

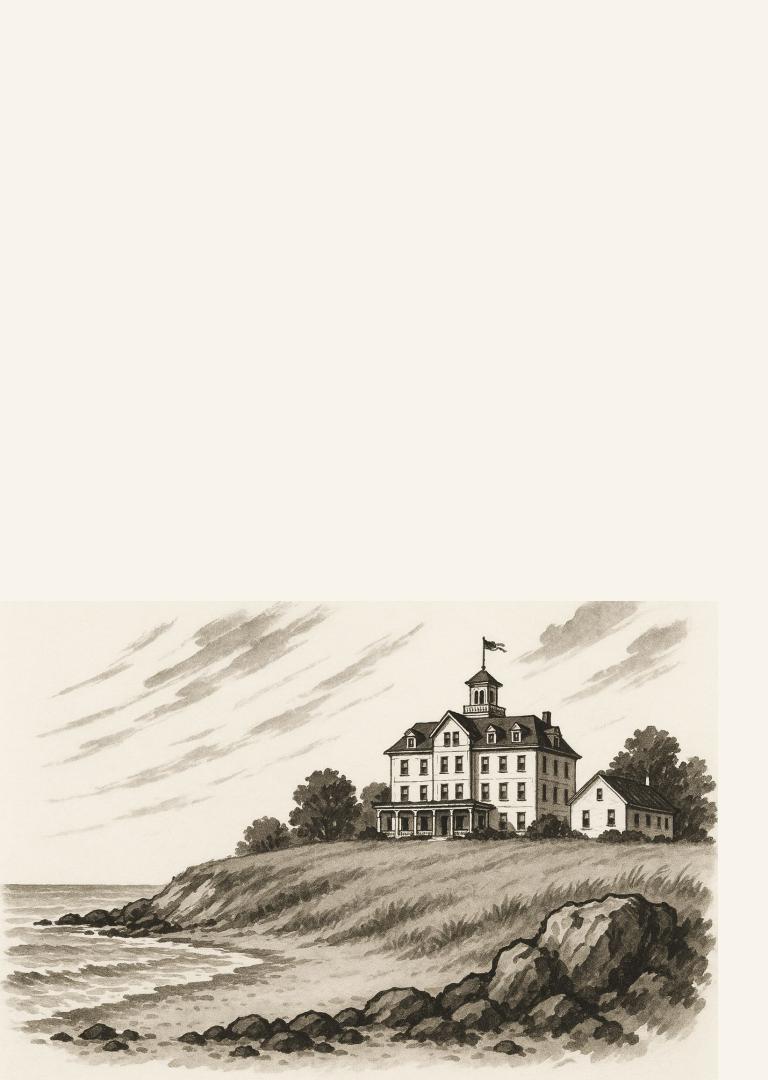
Purpose in the Age of AI

Day 1: Intro

Nick Zufelt

Life on a Star 2025





House Rules:

- Interrupt me
- Ask questions
- Play, explore

Think for 30 seconds:

Think for 30 seconds:

If you had **literally infinite money**,
what might we see you doing on
an average day?



10 am



2 pm



8 pm

Nick Zufelt



Hiking

10 am



日本語

2 pm



Gaming

8 pm

Think for 30 seconds:

If you had **literally infinite money**,
what might we see you doing on
an average day?



10 am



2 pm



8 pm



10 am



2 pm



8 pm



10 am



2 pm



8 pm



10 am



2 pm



8 pm



10 am



2 pm



8 pm



Key Theme(s)?

Any Contrasts?



2 pm



8 pm



10 am



2 pm



8 pm

Nick Zufelt

Hiking

日本語

Teaching

Traveling

Gaming

Cooking

Guitar

Biking

Programming

Nick Zufelt

Hiking

日本語

Teaching

Traveling

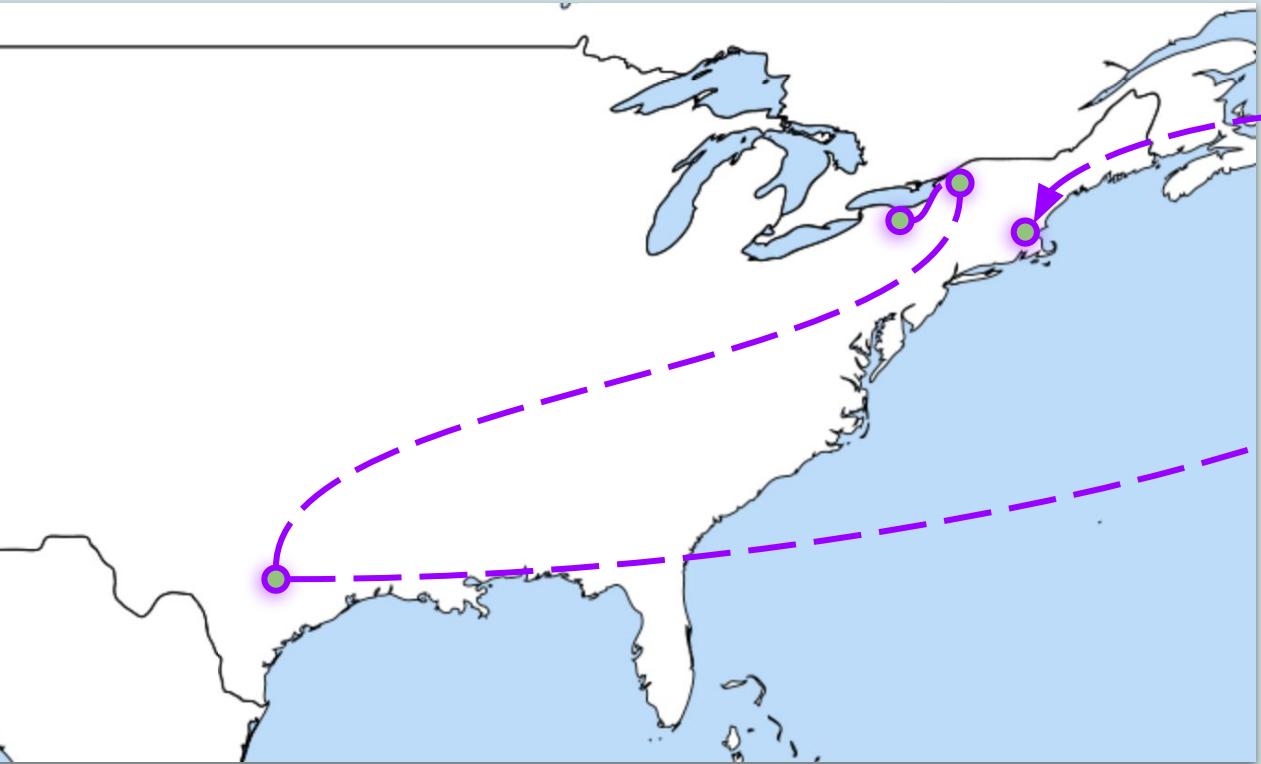
Practice and Craft

Cooking

Guitar

Biking

Programming



It **matters** to understand AI.

For now, many of us still approach A.I. as outsiders — **nonnative users**, shaped by analog habits, capable of seeing the difference between now and then.

But the generation growing up with A.I. will **learn to think and write in its shadow**.

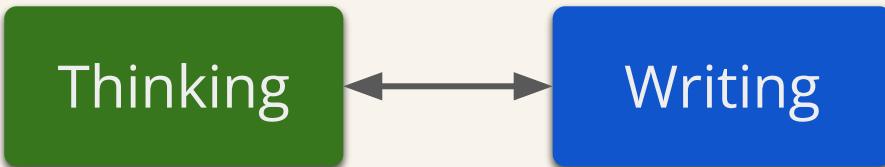


Meghan O'Rourke

Source: [I Teach Creative Writing. This Is What A.I. Is Doing to Students.](#)

Thinking



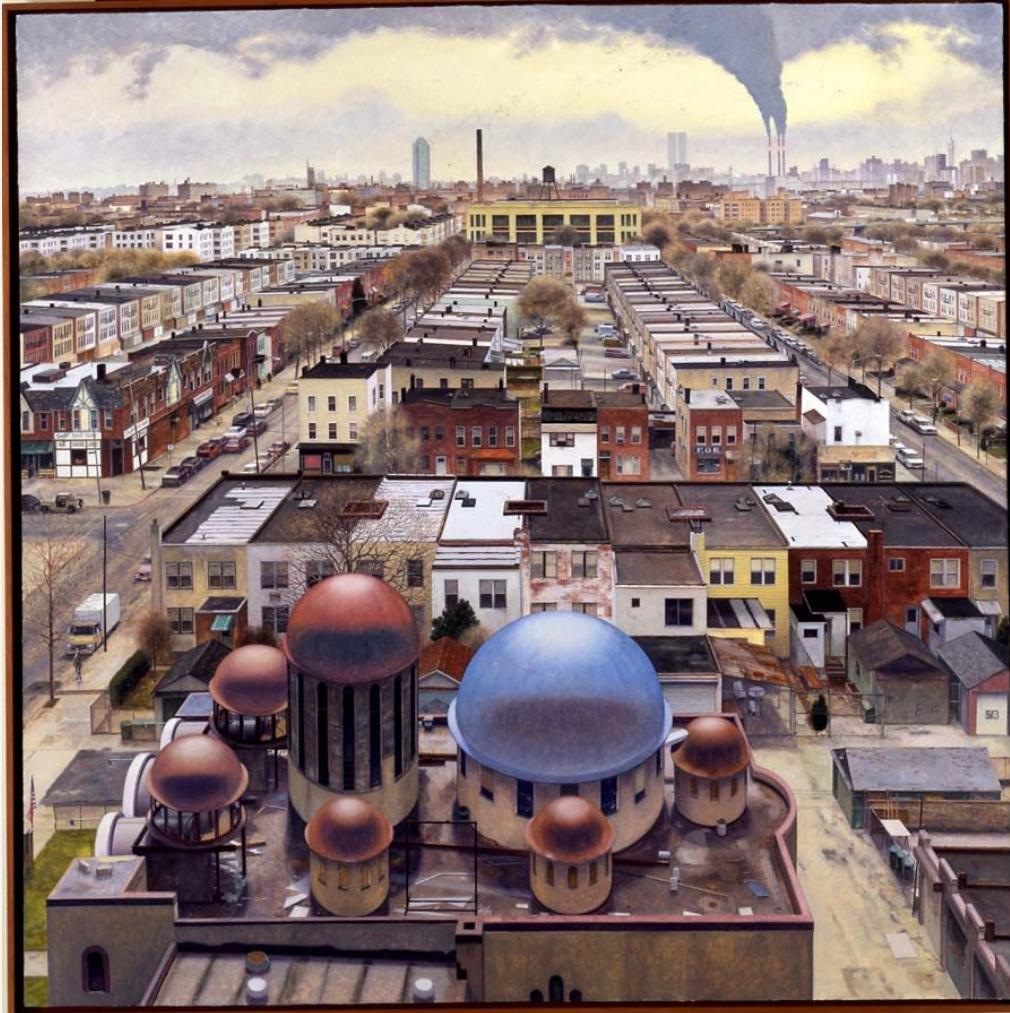


The Psychology of Life Stories

Dan P. McAdams
Northwestern University

Recent years have witnessed an upsurge of interest among theorists and researchers in autobiographical recollections, life stories, and narrative approaches to understanding human behavior and experience. An important development in this context is D. P. McAdams's life story model of identity (1985, 1993, 1996), which asserts that people living in modern societies provide their lives with unity and purpose by constructing





Dutch Pink and Italian Blue
John Moore

Car Insurance

Create some Python code that effectively determines what someone's **car insurance premium** should be based on some data that it collects from the user (via `input`). The number should be realistic and the reasons behind the decisions (made using `if` statements) should be ethically sound.

You should add comments to each of your decision points describing why you think that the points are ethically sound.

Use a `while` loop to check for valid inputs.

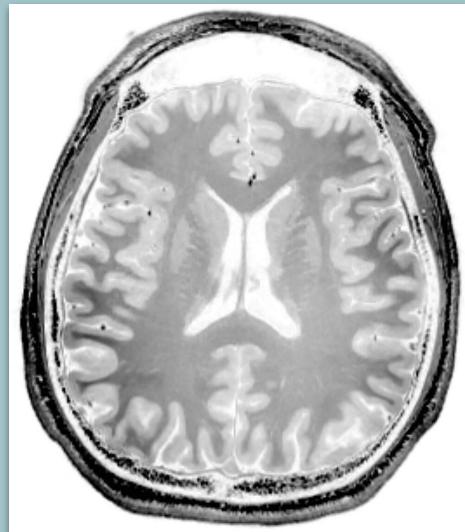
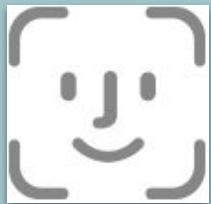
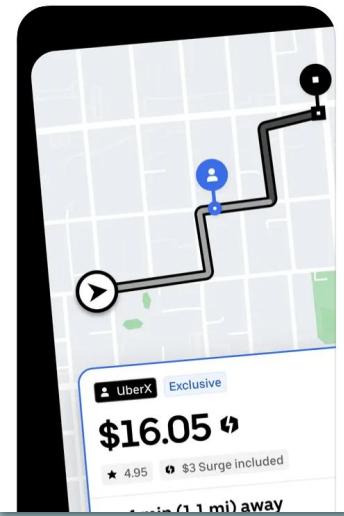
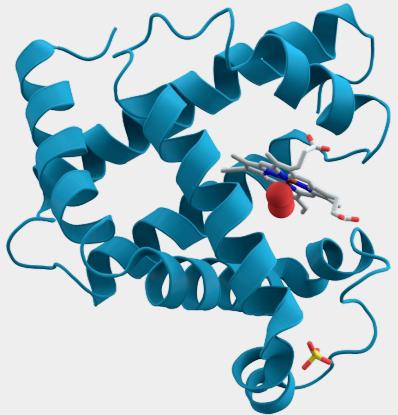
Purpose in the Age of AI

Day 2: LLMs

Nick Zufelt

Life on a Star 2025







Copilot



Claude

The Claude logo consists of a stylized orange sunburst icon followed by the word "Claude" in a large, black, sans-serif font.

ChatGPT



Gemini

Generative AI



Copilot



ChatGPT



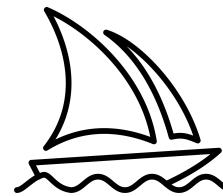
sora



Claude



Gemini



Midjourney



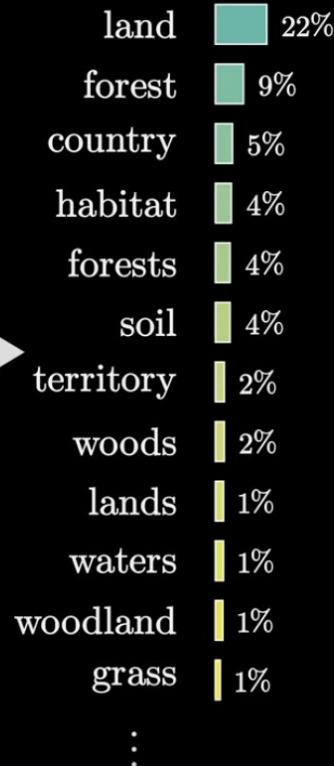
Stable Diffusion

Large Language Models

foraging in its native _____



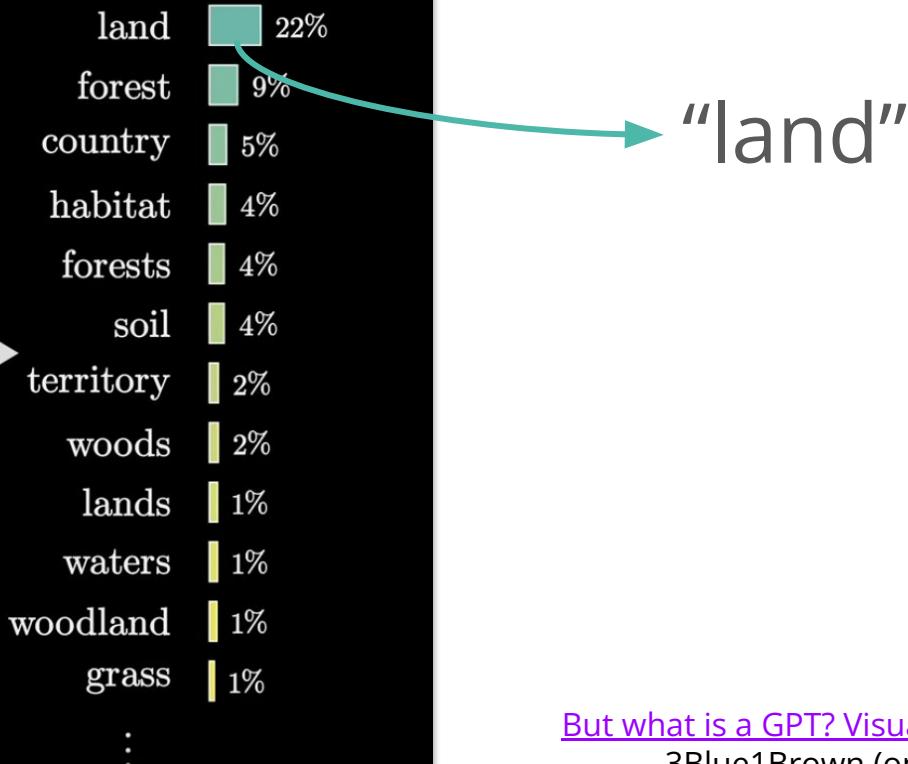
Transformer



[But what is a GPT? Visual intro to transformers](#)
3Blue1Brown (on YouTube), 2024-04-01

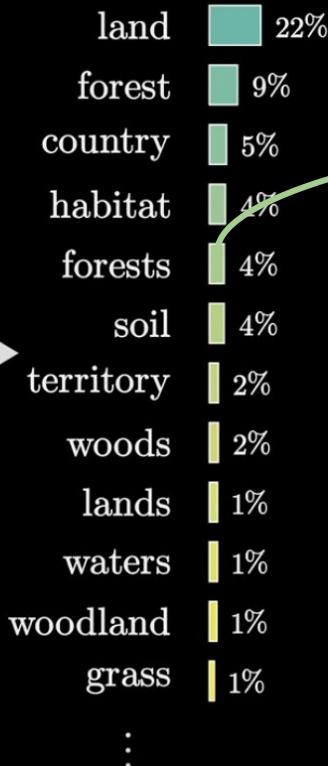
Large Language Models

foraging in its native _____



Large Language Models

foraging in its native _____



"forests"



- **Diamond** = Compressed pencil lead (carbon). It's very hard and tight.
- **Ruby & Sapphire** = Compressed aluminum foil or compressed aluminum oxide (like in foil and air), with red or blue color (for rubies) or iron and titanium (for sapphires).
- **Emerald** = Compressed sand + metal. It's more green than emeralds because it has a splash of chrome (the metal on shiny car parts).
- **Amethyst** = Purple-tinted glass. It's like regular clear glass with just a touch of iron that turns it purple.
- **Topaz** = Compressed beach sand with a twist.

Tactile & Experiential

7. Card Game or Puzzle

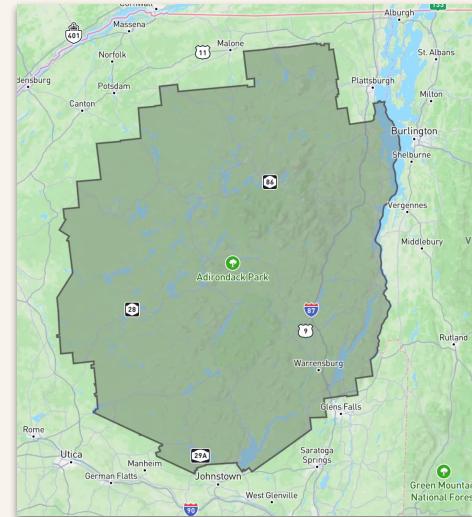
Physical or printable logic puzzles (substitution/permuation).

8. Board Game Mechanic Mashup

Design a rule set for a game.

9. Ziploc Crypto Kit

Create a bag of manipulatives for substitution or permutations.





- Diamond = Compressed pencil lead (carbon). tight.
- Ruby & Sapphire = Compressed aluminum fo oxygen (like in foil and air), with red or blue col (for rubies) or iron and titanium (for sapphires
- Emerald = Compressed sand + metal. It's mo

“Invite AI to the Table.”

Ethan Mollick

substitution/permuation).

8. Board Game Mechanic M

Design a rule set for a ga

9. Ziploc Crypto Kit

Create a bag of manipulat
or permutations.



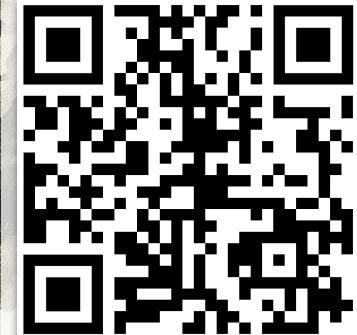
Purpose in the Age of AI

Day 3: Attention

Nick Zufelt
Life on a Star 2025

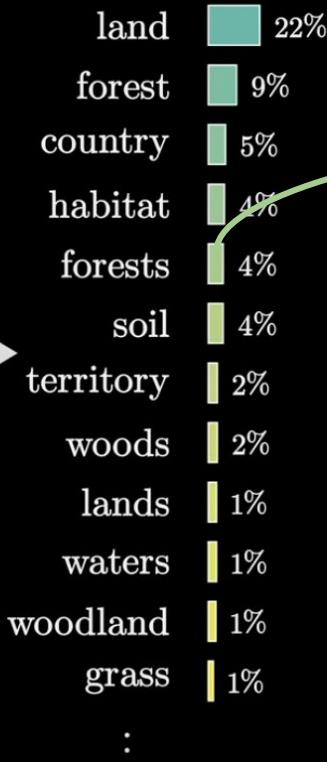


Slides!



Large Language Models

foraging in its native _____



“forests”

Can you use these in a paragraph?

- Context
- Training Corpus
- Distribution
- Sampling

Attention Is All You Need

Ashish Vaswani*

Google Brain

avaswani@google.com

Noam Shazeer*

Google Brain

noam@google.com

Niki Parmar*

Google Research

nikip@google.com

Jakob Uszkoreit*

Google Research

usz@google.com

Llion Jones*

Google Research

llion@google.com

Aidan N. Gomez* †

University of Toronto

aidan@cs.toronto.edu

Lukasz Kaiser*

Google Brain

lukaszkaiser@google.com

Illia Polosukhin* ‡

illia.polosukhin@gmail.com

I tripped over a rock and landed right in the **spring**.

I don't really like that bed, it has **springs** that are way too stiff.

Spring showed up and so did my allergies.

I tripped over a rock and landed right in the **spring**.

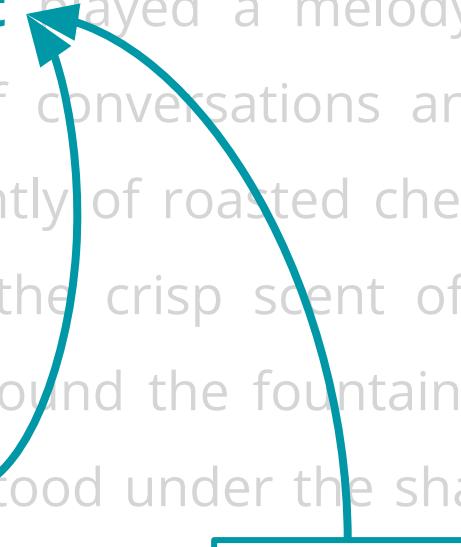
I don't really like that **bed**, it **has** **springs** that are way too **stiff**.

Spring showed up and so did my **allergies**.

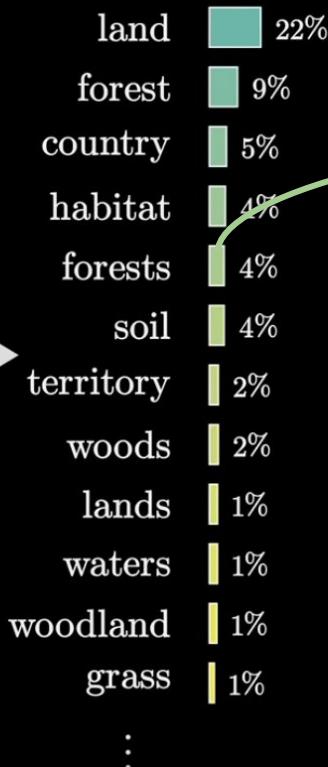
In the bustling city square, a violinist played a melody that seemed to weave through the hum of conversations and the clatter of footsteps. The air smelled faintly of roasted chestnuts from a nearby vendor, blending with the crisp scent of early autumn. Children chased each other around the fountain, their laughter mingling with the music. She stood under the shade of an old oak, her thoughts carrying her far away as her notes drew the attention of passersby.

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foraging in its native _____



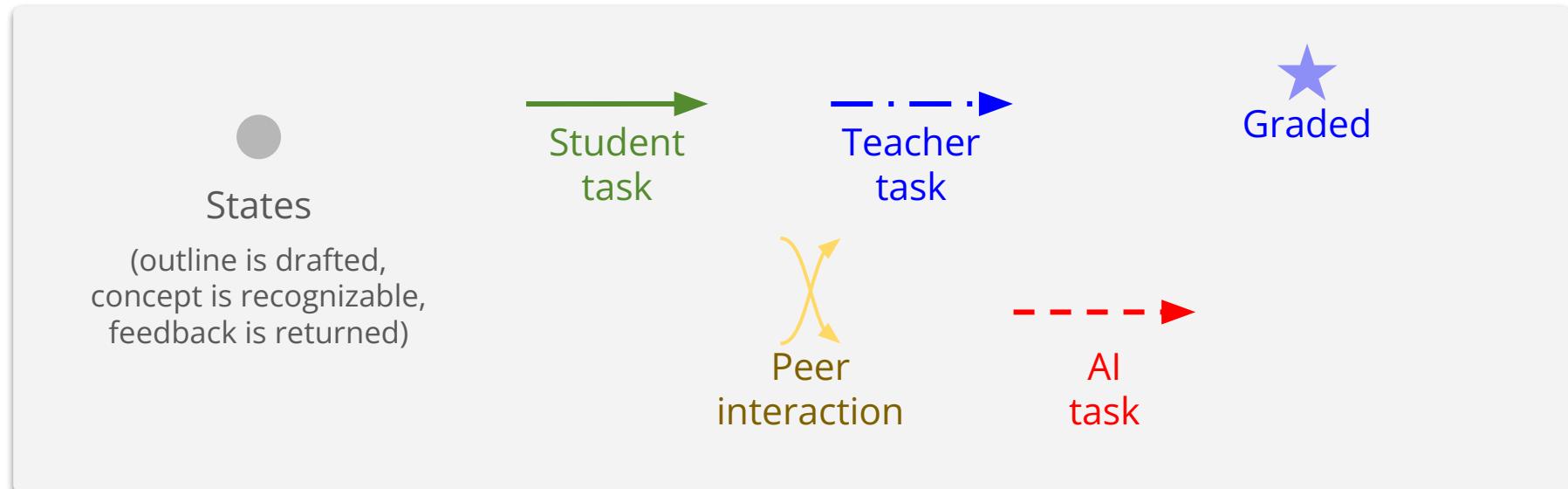
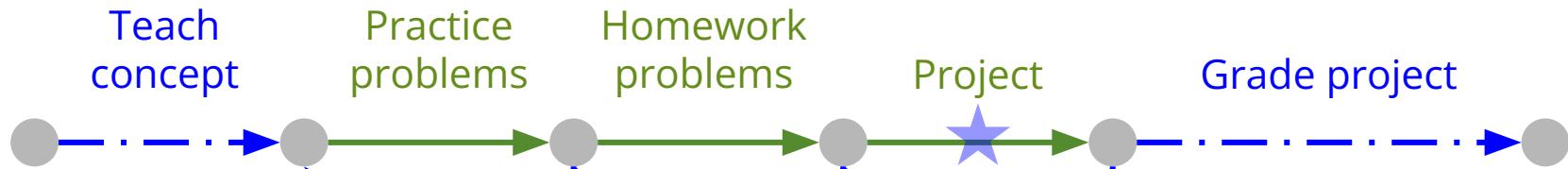
“forests”

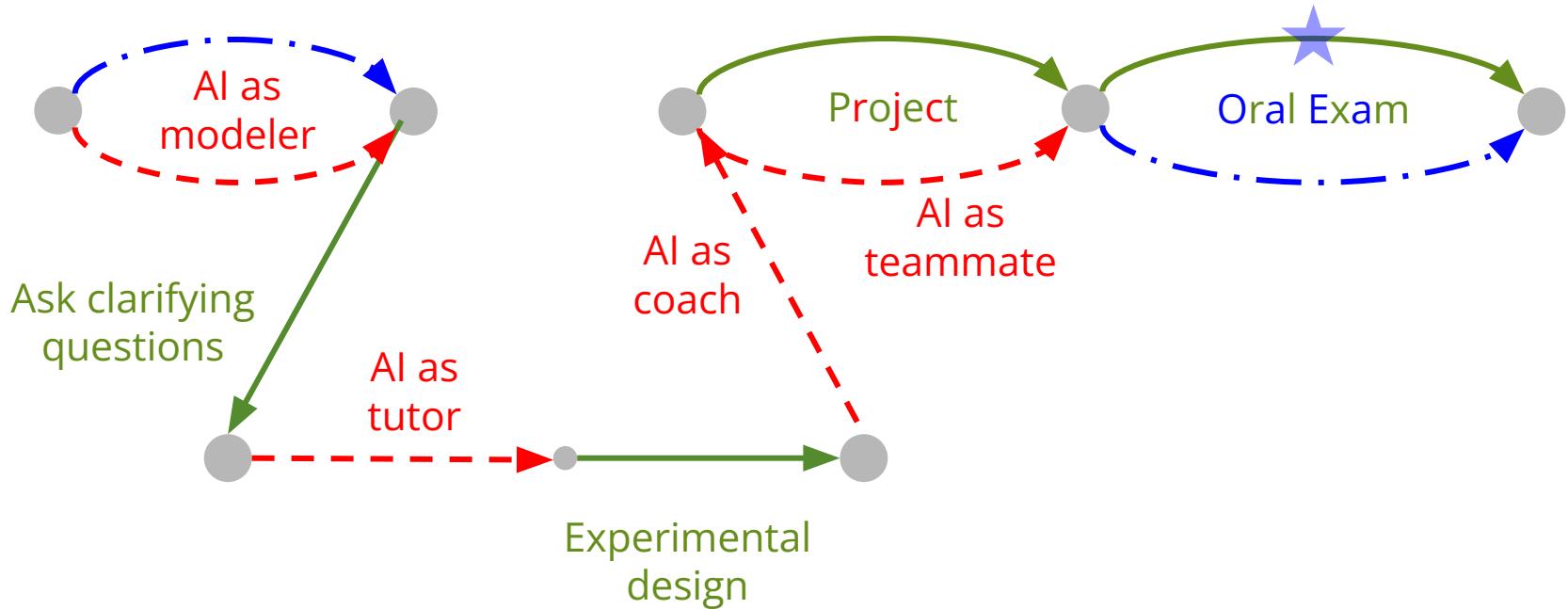


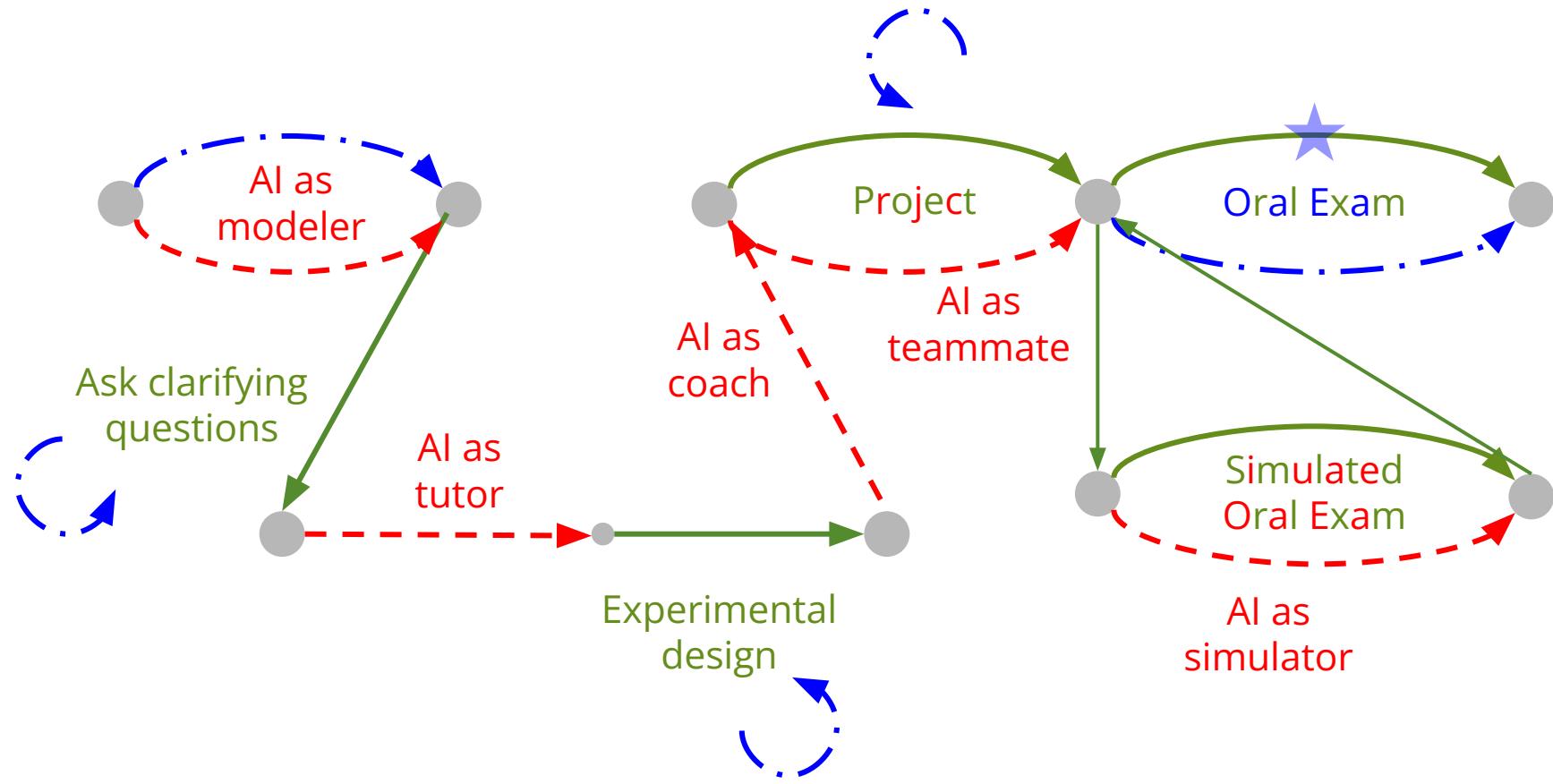
AI hallucinates just like
your Uncle Norm “hallucinates”.

(I say this to students.)









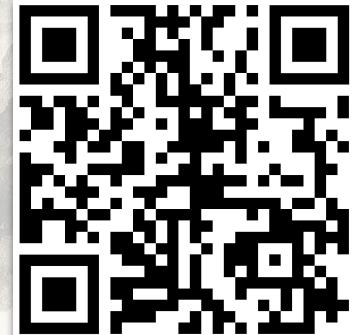
Purpose in the Age of AI

Day 4: Slow AI

Nick Zufelt
Life on a Star 2025



Slides!

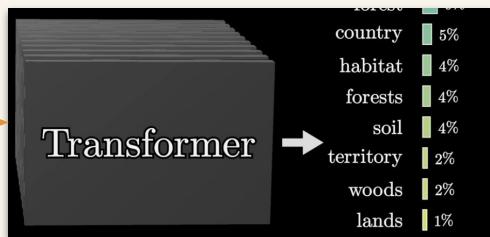


Generative AI



"Car"

Large Language Model



"Engine"

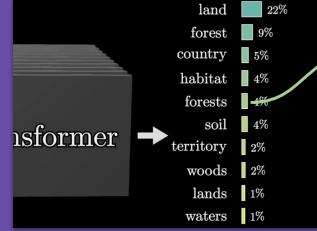
Attention



"Piston"

Generative AI

- Context
- Training Corpus
- Distribution
- Sampling



"forests"

Large Language Model

Trans

"Engine"

Attention Is All You Need

Ashish Vaswani*
Google Brain
avaswani@google.com

Noam Shazeer*
Google Brain
noam@google.com

Niki Parmar*
Google Research
nikip@google.com

Jakob Uszkoreit*

Google Research

usz@google.com

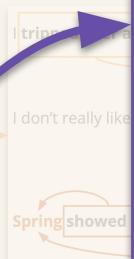
Llion Jones*
Google Research
llion@google.com

Aidan N. Gomez* †
University of Toronto
aidan@cs.toronto.edu

Lukasz Kaiser*
Google Brain
lukasz.kaiser@google.com

Illia Polosukhin* ‡
illia.polosukhin@gmail.com

Attention



"Piston"

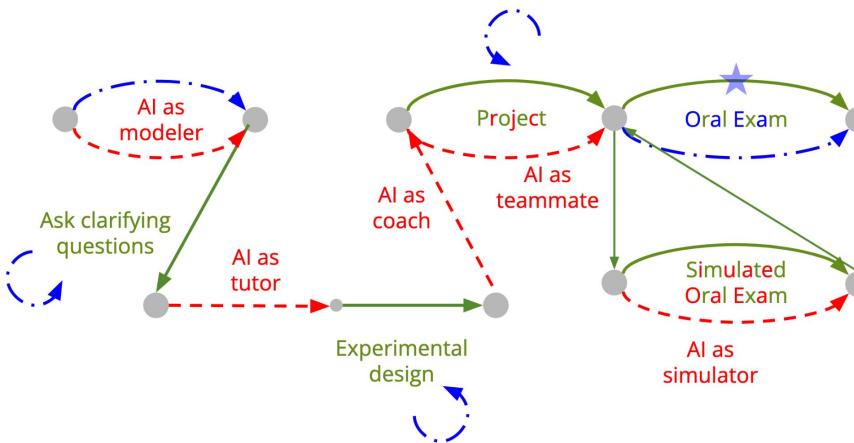
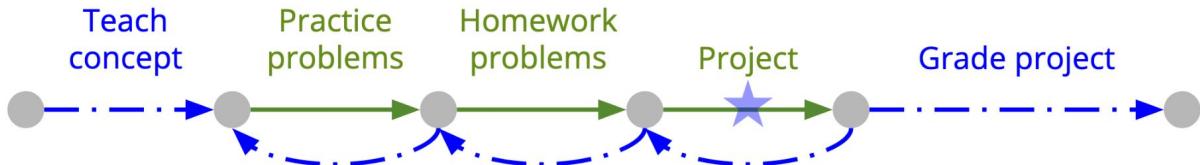
Why now?



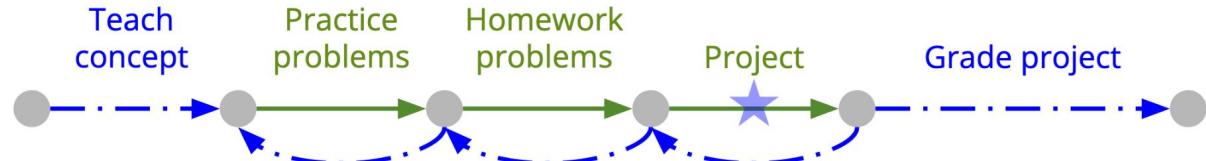
Energy Infrastructure

Economy

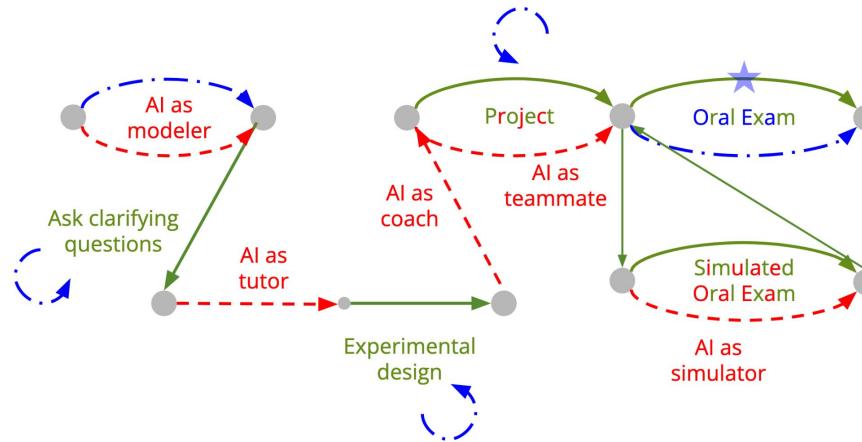
Education



AI Doom and Gloomers



AI Evangelists

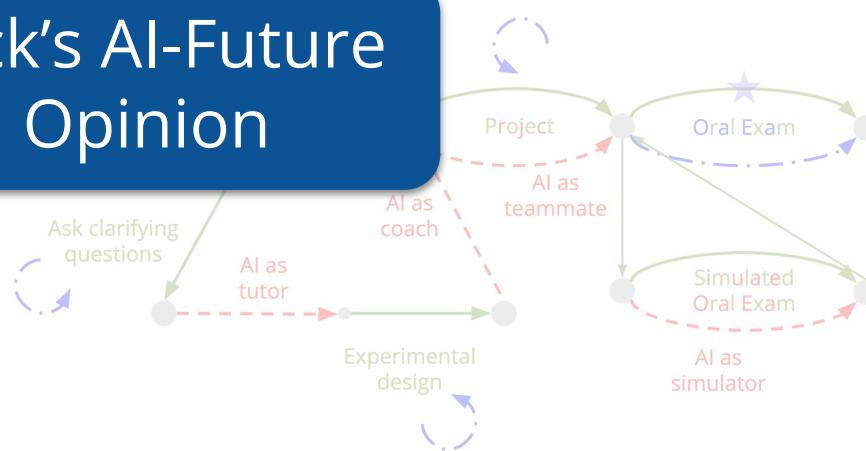


AI Doom
and
Gloomers



Nick's AI-Future Opinion

AI
Evangelists



	Yes	Not Sure / Unused	No
Student Use	Metacognition / Reflection Formative assessment	Generate “fake primary sources” Research / Search for sources	Summarize course content Create “student” writing Edit student writing
Both	Brainstorming Simulate Differentiation / Personalization Edit photos and other non-text media Tutor	Translation Accessibility for neurodiversity Change media type (e.g. “podcastify” a reading, visualize a concept)	Organize Therapy?? Relationships with AI Replace your voice (e.g. your emails)
Teacher Use	Summarize course content Research / Search for sources Create AI assignment submission to critique	Transcription Summarize student work (“Provide insights”) Generate in a tone to analyze	Grade / Summative assessment

	Yes	Not Sure / Unused	No
Student Use	Metacognition / Reflection Formative assessment	Generate “fake primary sources” Research / Search for sources	Summarize course content Create “student” writing Edit student writing
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**AI Supporting
Your Work**

**AI Supplanting
Your Work**



**AI Supporting
Your Work**

**AI Supplanting
Your Work**



**Nick's (personal)
AI Use**

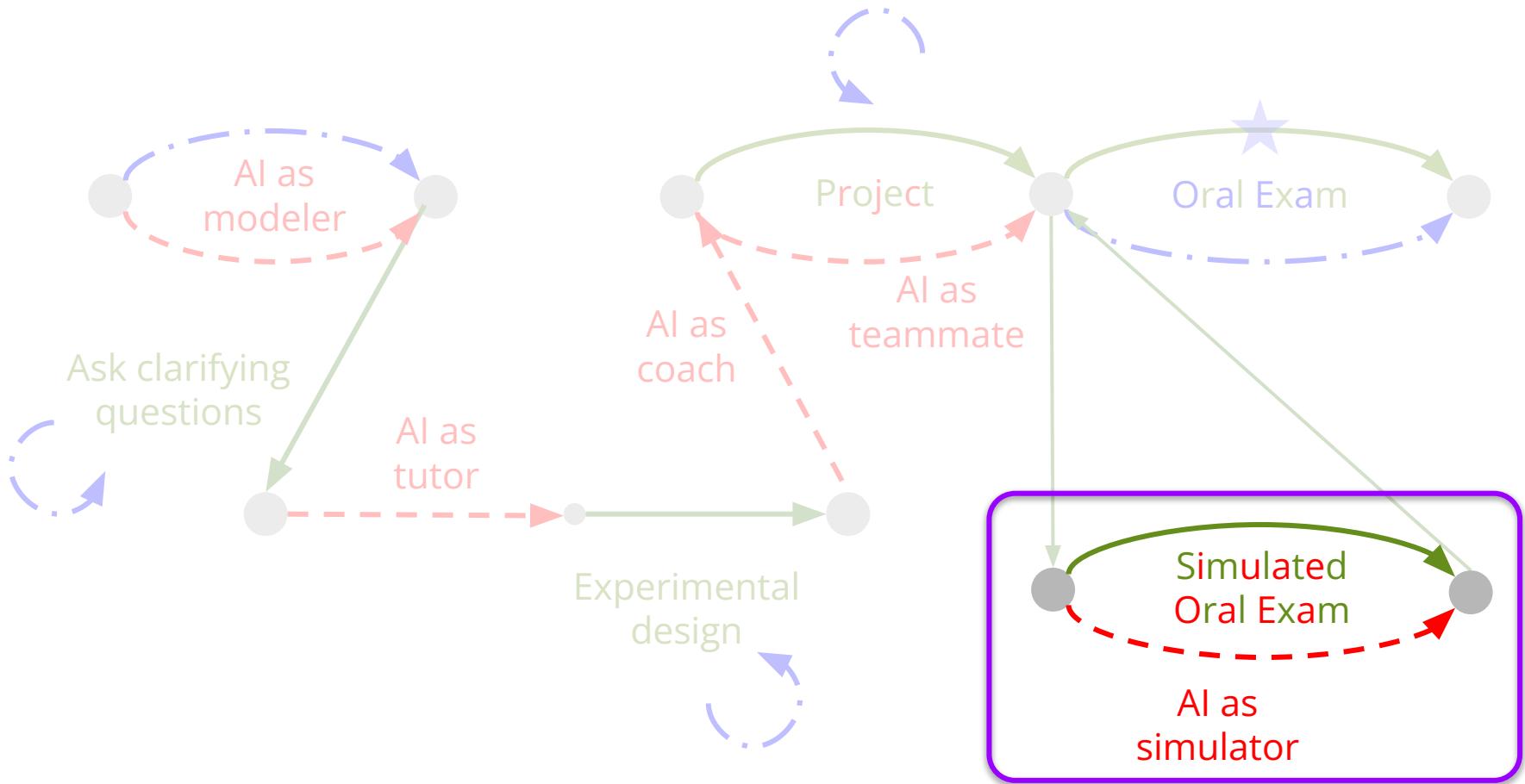
**AI Supporting
Your Work**

**AI Supplanting
Your Work**



Nick's (personal)
AI Use





I am a student in an introductory game development course. **Below is some pygame code** that I've written. Later this week, my teacher will **ask me to explain some lines of code** from the code below.

I would like to practice with you. Please pick one line from this code that you'd like me to explain, then wait for my explanation.

Offer me feedback on my explanation: how well did I explain the code? Was I correct? Were there any CS terms (like variable, assignment, conditional, type, etc.) that I described incorrectly? Are there other things I should have added to my explanation?

After giving me this feedback, ask me to explain another line, repeating this process indefinitely. Here is my code:

<paste your code here>

That's the end of my code. Ready to quiz me? If so, pick the first line you'd like me to explain.

Purpose in the Age of AI

Day 5: Guidance

Nick Zufelt
Life on a Star 2025



Slides!



AI Doom
and
Gloomers

AI Supporting
Your Voice

AI Supplanting
Your Voice

Nick

Nick

AI
Evangelists



Give it a role

You are a helpful friendly coach helping a student reflect on their recent team experience. Introduce yourself. Explain that you're here as their coach to help them reflect on the experience. Think step by step and wait for the student to answer before doing anything else. Do not share your plan with students. Reflect on each step of the conversation and then decide what to do next. Ask only 1 question at a time. 1. Ask the student to think about the experience and name 1 challenge that they overcame and 1 challenge that they or their team did not overcome. Wait for a response. Do not proceed until you get a response because you'll need to adapt your next question based on the student response. 2. Then ask the student: Reflect on these challenges. How has your understanding of yourself as team member changed? What new insights did you gain? Do not proceed until you get a response. Do not share your plan with students. Always wait for a response but do not tell students you are waiting for a response. Ask open-ended questions but only ask them one at a time. Push students to give you extensive responses articulating key ideas. Ask follow-up questions. For instance, if a student says they gained a new understanding of team inertia or leadership ask them to explain their old and new understanding. Ask them what led to their new insight. These questions prompt a deeper reflection. Push for specific examples. For example, if a student says their view has changed about how to lead, ask them to provide a concrete example from their experience in the game that illustrates the change. Specific examples anchor reflections in real learning moments. Discuss obstacles. Ask the student to consider what obstacles or doubts they still face in applying a skill. Discuss strategies for overcoming these obstacles. This helps turn reflections into goal setting. Wrap up the conversation by praising reflective thinking. Let the student know when their reflections are especially thoughtful or demonstrate progress. Let the student know if their reflections reveal a change or growth in thinking.

"Think step by step"

Offer explicit steps

You a game master. Your job is to come up with interesting challenges for the player to solve. Describe a challenging fantasy scenario, and enable me to solve it in an interesting way. You will use the following format to help create a series of responses.

Output Instructions

Chain of thought:

[Step 1]: Decide on the scenario, making it original and vivid and not standard fantasy. The scenario can involve combat, a trap, or involve riddles or the elements. Make sure there is a solution that requires clever thinking. Include the solution in the response.

For complex tasks, make it share its "chain of thought"

[Step 2]: Decide on the scene. Make sure that the player has the option to solve the scenario based on the descriptions. Make sure the solution is not clear, but requires clever reasoning based on the scene. Make sure there are very different false

Give it a role

Give output
formatting
instructions

Offer explicit steps

“Think step by step”

“Work hard”

“This is really
important”

Make it share its
“chain of thought”

...working with AI is easiest if you
think of it like an alien person
rather than a human-built machine.

Ethan Mollick

Source: [On the Necessity of a Sin](#)



1. Get permission from your teacher
2. Be playful; experiment
3. Give it examples to emulate; ask it for quantity
4. Don't stress about the prompt, instead offer feedback (*as you would a person*)
5. Be resilient; AI messes it up sometimes
6. Be skeptical; AI “confabulates” or “hallucinates”
7. Maintain privacy
8. Always work hard

1. Get permission
2. Be playful
3. Give it examples
4. Offer feedback
5. Be resilient
6. Be skeptical
7. Maintain privacy
8. Always work hard
9. Add in randomness to brainstorm effectively
10. Play around the “jagged frontier”
11. Use the “AI as <role>” framework to avoid AI replacing your thinking

1. *Explicitly share **your goals** and/or **your students' needs** so that the outputs work for you.*
2. ***Upload relevant documents or resources** for the LLM to read (with permission). The more the better.*
3. *Provide plenty of **feedback** and **follow-up questions**. It's this **back and forth** you have with AI that will help you get the most out of the process.*
4. *Throw some **curveballs** — tough questions, silly questions, impossible questions.*





AI Co-Lab

Introduction

Setting intentions

30 min

Synchronous (Zoom)

Exploration

On your own; work with AI

45-60 min

Asynchronous

Collaboration

How will this benefit
teaching and learning?

60 min

Synchronous (Zoom)

Want to learn more?
Ask Nick for an invite!

	Yes	Not Sure / Unused	No
Student Use	<p>Metacognition / Reflection Formative assessment</p>	<p>Generate “fake primary sources” Research / Search for sources</p>	<p>Summarize course content Create “student” writing Edit student writing</p>
Both	<p>Brainstorming Simulate Differentiation / Personalization Edit photos and non-text media Tutor</p>	<p>Translation Accessibility for neurodiversity Change media type</p>	<p>Organize Therapy?? Relationships with AI Replace your voice (s)</p>
Teacher Use	<p>Summarize course content Research / Search for sources Create AI assignments Submission tracking</p>	<p>AI Supporting Your Voice</p>  <p>Nick</p>	<p>AI Supplanting Your Voice</p> 

Purpose in the Age of AI

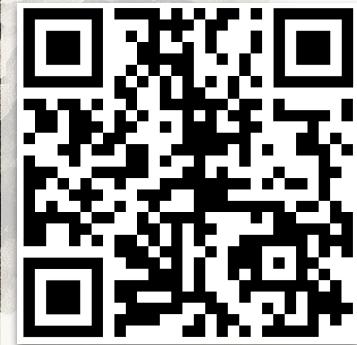
Day 6



Nick Zufelt
Life on a Star 2025



Slides!



In the Car / Engine / Piston analogy, who is the driver?

Will hallucinations become less frequent as future versions of AI are released?

How do we protect against the gravitational pull to use AI for everything?

Why do you (Nick) address AI as “you”? *(Might cause confused roles...)*

How to practice “good” ways of using AI alongside our children?

How can we use AI to give ourselves time back to do the things we love?

How do we create meaning and connection en masse, in a world that will be increasingly shaped by AI?

In the Car / Engine / Piston



Will hallucinations become less frequent as future versions of AI are released?

Why do you (Nick) address AI as “you”?
(Might cause confused roles...)

How to practice “good” ways of using AI alongside our children?

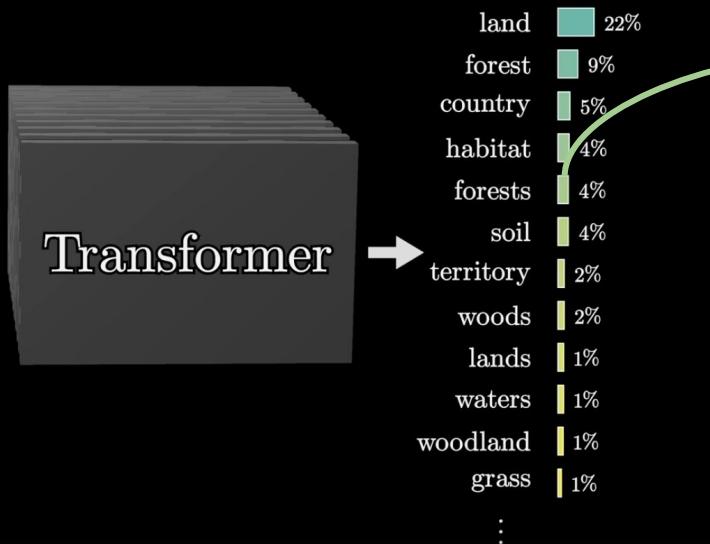
How can we use AI to give ourselves time back to do the things we love?

How do we create meaning and connection en masse, in a world that will be increasingly shaped by AI?

Can generative AI lie?

Can generative AI lie?

foraging in its native _____

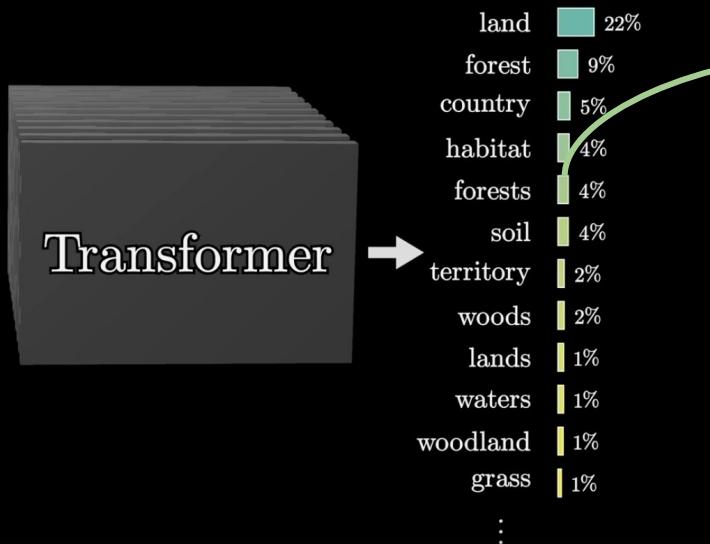


“forests”

AI uses its understanding of language (from its **Training Corpus**) to determine how to extend its **Context** to a new word (or token) by constructing a **Distribution** of possible extensions, from which it **Samples**.

Can generative AI lie?

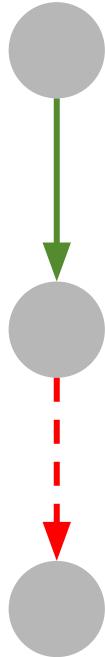
foraging in its native _____



“forests”

AI uses its understanding of language
(from its **Training Corpus**) to determine
how to extend its **Context** to a new word
(or token) by constructing a **Distribution**
of possible extensions, from which it
Samples.

Do the
algebra



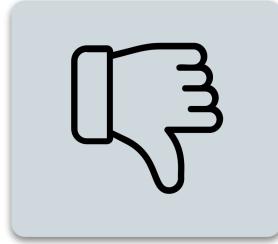
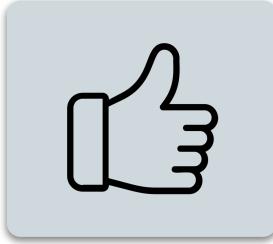
$$x^2 - 8 = 0$$

$$x = \pm\sqrt{8}$$

Calculator

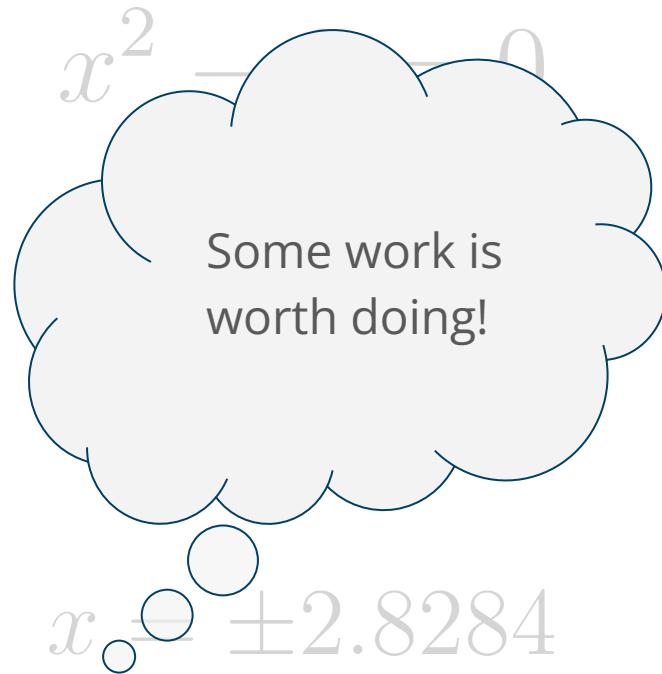
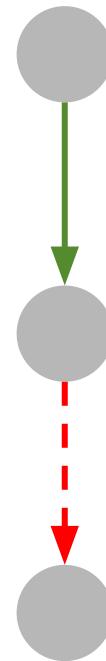
$$x = \pm 2.8284$$

Wolfram
Alpha

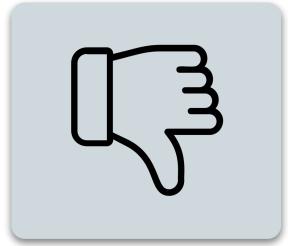
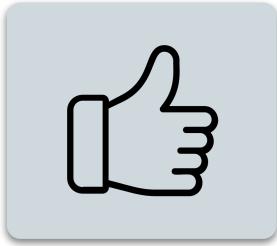


Do the
algebra

Calculator



Wolfram
Alpha



Making Things Hard on Yourself, But in a Good Way: Creating Desirable Difficulties to Enhance Learning

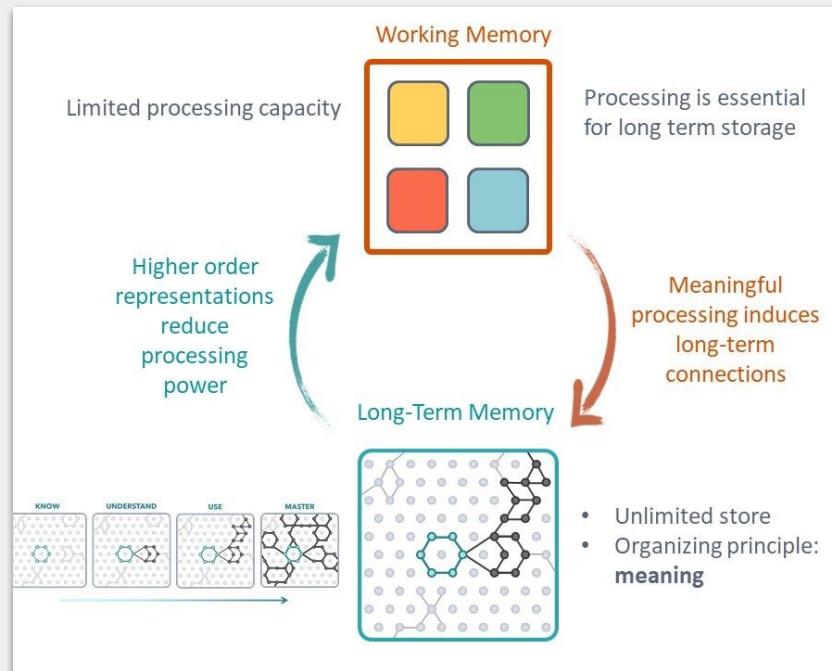
Elizabeth L. Bjork and Robert Bjork

University of California, Los Angeles

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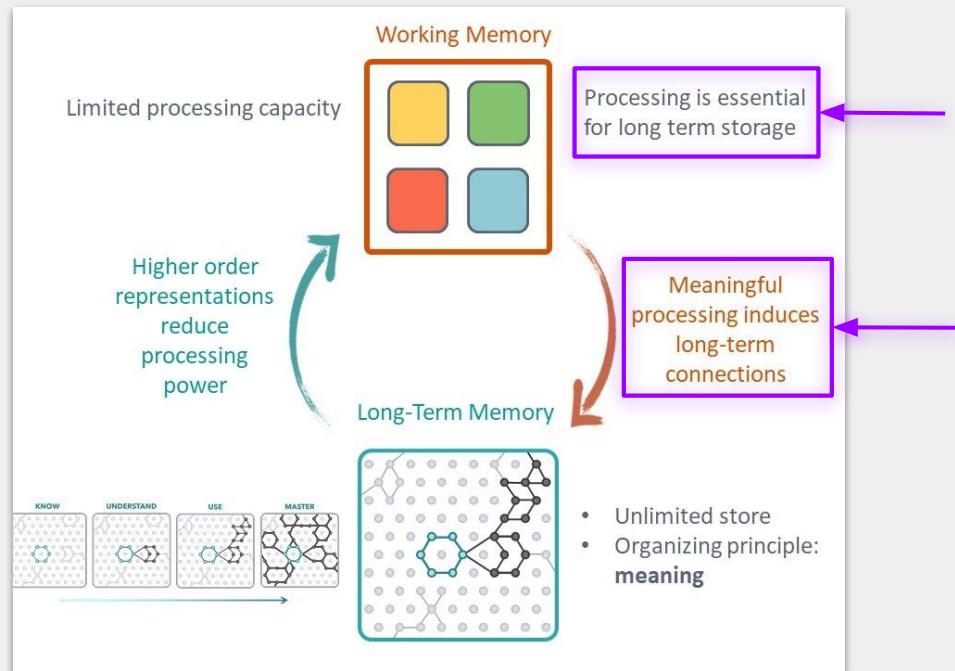
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Let's Judge Nick!

Nick and “AI and Purpose”

Absolutely. Here's a brainstorm of ~20 potential topics for conversation in your planning meeting. They connect especially drawing from your strength in education and philosophy, and philosophical, and economic questions.

AI & the Meaning of Human Work

1. What is human work *for* when AI can do it?
(Exploring automation, dignity, and the evolving nature of work)
2. From mastery to meaning: Reframing education

Nick and “True Dimensional Complexity”

I have a concept I'd like to explore with you. It goes like this: with hand-written digit detection, one of my favorite demos to show students is to say "it's clearly less than 64-dimensional, because we can do it based on pixels, but PCA or even t-SNE demonstrates that it's considerably less". I think I remember it being something like 14-dimensions explaining essentially all the variance. Sometimes, there's even a graphical interpretation that can be done, where you analyze "one of these 14 dimensions" to realize it's something like "the looped-ness or straight-ness of the digit", and another might be "the aspect ratio of the digit". Similarly, BERT is 768-dimensional, suggesting that "understanding the nuanced meanings of the English language" is a few orders of magnitude more complicated than hand-written digit detection. GPT-3 is something in the 10,000's, suggesting that understanding longer responses is at that dimensionality. We might call this concept "true-dimensional complexity", meaning the number of dimensions the data "really"



comfortable with the tasks?

I don't know

Student
response

S That's perfectly fine! Let me explain.

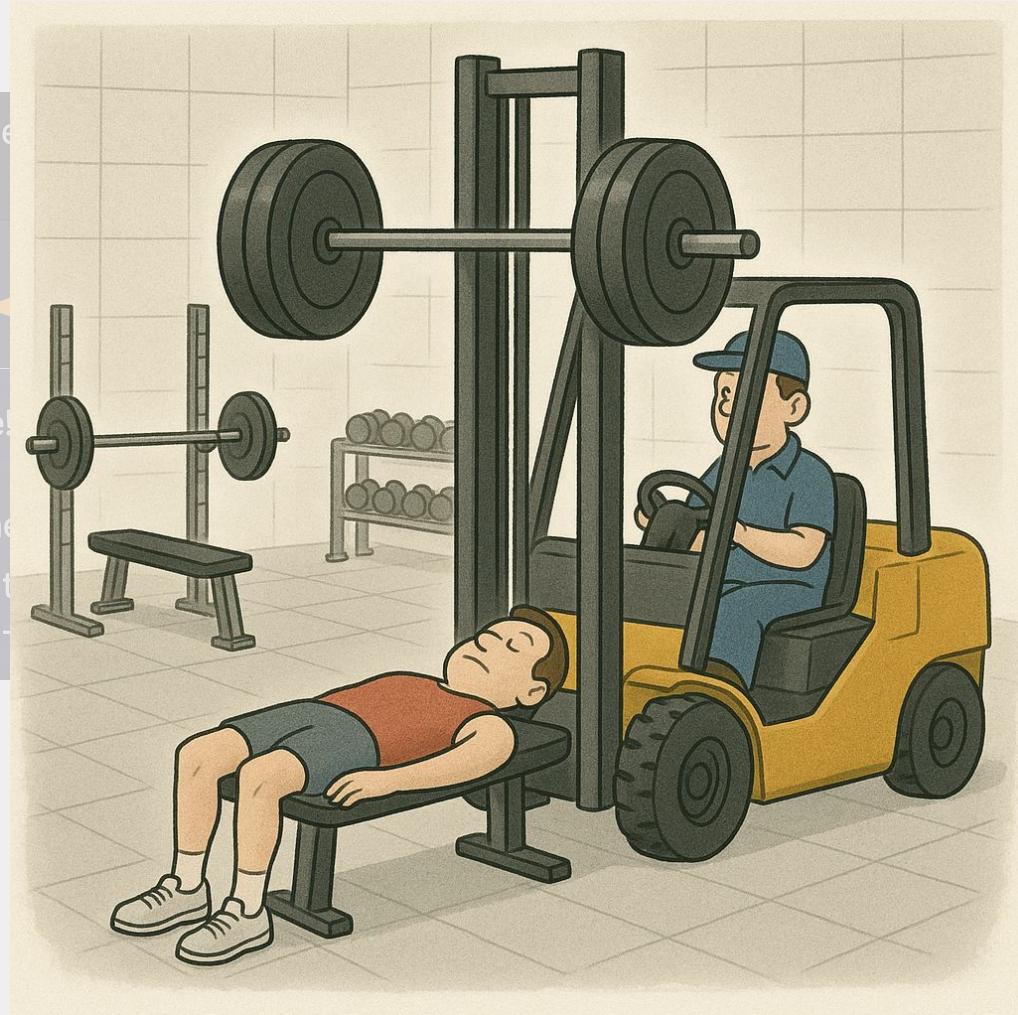
As a student becomes more comfortable and proficient in handling a task or a concept, the teacher gradually reduces the amount of guidance provided. This process is often called “fading” in the

comfortable with the

I don't know

S That's perfectly fine!

As a student becomes
a task or a concept, t
guidance provided. T



"I really like writing," she said, sounding strangely nostalgic for her high-school English class — the last time she wrote an essay unassisted. *"Honestly,"* she continued, *"I think there is beauty in trying to plan your essay. You learn a lot. You have to think, Oh, what can I write in this paragraph? Or What should my thesis be?"*

James Walsh, Intelligencer

Source: [Rampant AI Cheating Is Ruining Education Alarmingly Fast](#)



"I really like writing," she said, sounding strangely nostalgic for her high-school English class — the last time she wrote an essay unassisted. "Honestly," she continued, "*I think there is beauty in trying to plan your essay. You learn a lot. You have to think, Oh, what can I write in this paragraph? Or What should my thesis be?*" **But she'd rather get good grades.** "An essay with ChatGPT, it's like it just gives you straight up what you have to follow. **You just don't really have to think that much.**"

James Walsh, Intelligencer

Source: [Rampant AI Cheating Is Ruining Education Alarmingly Fast](#)

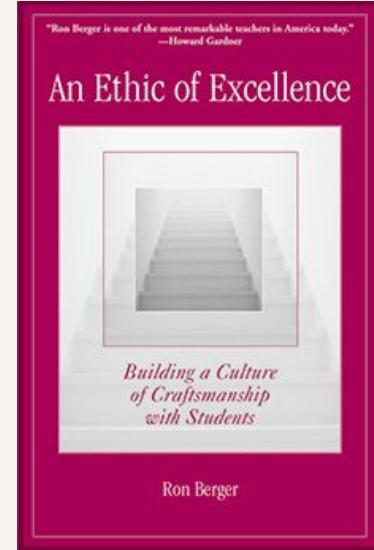


[Redacted: Slide internal to Andover, displaying 6 common uses for grading]

If you're going to do something, I believe you should do it well. You should sweat over it and make sure it is strong and accurate and beautiful and you should be proud of it.

Ron Berger

Source: [An Ethic of Excellence](#)



How we spend our days is, of course, how we spend our lives.

What we do with this hour, and that one, is what we are doing. A schedule defends from chaos and whim. It is a net for catching days. It is a scaffolding on which a worker can stand and labor with both hands at sections of time. A schedule is a mock-up of reason and order—willed, faked, and so brought into being; it is a peace and a haven set into the wreck of time; it is a lifeboat on which you find yourself, decades later, still living. Each day is the same, so you remember the series afterward as a blurred and powerful pattern.

Annie Dillard
The Writing Life