

Hubbard Brook Ecosystem Study Quarterly Project Meeting

October 23, 2024

10:00 a.m. - 3:00 p.m.

(virtual via Zoom)

Artificial Intelligence: The Promise and Peril for Advancing Forest Ecosystem Science
and Outreach at Hubbard Brook

Co-leaders: Lindsey Rustad and Andrew Reinmann

Agenda

- 10:00-10:10 **Welcome and Introduction**
(Christy Goodale (Cornell) and Lynn Christenson (Vassar))
- 10:10-10:20 **Why AI Now?**
(Lindsey Rustad (Forest Service) and Andy Reinmann (CUNY))
Why is AI a game-changer for forest ecosystem science and outreach and why now?
- 10:20-10:45 **Decoding AI: Understanding the Terminology and Disciplines; What's Coming Next?**
(Lacy Shelby (CUNY), Silicon Valley Guest Insights)
An overview of key AI terms and fields, and insights on emerging advancements.
- 10:45-11:15 **AI in Action: Case Studies in Agriculture and Forestry**
(Peter Manos (CUNY), Rosemary McGuinness (CUNY), and Aaron Weiskittel (Univ. of Maine))
Real-world applications of AI, including machine learning, LLMs, and generative AI.
- 11:15-11:30 **AI in Education and Outreach: Navigating Public Fascination and Fear**
(Andrew Cassel (HBRF))
Societal impacts of AI, from chatbots to education agents to hallucinations to the concept of Singularity. The balance between innovation and caution.
- 11:30-12:00 **AI at Hubbard Brook: Past and Present**
(Lightning Talks from Hubbard Brook Community)
Who is already using AI at Hubbard Brook?
What have we learned from our experiences so far?

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Speakers:

- Mark Green (Case Western University): "Diagnosing the Increase in Evapotranspiration at Hubbard Brook with a Machine Learning Model"
- Hollis Harrington (Syracuse University): "Stuck at Home: Machine Learning Models Fail to Predict in Other Streams"
- Danielle Hare (Cary Institute): "Using Field Camera Time Series to Assess Stream Phenology"
- Eric Kelsey (Plymouth State University): "Discovering Ecosystem and Atmospheric Pattern Connections Using Self-Organizing Maps"
- Open Microphone and Discussion!

12:00-12:30 **Lunch Break** (*optional continued discussion/networking - ad hoc*)

12:30-1:00 **Hubbard Brook Business Meeting**
(*Christy Goodale and Lynn Christenson*)

1:00-1:10 **Ethical Reflections: Equity and Environmental Impact of AI**
(*Lindsey Rustad*)
Reflections on the ethical considerations of AI, including energy use, environmental impact, and issues of equity and access.

1:10-1:30 **AI at Hubbard Brook: Future Directions**
(*Lindsey Rustad (Professor WaterViz), Anthea Lavallee (Bezos Digital Twin/Hubbard Brook Talking Forest)*)
Looking ahead to ideas for opportunities for advancing science, education, and outreach with AI at Hubbard Brook.

1:30-2:30 **Breakout Sessions: Generating Ideas and Proposals**
Join breakout groups to brainstorm and develop ideas for advancing science, education, and outreach.

2:30-3:00 **Reconvene and Share**
(*Facilitators: Andy Reinmann and Lindsey Rustad*)
Share insights, discomforts, and new possibilities.

3:00 **Adjourn**