Head start:** “Give a chatbot your thesis statement and ask for 3 different starting sentences. Discuss which one you would choose (if any) and why.”
- **Editor:** “Ask a chatbot for ways to improve your first draft. Discuss one good change it suggested and one change you rejected.”
- **Double Up:** “Give two chatbots the same prompt and compare responses. Why are they different?”
- **Say Again?:** “Give the same chatbot the same prompt twice and compare. Why are they different?”



What are your favorite ideas?

# Assessment in the age of generative AI tools

Norms are changing – who thinks it'll be the same in 10 years?

- Opportunity to reconsider how to assess learning
  - Students investigate a topic and then teach it to each other
  - Students give oral presentations
  - Students create a collage or other physical artifact
- Motivate “why should I be able to do this on my own?”
  - Students get to understand the process, not just get a result
- Personalize your assignments
  - “How did your family divide up chores? How would you improve it?”
  - “Find a 2025 news article about a book challenge. Is this book available in your library? Do you think it should be?”

### 3. Key ethical and privacy issues

- **Privacy**: Do not share personal information (yours or others') with a chatbot
- How and when to give **credit** to the source of an idea
- How to identify and avoid inappropriate **bias** in writing
- Problems and injuries caused by "**deepfakes**"
- Concerns about AI "**companions**"
- **Environmental cost** of training and using a generative AI system
- [Add your ideas here!]

# Case study: Auto insurance discounts

AI literacy beyond  
generative AI

## Get Snapshot from Progressive

We've handed out over \$1.2 billion in discounts!



Turning good driving into big savings.

*Your rate may increase with high-risk driving. But, only about 2 out of 10 drivers actually get an increase.*

Progressive: [Snapshot](#)

- Auto insurance discounts / “usage-based” insurance
  - Reward for sharing your driving activity / patterns
- What you can do with students
  - Would you sign up? How do you decide?
  - Discuss data privacy vs. financial incentive
  - No one right answer; goal is to make informed decisions



State Farm: [Drive Safe & Save](#)

# OSU AI Literacy Center



**Oregon State University**  
**AI Literacy Center**

- Mission: equip students, faculty, and staff with the knowledge and skills needed to critically engage with generative AI
- Collaboration: OSU Library + Center for Teaching and Learning
- Videos, workshops, consultations, resource guides
- Visit: <https://ailiteracycenter.oregonstate.edu/>



**Laurie Bridges**  
Director



Kiri L. Wagstaff

**Alejandro Schaeuffler**

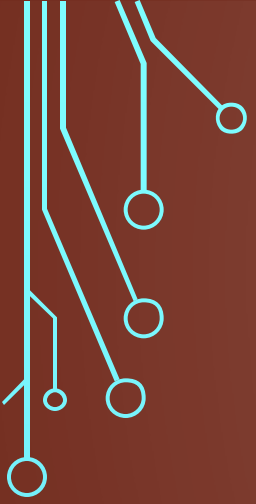


**Havel Konda**



**Autumn Borrueal**

October 16, 2025



# Discussion time

- How do you like students to use AI?
- What uses do you want to discourage?
- How do you use AI in your teaching?
  - Which tools do you find most useful?
- What are your hopes, fears, advice related to AI in the classroom?

# Elevating Artificial Intelligence Literacy in the Classroom

Your homework:

- Create an **A**ctivity or **A**ssignment that is not trivial to perform with AI tools
- Draft a message to your supervisor to **A**sk for the **AI** (literacy) training you need
- **A**ddress responsible use of AI in frank conversations with students
  - Strengths, limitations, ethics, privacy
- Experiment, **a**pply, learn, and share your experiences

Thank you!

Contact: [kiri.wagstaff@oregonstate.edu](mailto:kiri.wagstaff@oregonstate.edu)