

GeEP

GLOBAL 全球
ENVIRONMENTAL 環境
EDUCATION 教育
PARTNERSHIP 夥伴



United States
Environmental Protection
Agency



naaee

North American Association
for Environmental Education





"I live in a world of virtual reality and artificial intelligence. What isn't fiction?"

Welcome to the Webinar

We'll get started shortly!

Welcome to the Webinar!



Please put your name and where you're
zooming in from in the chat!



*“What I did on my summer vacation,
according to ChatGPT.”*

Welcome!

Please put your name,
organization, and
where you’re zooming
in from in the chat!



“250,000 years of human existence, and I’m born just as we’re about to be replaced by AI. Typical.”

Welcome to the Webinar!

Please introduce yourself in the chat and let us know where you’re zooming in from!



“

Artificial intelligence is not a substitute for human intelligence; it is a tool to amplify human creativity and ingenuity.

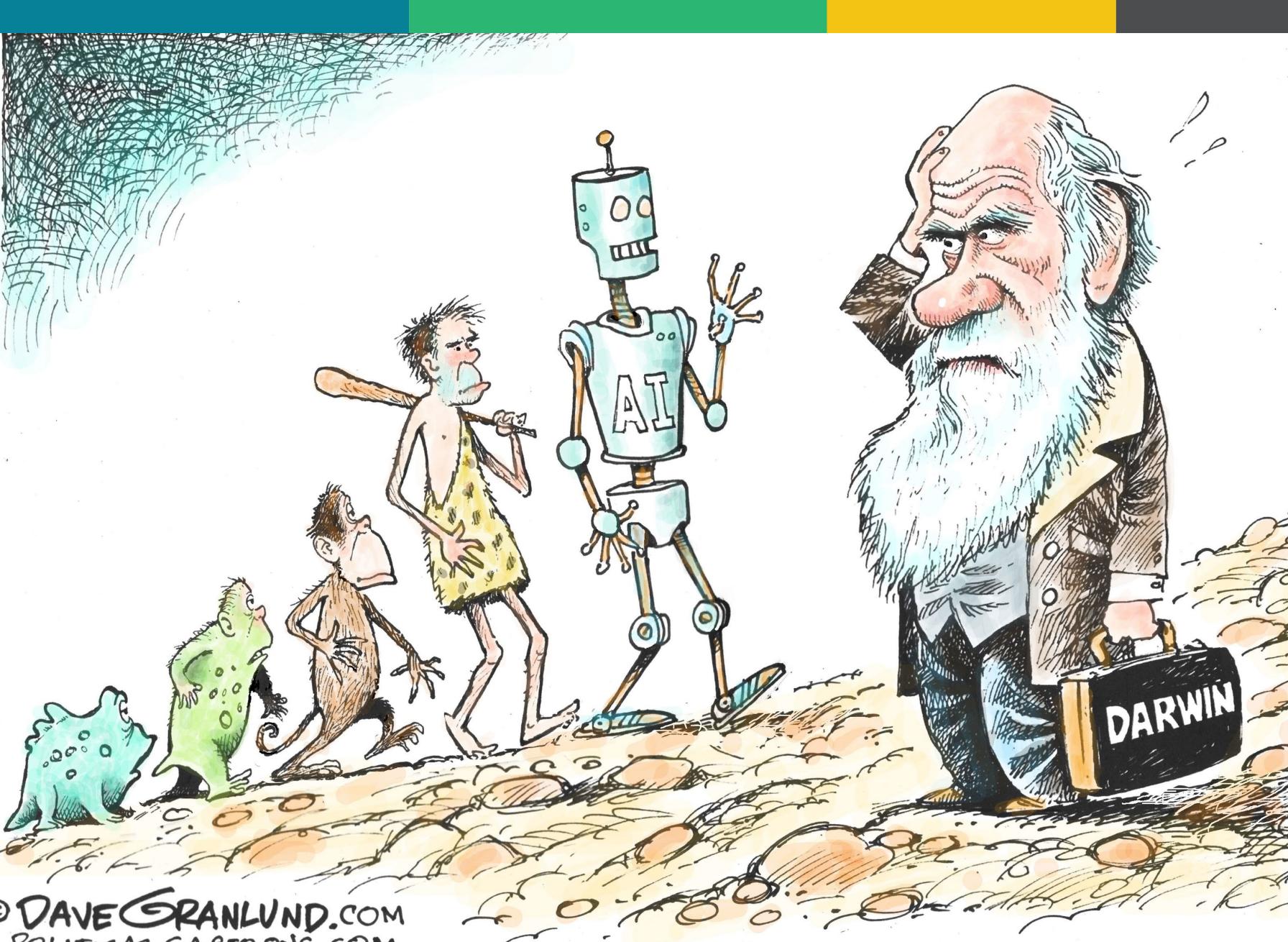
—

FEI-FEI LI

GRACIOUSQUOTES.COM

Welcome to the GEEP Webinar!

Please put your name and where you're zooming in from in the chat!



Welcome in!

Please
introduce
yourself in the
chat! We'll get
started shortly!

Welcome to Today's Webinar!



So Excited You're All Here!



Exploring AI Together: A Conversation for Environmental Educators

December 17, 12:00-1:30 PM ET



Yue Li



Chris Agnew



Andrew Powers



Ian Humphreys



Register at bit.ly/AlandGlobalEE

2014-2025

Learning Across Borders

GeEP

GLOBAL 全球
ENVIRONMENTAL 環境
EDUCATION 教育
PARTNERSHIP 夥伴



naaee

North American Association
for Environmental Education



The GEEP Is a Learning Network

To create a vibrant learning network designed to build capacity in countries around the world to strengthen environmental education leading to a healthier future for all.



United States
Environmental Protection
Agency



Visit thegeep.org



North American Association
for Environmental Education



Geep APRC
全球環境教育夥伴亞太中心
Global Environmental Education Partnership
Asia-Pacific Regional Center

GEEP Africa

New Ideas, Thinking, and Insights



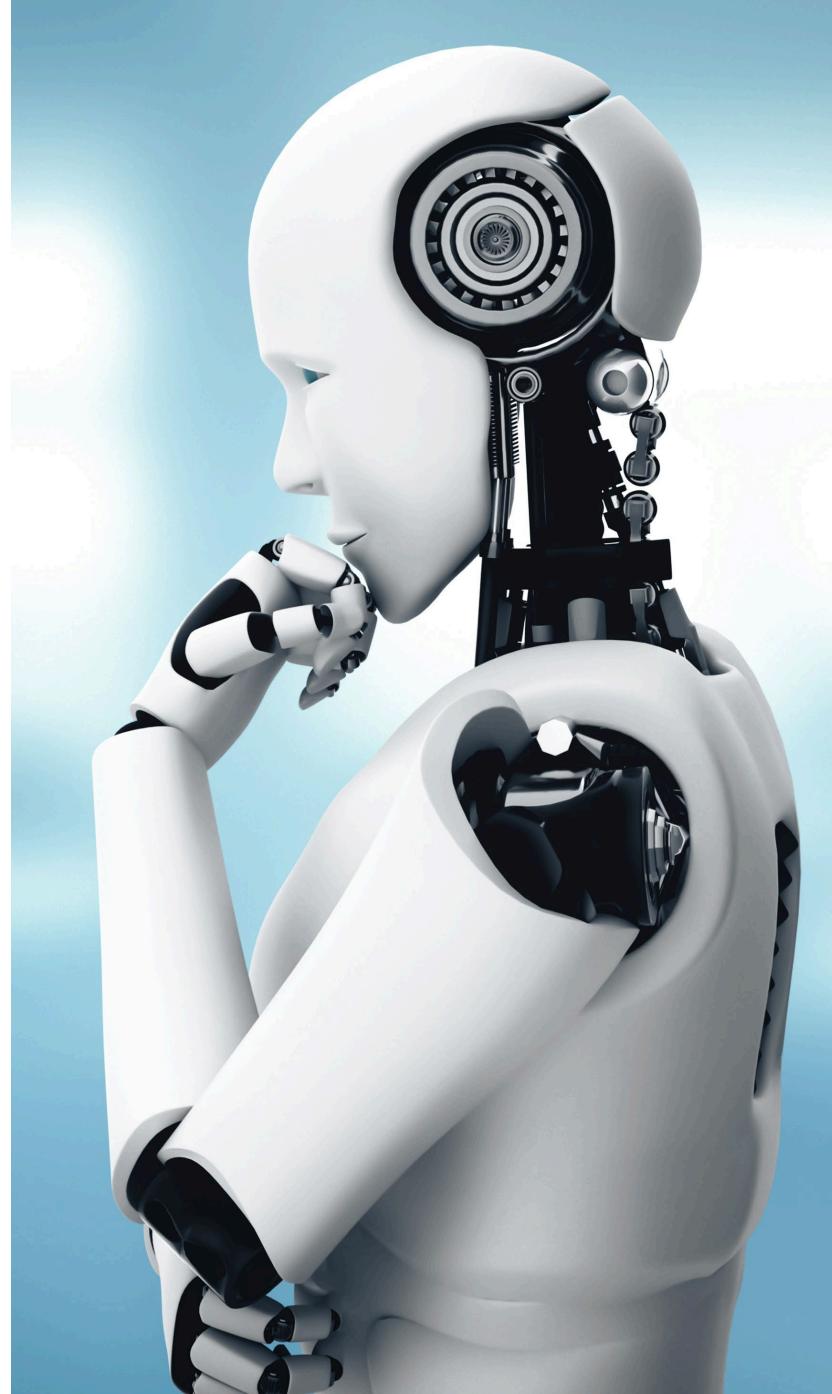
Thanks to Our Partners and Advisors!

Just a few of our advisors at a recent meeting in Taipei!

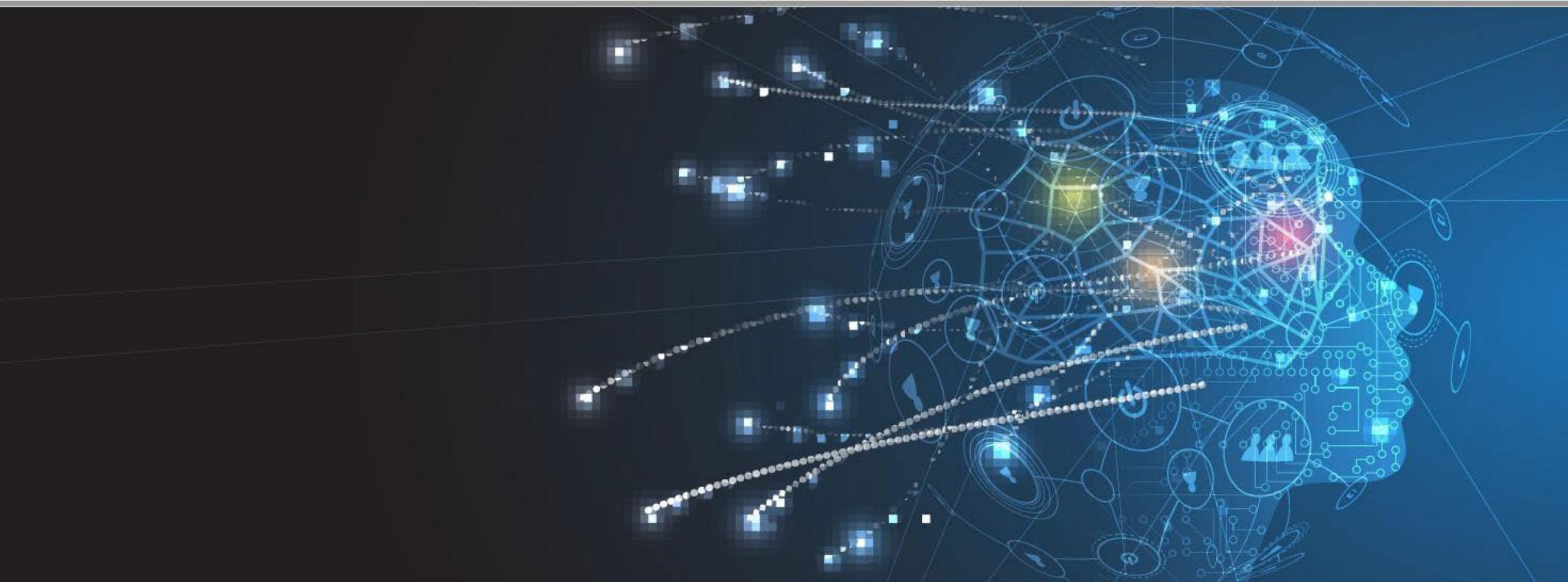


Our speakers will highlight:

- Examples and strategies for **integrating AI in ways that support learning and global education efforts**
- **Balancing equity, ethics, the environment, and human-centered design in mind**
- **How to reduce bias, protect privacy, and adapt learning approaches as AI tools evolve**
- **Useful ideas and new thinking**
- **And more!**



**Thanks for all your great questions.
We'll get to as many as possible!**





- Type questions in the chat throughout
- For closed captions and translated captions, click Closed Captions
- This webinar will be recorded and shared



Use chat to join conversation & ask questions

For captioning and translations click “Closed Captions”



Unmute

Start Video

Participants 2

Chat

Share Screen

Record

Show Captions

Reactions

Apps

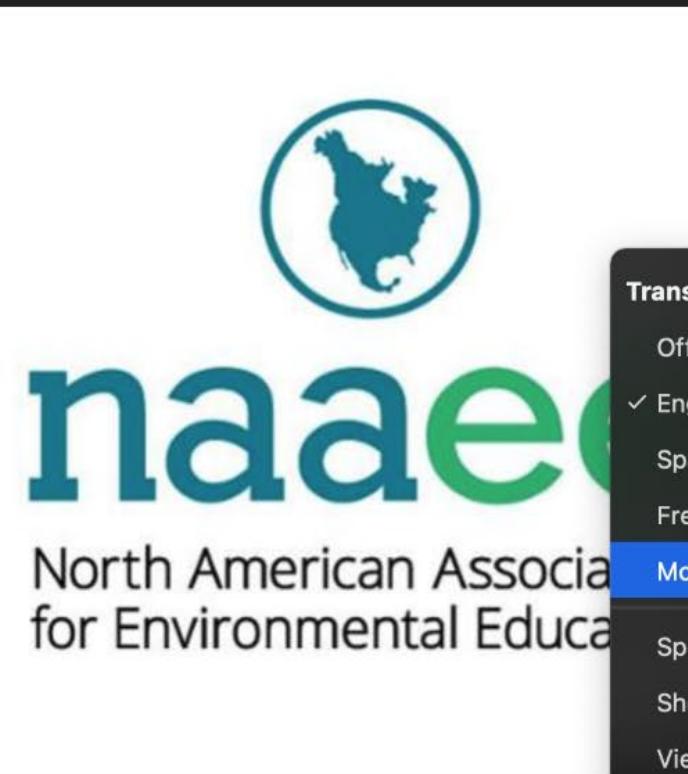
Whiteboards

Leave

A participant has enabled Closed Captioning

Who can see this transcript?

X



- Automate translated captions
- Select your preferred language (31 options!)

Translate to

Off

✓ English

Spanish

French

More...

Speaking language: English >

Show original and translated

View Full Transcript

Subtitle Settings...

Host controls

Disable captions

Set up manual captioner >

Off

Arabic

Bengali

Chinese (Simplified)

Chinese (Traditional)

Czech

Dutch

✓ English

Estonian

Finnish

French

German

Hebrew

Hindi

Hungarian

Indonesian

Italian

Japanese

Korean

Malay

Polish

Portuguese

Romanian

Russian

Participants
1

Chat
^

Share Screen
^

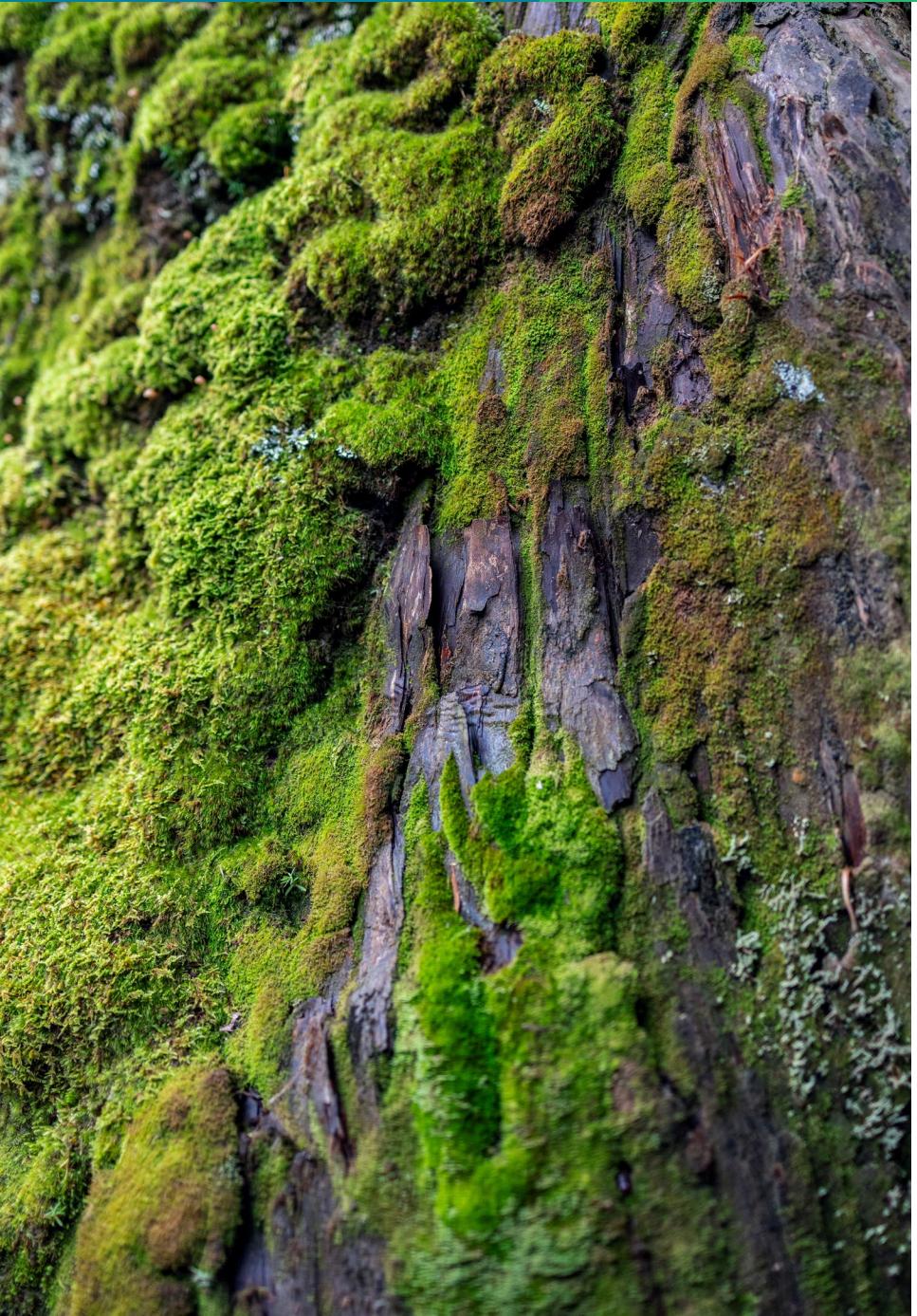
Polls/Quizzes

Record

cc
Hide Captions

Breakout Rooms

Reactions



Thanks, Carrie and Madeline!!



Carrie Albright
Senior
Communications and
Data Specialist
NAAEE



Madeline Halvey
International
Program Specialist
NAAEE



Introducing Our Moderator!

I love AI!



GEEP GLOBAL 全球
ENVIRONMENTAL 環境
EDUCATION 教育
PARTNERSHIP 夥伴



Dr. Ian Humphreys
Senior Conservation Officer
Buglife



- Board member of the **Foundation for Environmental Education (FEE)**, which supports Eco-Schools around the world
- Senior Conservation Officer, **Buglife**
- Former Executive Director of **Keep Northern Ireland Beautiful (KNIB)**.
- Helped oversee the rapid growth in **Eco-Schools**, with every school now participating.
- Worked for 14 years with **The Conservation Volunteers** before he joined KNIB.
- Strong environmental and research credentials, including a **PhD from The Queen's University of Belfast**.
- Has conducted **research** focusing on the effects of interventions on behaviour and developing **civic leadership** in young people
- Volunteers for the **Copeland Bird Observatory**

3 Great Presenters!



Chris Agnew

Stanford University



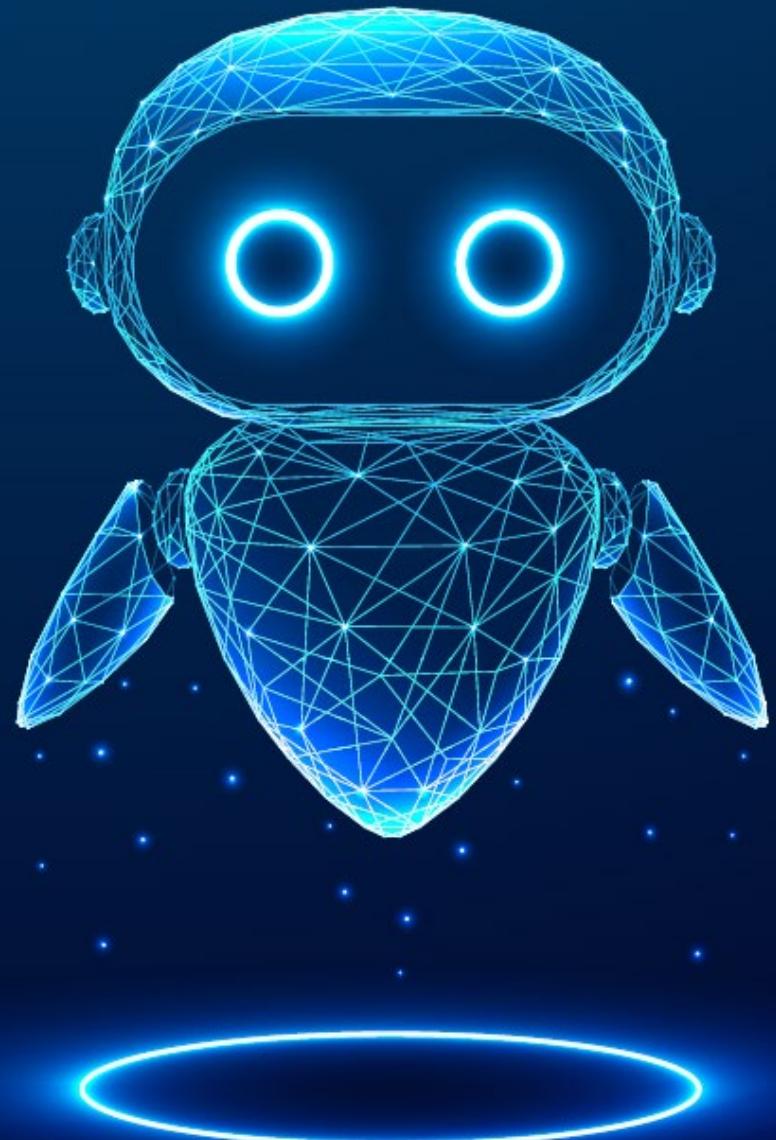
Yue Li

University of Florida



Andrew Powers

Greentime.ai



Poll Time

We want to find out
more about you!

3 Quick Poll Questions

Regularity of use

- Artificial intelligence what? (I think of Claude as a man from France)
- Dabbler (I now think of more than a constellation when I hear "Gemini")
- Daily user (I've already downloaded 5.2 and I'm getting better at my Nano Banana skills)

My biggest concern around AI is...

- Environmental/climate impacts
- Erosions to learning and critical thinking
- Potential bias (in information, people, etc.)
- Potential destruction to copywriters' and creators' livelihoods
- Automation leading to mass unemployment
- All of it

Overall, my point of view on AI is...

- AI will enable an aspirational future
- I'm AI curious AND concerned about some of the hazards
- AI will hasten the end of humanity



Introducing Our First Speaker





GeEP

GLOBAL 全球
ENVIRONMENTAL 環境
EDUCATION 教育
PARTNERSHIP 夥伴



Chris Agnew

Director, Generative AI for Education Hub

Stanford University

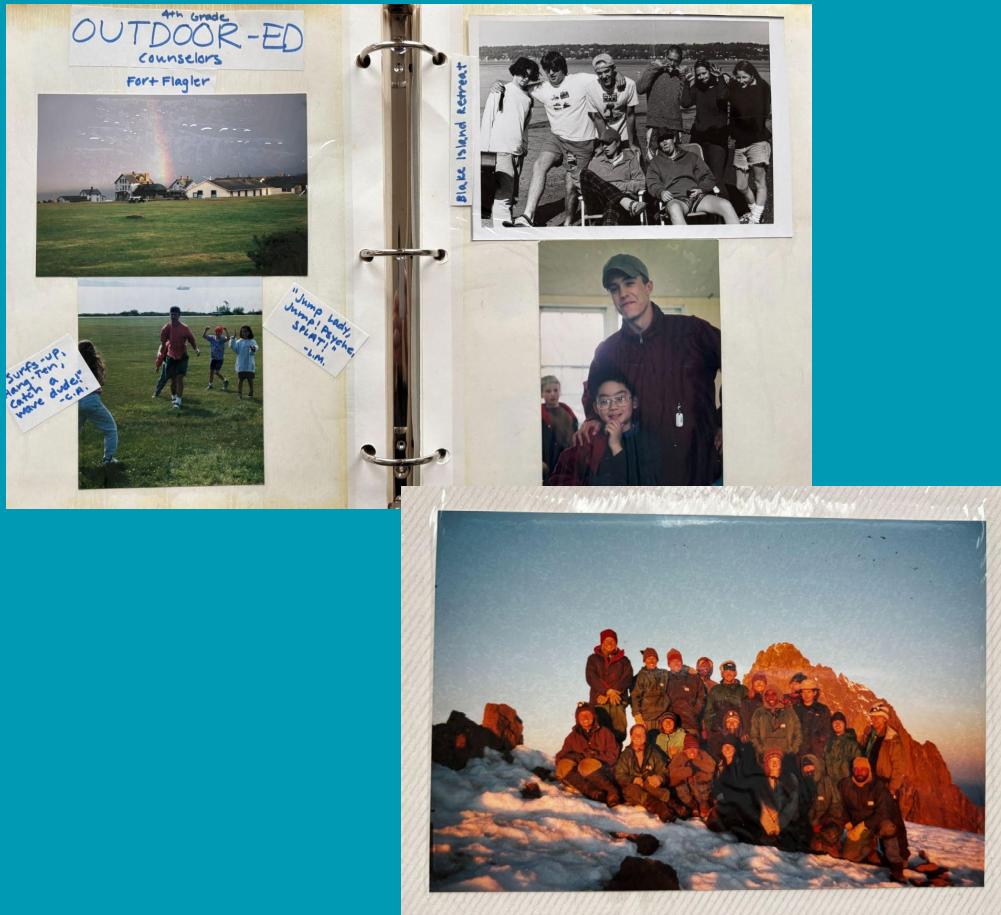


Created w/ Nano Banana - Google Gemini

Environmental
Education has
never been more
important.
...and this doesn't
mean you can or
should ignore AI.

A little background...

How It Started:



How Its Going:



Chris Agnew
Managing Director
AI Hub for Education @ Stanford



Artificial Intelligence and Environmental Education

4 Reasons Why This Isn't An Oxymoron

- Transformation
- Measures
- Mission Impact
- Environmental Impact

Quick Level Set

What do we mean by “AI”?

Artificial Intelligence (AI)

A computer system that can think and learn to solve problems. It's been around for over 70 years. Often rules based.

Algorithm

A set of step-by-step rules a computer follows to finish a task, like a recipe for baking cookies.

Search

An internet tool that finds matching or relevant content and then returns the information in a list. Rules based.

Generative Artificial Intelligence (genAI)

AI that uses all the information it knows to create new things based on probability. Not rules based.

Multimodal

When AI can use and interpret different types of information like text, sound, and images/video.

1 Transformation

Education is changing now. This is a need and opportunity.

Where We're Coming From - 2005



- ✓ NCLB
- ✓ High stakes testing
- ✓ “Academic rigor” focus

Where We're Going - 2025



- ✓ Experiences matter
- ✓ Durable skills and SEL
- ✓ Pressing “wicked” problems

2 Measures

Can we measure what really matters?

Where We're Coming From - 2005



- ✓ Test scores
- ✓ Focus on summative
- ✓ Standardized

Where We're Going - 2025



Created w/ Nano Banana - Google Gemini

- ✓ Metacognition and sentiment
- ✓ Focus on formative
- ✓ Multimodal

3 Mission Impact

In environmental education, we're not having the impact required, and it's just getting harder



Coming Headwinds:

- ⚠ **Baumol's cost disease**
- ⚠ **ESSER cliff**
- ⚠ **Shrinking demographics**

Three Problems to be Solved:

- 💡 **efficiency**
- 💡 **outcomes**
- 💡 **reimagining**

4 Environment

Understanding Impact

2,000 Wh



1 Hamburger



**1,000-8,000 AI
prompts**



**Streaming 1.5-2
seasons of
Stranger Things**



**8,000 Google
searches**

4 Environment (cont.)

And doesn't AI drive climate change and pull people away from nature?



AI Literacy (different than AI tools)



Abundance - a rapid shift to green energy



Solutions?

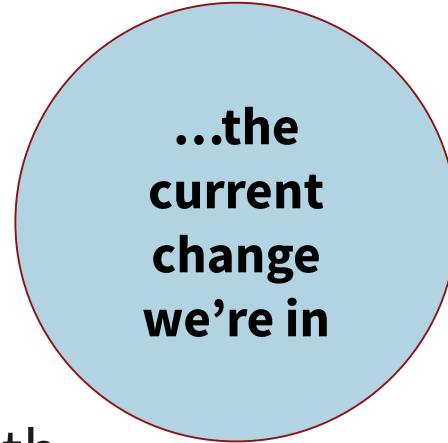
Aligned Goals

...but how do we get there?

- Environmental Education experiences for more kids
- Environmental Education organizations growing and thriving
- Rapid global progress on climate goals

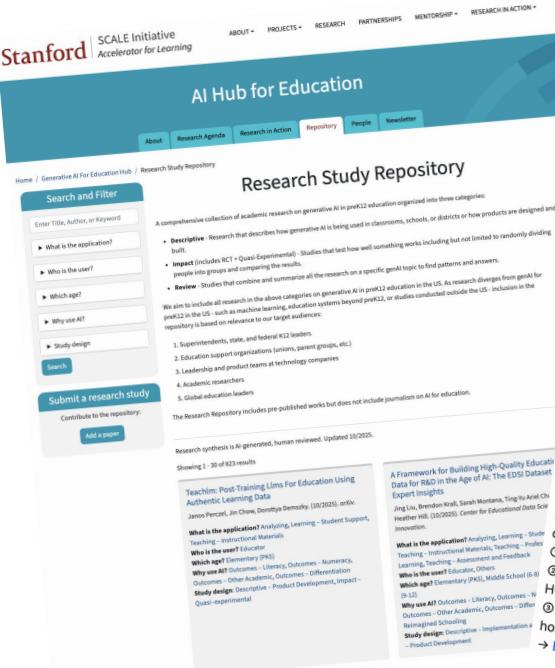
My Ask:

- Engage with
- Understand
- Experiment with



Resources

Research Repository



The image is a screenshot of the Stanford AI Hub for Education website. The top navigation bar includes links for About, Projects, Research, Partnerships, Mentorship, and Research in Action. The main header features the Stanford logo and the text 'SCALE Initiative Accelerator for Learning'. Below the header, a teal banner reads 'AI Hub for Education'. The main content area is titled 'Research Study Repository'. On the left, a sidebar has a 'Search and Filter' section with a search bar and dropdown menus for application type, user, and topic. It also includes a 'Submit a research study' button and a 'Contribute to the repository' link. The main content area shows a list of research papers with titles like 'Teaching Post-Training Lims For Education Using Authentic Learning Data' and 'What is the application? Analyzing Learning - Student Support, Teaching - Instructional Materials, Learning - Grade'. Each entry includes a 'View paper' button.

Your October reading is here - the monthly AI Hub for Education at Stanford University Research Repository update!

All pre-prints and peer-reviewed research released in September relevant to #AI and #K12.

✓ Use it as a monthly meditation to ground yourself in data.

✓ Build a weekly habit to read one paper on a topic important to you on AI in education to better answer "what does the research say?"

The Repository is at 823 papers

We added 69 papers with this update

Over half of the papers in the Repository (51%) were published in the last 9 months

While reading through the additions, here are three that I found interesting, relevant, or on an important topic:

AI safety for youth is understudied and currently has little guardrails. Researchers at the **University of Illinois Urbana-Champaign** found that commercial AI moderation models underperform in detecting risks when youth engage with LLM's and propose a new youth-specific risk benchmark. **Yaman Yu, Yiren Liu, Jackie Zhang, Yun Huang, and Yang Wang.**

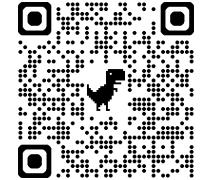
<https://lnkd.in/gFm3VzP8>

Iris Delikoura, Yi R. (May) Fung, and Pan Hui at the **The Hong Kong University of Science and Technology** did a systemic review of 70 studies to evaluate the risks of LLM's in education. I found their creation of a taxonomy of risk a helpful organizing tool:

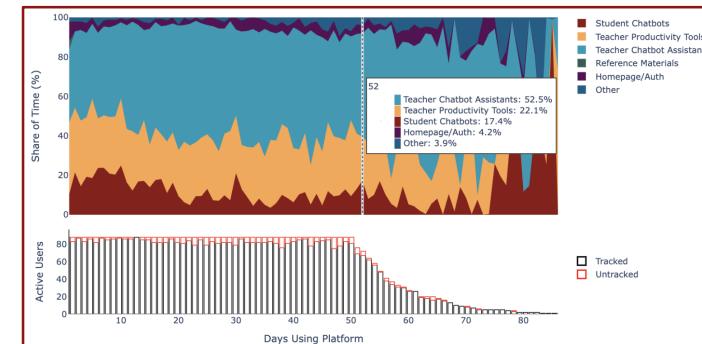
- Technical Risks including hallucinations, bias, and opacity.
- Pedagogical Risks including superficial learning, misalignment with HQIM, and assessment erosion.
- Societal Risks including diminishing human judgment, cultural homogenization, and AI accelerating faster than governance systems

<https://lnkd.in/gbBxPMxa>

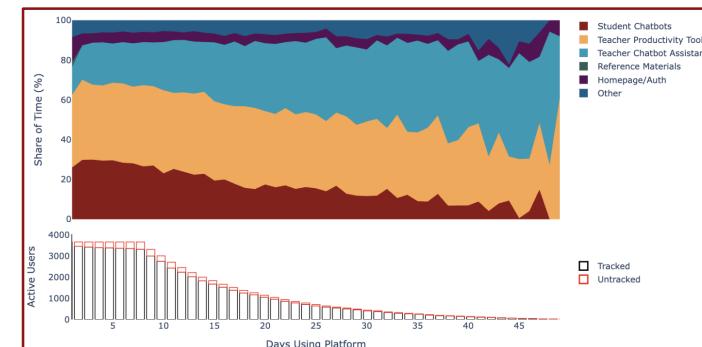
Understand Teacher Use Trends w/ AI



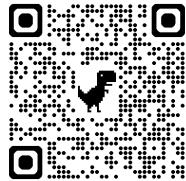
Power Users - 1%



Regular Users - 41%



Thank You and Stay Connected



✓ Subscribe to our
newsletter



✓ Read the Research
Repository



✓ Follow the AI Hub for Education, SCALE Initiative @
Stanford



GeEP

GLOBAL 全球
ENVIRONMENTAL 環境
EDUCATION 教育
PARTNERSHIP 夥伴



Dr. Yue Li

Assistant Professor
Environmental Education

University of Florida

Future Environmental Educators' Insights on Navigating AI in Environmental Education

Yue Li, Assistant Professor, School of Forest, Fisheries, and Geomatics Sciences

University of Florida

Contact: yueli2@ufl.edu

UF: Defining AI for Higher Education

Every student. Every major. Every level. UF is pioneering the teaching of AI, and emphasizing AI-driven research, across the university.

Building UFAI

AI Ethics

The ethical issues surrounding AI—privacy, transparency, bias, academic integrity—are serious. UF requires ethics courses in its certificate and micro-credential programs.

#1

Supercomputer

HiPerGator is the most powerful university-owned and operated supercomputer in the nation

230+

AI-Related Courses

Across the curriculum and in every college

1

AI Fundamentals Certificate

University-wide and open to all students, regardless of major



gpt-5 ▾ +

Set as default



This model is approved to work with [Open data](#).

How can I help you today?



By using NaviGator Chat, you agree to our [Terms of service](#) and have read our [Privacy Policy](#). NaviGator Chat can make mistakes, validate important information.

↶ Suggested

Give me ideas

for what to do with my kids' art

Show me a code snippet

of a website's sticky header

Explain options trading

if I'm familiar with buying and selling stocks

gpt-5 ▾ +

Q Search a model

All External Open Data **Restricted Data** Sensitive Data

codestral-22b

gemma-3-27b

gpt-oss-120b

gpt-oss-20b

granite-3.3-8b-instruct

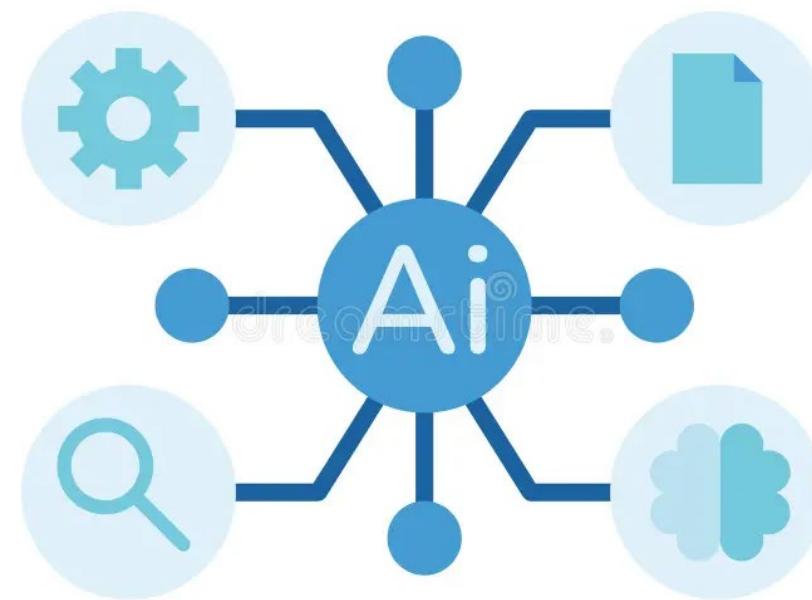
llama-3.1-70b-instruct

llama-3.1-8b-instruct

Are our students prepared for careers in the emerging **AI era**?

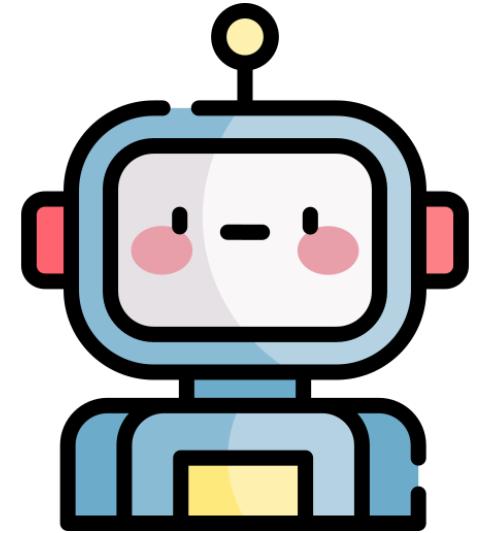
How can we help students **critically engage with AI**, not just use it?

What roles can **AI play in environmental education (EE)**?



AI Competencies

1. **Recognize different types of AI applications**
2. **Understand the basic functions of AI**
3. **Apply AI knowledge and concepts in varied contexts**
4. **Critically evaluate AI outputs**
5. **Create AI applications**
6. **Navigate the ethical implications of AI**



Type in the chat:

In which ways can AI be used in Environmental Education?

Table 2
Classification and description of GenAI tools for educator use.

Group	Description	Subgroup
Planning	Tools that enable educators to design and plan their instruction, whether for individual activities, lesson plans, or entire courses.	<ul style="list-style-type: none"> - Course design - Lesson and activity planners
Content creation	Tools that enable educators to generate content in diverse formats.	<ul style="list-style-type: none"> - Textual information objects - Image/Video/Presentation - Concept & Mind maps - Code - Other forms of objects
Evaluation	Tools that assist educators in evaluating students' learning.	<ul style="list-style-type: none"> - Assessment - Detecting plagiarism - Feedback and Grading
Teaching assistants	Tools that aid educators in delivering instruction effectively.	<ul style="list-style-type: none"> - Coming up with ideas - Extracting & organizing knowledge - Supporting students' diverse needs - Communication & Community building - Persona/Custom chatbots

Preliminary Results from a National Survey

Scenarios of Using AI in EE - Support Teaching

“I use it as a brainstorming partner...”

“Laying out the structure of a lesson plan... standards alignment and differentiation.”

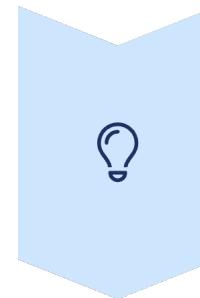
“I have utilized AI to rephrase program content for multiple age groups.”

“Rewording articles and newsletters to sound more polished.”

“Create evaluation questions,” and “Surveying impact.”



Project Overview



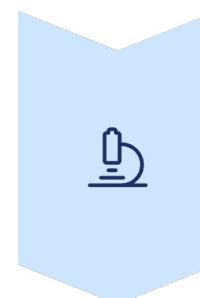
Teaching Innovation

Integrate AI tools to enhance student engagement and learning outcomes in environmental education



Skills Development

Prepare students to critically engage with AI in their future environmental careers



Research Opportunity

Study effectiveness of AI integration in environmental education contexts

Course Context

FNR 4070C

Fall 2025

3 credits

T | Period 8-9

R | Period 3

McCarty B G108

Enroll now!

UF | IFAS
UNIVERSITY of FLORIDA



Environmental Education Program Development



- 🧠 Active Learning
- 🛠 Theory → Practice
- 🤖 AI-Integrated Assignments

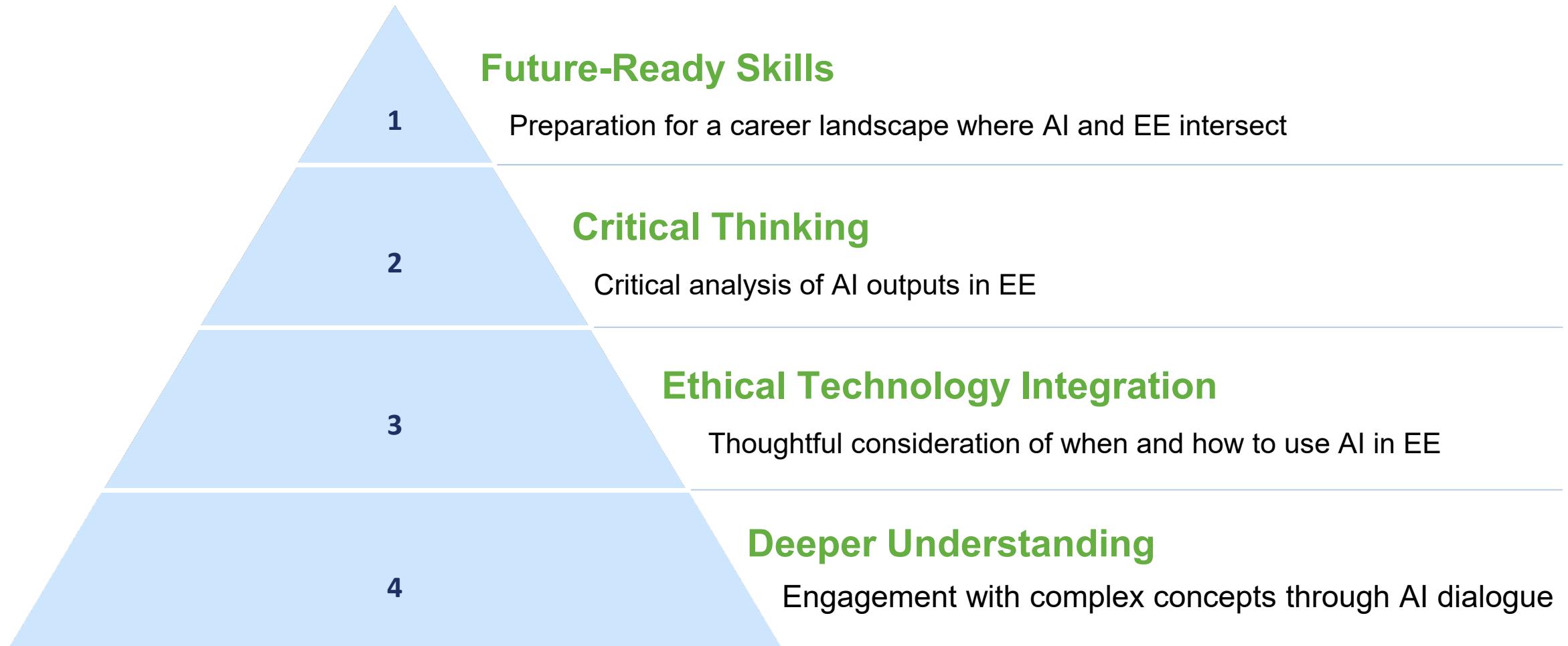
Email instructor for syllabus!

Instructor: Dr. Yue Li

Assistant Professor of Environmental Education
Email: yueli2@ufl.edu



Intended Learning Outcomes: Beyond Content Knowledge



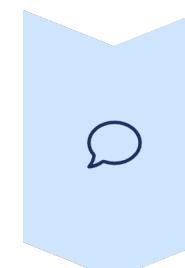


Assignment 1: Chat with AI on Readings



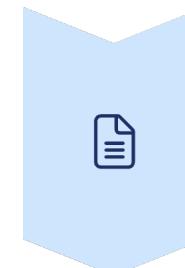
Read

Engage with environmental education literature



Chat with AI

Develop a dialogue with AI to explore concepts, raise questions, and extend ideas



Reflect

Post conversation transcript with critical reflection and exchange experiences with peers

This assignment teaches students to use AI as a thought partner while promoting **critical thinking**.

Chat with AI Assignment Instructions

After reading the assigned articles, engage in a conversation with NaviGator Chat.

- Summarize the main points. Do NOT upload the reading pdf to AI directly.
- Ask the AI to help you clarify confusing parts, if any.
- Ask the AI at least 2 open-ended, thought-provoking questions about each reading.
- Respond to its replies, challenge it, or ask for clarification. Try to reach a deeper insight or critical reflection through the exchange.
- Ask the AI what questions it would ask if it read the same material.

Submit:

- A transcript of your dialogue
- A short (100–200 word) reflection on what you learned or how your thinking shifted.

Chat Example: <https://chatgpt.com/share/689b3e9b-ae8c-8006-a178-4f6e7f48f992>

I'm still not confident that I can trust generative-AI output to create meaningful EE content for me. I also believe it slightly cheapens the human creativity aspect of lesson planning. Moving on though, I read another article called Guidelines for Excellence: Environmental Education Materials. It describes the goal of EE "to develop environmental literacy for all". There were six key sections in this describing goals of EE materials: accurate and inclusive, emphasis on skill building, depth of understanding, personal and civic responsibility, instructional effectiveness, and usability. What does "environmental literacy" mean to you?

gpt-5-nano

To me, environmental literacy is the capacity to understand how natural and human systems interact, recognize how actions affect the environment and people, and use that understanding to think critically, communicate clearly, and act responsibly in personal, community, and civic life toward a sustainable future. It combines knowledge, skills, and values so people can make informed decisions and participate meaningfully in environmental choices.

How this maps to the six sections you mentioned:

- Accurate and inclusive: grounded in credible science and local knowledge, with diverse voices and perspectives represented.
- Emphasis on skill building: emphasis on inquiry, data interpretation, critical thinking, collaboration, and effective communication.
- Depth of understanding: integrates science, social factors, ethics, and policy—a holistic, systems-oriented grasp.
- Personal and civic responsibility: motivates ethical action, stewardship, and participation in community and policy decisions.
- Instructional effectiveness: clear outcomes, evidence-based teaching strategies, valid assessment, and alignment between goals and activities.
- Usability: materials that are accessible, adaptable to different contexts and audiences, and easy to implement.



Chat with AI Experience

Post your response to the discussion topic by clicking the plus button below.

What challenges, if any, did face when using AI?

Lengthy sentences

Unnecessary information

Repetition

Not always correct

Long response time

Ignore questions

How did you overcome these challenges?

Ask more specific questions

Rephrase questions

Ask to keep responses under a certain word count

What would you do differently for the next “Chat with AI” assignment?

Ask for shorter more concise replies

Use ChatGPT instead of Mistral

Provide a smaller sum of info

Ask for a brief summary

Rephrase questions

Assignment 2: Lesson Planning

- **Use an AI tool to generate an activity that aligns with your chosen subject and standard.**
- **Compare the AI-generated activity with your PLT activities: What is similar? What is different? Does the AI provide any new ideas or perspectives?**

This comparative approach develops **critical thinking** about both pedagogical design and appropriate technology integration in environmental education.

This is different from the PLT output because it focused on the **bigger picture** as opposed to pieces of land management. It was quite **helpful** that the AI was able to access the PLT activities and make a **tailored** lesson plan that would act as a capstone activity-most PLT activities are not connected, so it was interesting that the AI was able to link them together so well.

Although I would like to avoid using generative AI in teaching, ChatGPT had the **right idea**. It came up with some very basic activities, although **not nearly in as much detail as** the PLT activities. The **most interesting part** to me was how, at the end, it recommended a “create a species” activity in which students would come up with their own original plants or animals, listing their adaptations. It would be a good way for them to exemplify their understanding of adaptations, if done right.

Assignment 3: Program Proposal - AI Optional

Outline Generation

Use AI to create initial program proposal components



Critical Revision

Refine AI output



ChatGPT

Reflection

Analyze AI's strengths and limitations for proposal development



Copilot

Gemini

Students learn to provide **effective prompts** to brainstorm ideas and generate useful outlines.

 **Claude**

The Claude logo features a stylized, orange-red asterisk or starburst icon to the left of the word "Claude" in a large, black, sans-serif font.

A few students chose to use AI for this assignment

AI was used in making this proposal. It helped me brainstorm and understand budget and funding requirements. I also used it to help organize the information I had and to spell check and improve clarity. I found it very useful in reworking my ideas into a more organized format. Sometimes, the AI suggestions were a bit too general or broad, but once I fed it the information I had already written, it worked well.

I did use functions that are made with AI, like Grammarly, to ensure I used proper grammar as well as for pointers, since Grammarly will teach you how to use certain punctuation when and where.

Most of students chose not to use AI for this assignment

I did not use AI in this assignment because of the impacts generative AI chatbots have on the environment and society as a whole.

unnecessary AI use is a detriment to our planet with water use, which directly contradicts the conservation intentions of the program

This is great practice for me to develop my own proposal writing skills, and I feel that using AI would somewhat detract from that.

I felt like I wanted to be graded based on my own words and creation rather than using AI. I also felt that the feedback I would've received would not have helped in any way.

Preliminary Results from a National Survey (Educators)

What are the reasons for non-use?

“an unsustainable drain on our natural resources”

“plagiarizing the works of other creators”

“large-scale tracking can occur with little to no regulation”

“hallucinations” and “erosion of critical thinking”

Lessons Learned

What additional guidance or support would have improved your experience with AI?

- Clear guidelines on when and how AI can be used
- More examples of appropriate vs. inappropriate AI use
- Guidance on how to create effective prompts
- Tutorials or demonstrations on using AI tools
- Help interpreting or evaluating AI-generated responses
- Guidance on how to revise or improve AI outputs
- **More discussion of ethical considerations**
- **More discussion of AI's environmental impacts**
- **Learning more about tradeoffs of using AI**

What recommendations do you have for how environmental education should navigate the tensions between positive uses of AI and its negative impacts, especially those affecting the environment?

AI should not be used until it can be used **ethically**.

Educating people on **tradeoffs** so they fully understand their choice

Giving EE program participants and practitioners the **choice** to use or not use generative AI.

By using **personal ideas first**, then using AI. AI being used as a **backup** instead of a first attempt.

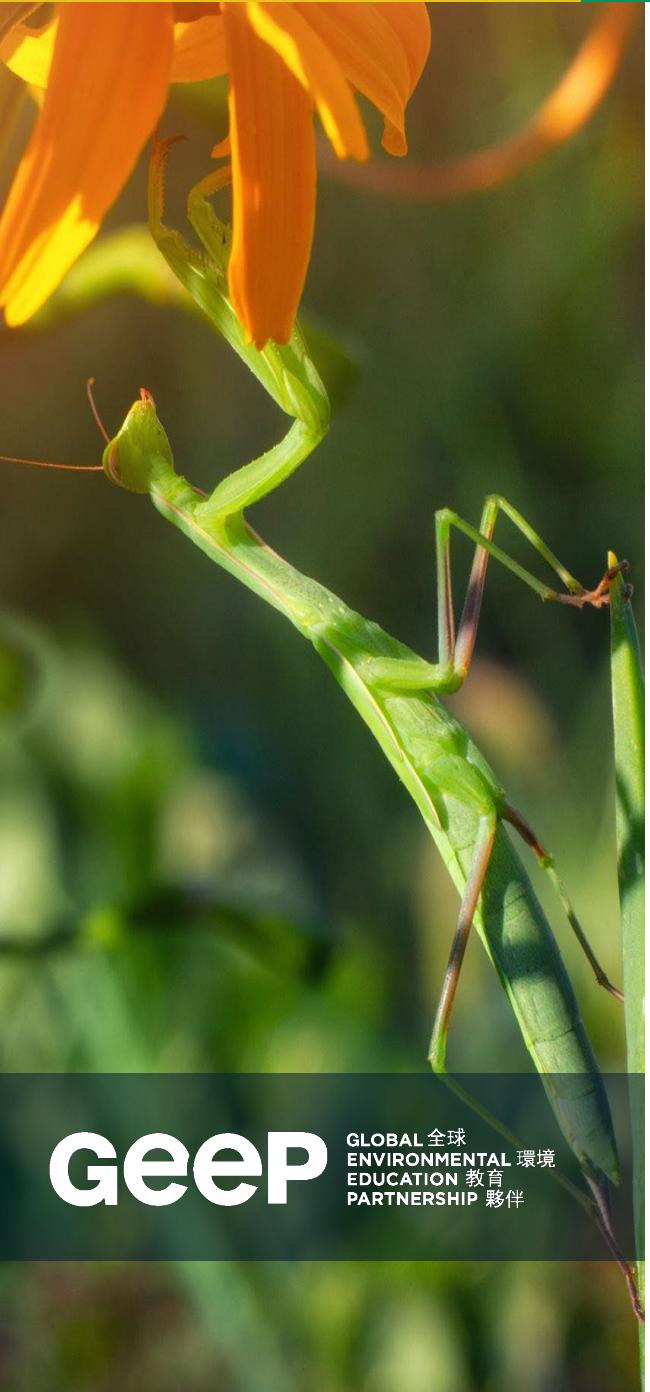
If we all used it for education, innovation would come to a standstill.

AI Resources for Educators

<https://tinyurl.com/AIResourcesEE>

Thank you! Questions?

Contact: Yue Li, yueli2@ufl.edu



GeEP

GLOBAL 全球
ENVIRONMENTAL 環境
EDUCATION 教育
PARTNERSHIP 夥伴



Andrew Powers
AI Field Naturalist

Greentime.ai

AI Ethics and Environmental Education

The Paradox, The Power, and The Path Forward

Andrew Powers, Greentime.ai



What we're up against

Funding cuts

Global environmental challenges

Finding a common vocabulary

Pressure on educators

We are losing ground

The superpower we can't ignore

Conservation at scale

Scientific discovery accelerated

Crisis response in real-time

Social justice campaigns amplified

What is our superpower?

The paradox we can't resolve

Corporate AI is fundamentally extractive

Mines, data centers, fossil fuels

Stolen intellectual property

Concentration of power

We benefit, others pay

Good intentions aren't enough

If we're all justified?

Individual use masking harm?

Using extraction teaches extraction?

Small uses multiply exponentially?

Not finding easy answers

Being honest

I love using AI

It is an ethical mess

This isn't just AI

Can't rationalize it away

Systems thinking lessons apply to me

What we are actually doing

We get: time, abilities, creative power

We externalize costs

We teach hidden curriculum

We strengthen corporate systems

We have to be honest about it

A path forward?

Real alternatives being built

Not ready for mass adoption

Building requires investment

Transition takes commitment

Use what you must while building what you need

Our Obligation

We teach systems thinking

We teach values through practice

Individual choices aren't enough

We have to face the toughest critics

Hard Questions

Necessary versus just convenient?

Balancing urgency vs need?

How do we navigate the transition?

How do we make the decisions?

We need much more dialog!

That's What We Do

Two paths: extraction vs. regeneration

If anyone should lead, it's EE

Most honest about our choices

Most committed to alternatives

Can we do this together?



Thank you for joining us!

Happy Holidays to All!



A photograph of a massive flock of birds, likely starlings, filling the sky above a field of tall, dry grass. The birds are small dark specks against a light blue sky. The text 'See You in 2026!' is overlaid in the upper left quadrant.

See You in 2026!