

Opportunities in Science Communication and Climate Science (Maddie's Version)

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Feel free to ask questions throughout the talk

Can take a pictures of the slides

About Me

- Physics PhD Candidate at the University of Illinois
 - Specialize in climate science
- Host and Producer at Illinois Public Media (NPR affiliate)
- Science Writer for Illinois Physics
- Graduating this summer



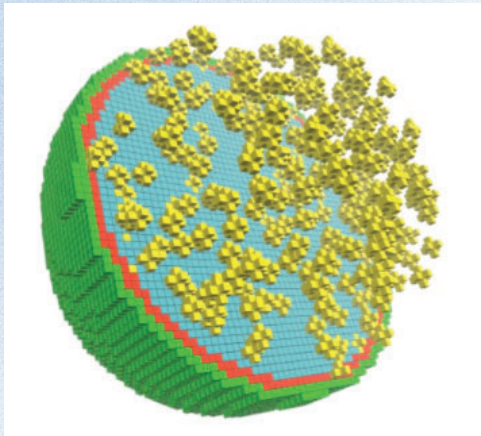
Outline

1. Story time: PhD journey
2. Opportunities in climate science
3. Opportunities in science communication

A nonlinear PhD

A nonlinear PhD: Year 1

Virtual Cell



- Undergrad research in GW astronomy
- Entered in 2020, wanted to do more applied work but had no idea what
- Started working in a biological physics lab doing computer simulations of cell growth
- Research was ok, but it was a poor advising fit

A nonlinear PhD: Year 2



Image: Shutterstock

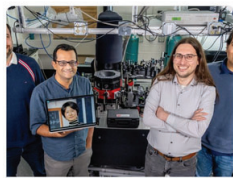
- Joined a research group in climate science
- Large-scale questions about Earth's energy balance
- Took courses, attended journal clubs to get a basic understanding of atmospheric physics
- Overburdened advisor

A nonlinear PhD: Year 3



- Joined a more applied climate science research group - finally a good advising fit !
- Burnout :(
- Started a radio show at a local station for fun
 - WRFU at the Independent Media Center
 - Audio engineering and hosting
- Science communication for Illinois Physics
 - translating academic papers for the public

Science Writing for a University



[This crystal sings back: Mahmood, Noronha, Fernandes shed light on magnetochiral instability.](#)

Research | January 10, 2026



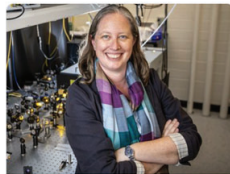
[NSF award to facilitate quantum research, public outreach](#)

Research Funding | December 20, 2025



[Philip Phillips' team develops an exactly solvable model with quantum fluctuations for Mott insulators](#)

Research News | November 27, 2025



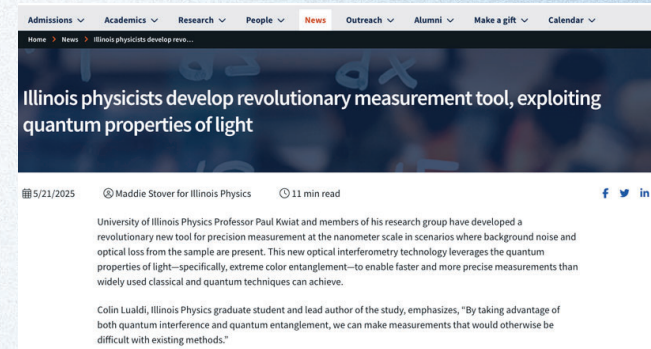
[Illinois Grainger Engineers develop reconfigurable slow-light platform for on-chip photonic engineering](#)

Research News | November 26, 2025

- Academic papers use technical language and assumes extensive background in the field
- University departments want to promote their research to build prestige, attract donors, and new students
- Need research summaries that are accessible to the general public
- Articles that cover and promote events
- News tab on a university department's website

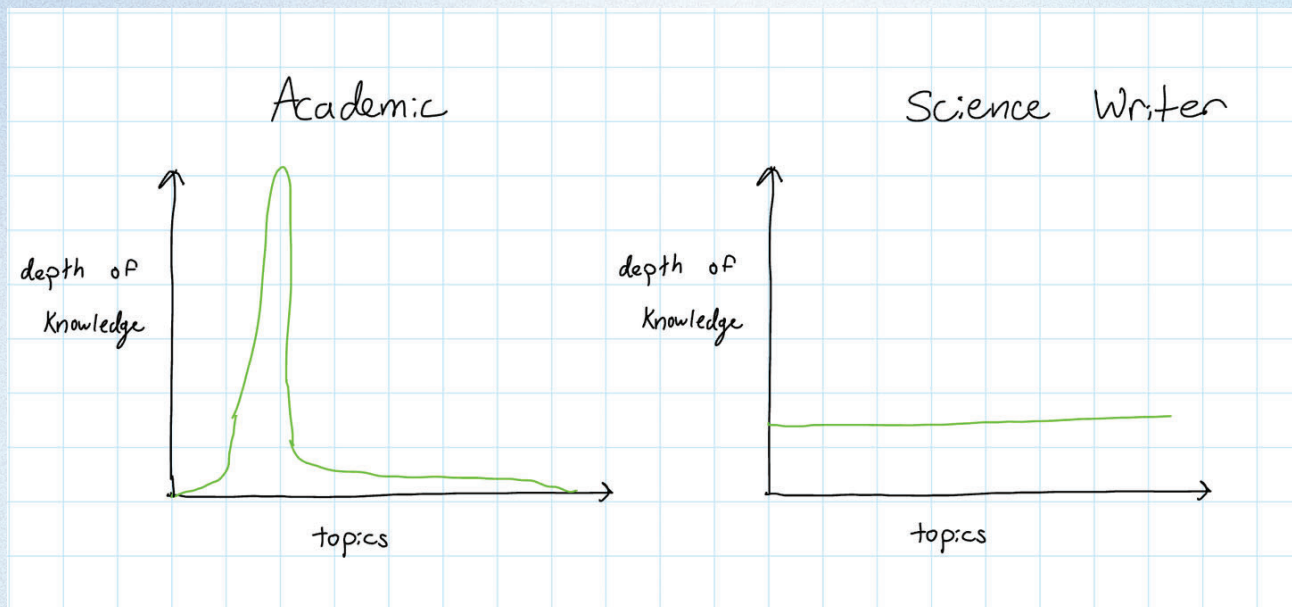
Examples

- Covered a physics and poetry event
- Covered first artist in residence for Illinois Physics
- Wrote research summaries about quantum information, protein sequencing, cosmology



What I enjoyed about this role

- Being a generalist
- Switching projects frequently
- Interview process
- Researchers appreciate this!



Institutional vs Freelance

Institutional

- Work for university or institution like *Physics Today*
- Salaried
- Karmela Padavic-Callaghan
 - New Scientist

Freelance

- Work article to article, can have consistent clients (NYT, Scientific American, etc.)
- Pay can be less consistent
- More freedom
- Consistent pitching

Questions about this?

A nonlinear PhD: Year 4



- Continued to gain interview and writing experience with Illinois Physics
- Continued research in atmospheric science
- Started the Emergence Podcast with another student
 - Student pitch
 - Liked radio experience

Emergence Podcast

- Coming up with a theme
- Goal: to highlight Illinois Physics research and community
 - Interview students and faculty
 - Style: conversational
 - Long format
- Upload to Youtube and Spotify
- Used radio studio where I was a broadcaster
 - Audio only



Emergence Podcast Guests



Dr. Katie Ansell: Physics Education



Dr. Gina Lorenz: Quantum



Sir Tony Leggett: Condensed Matter



Richard Blanco: Poet Laureate



Dr. Helvi Witek: Cosmology

Starting a Podcast

- Big learning curve
- Need to be many different roles at once: producer, host, sound engineer, editor, art director, etc.



Engagement



- Eight episodes, about 150 views per episode
- Decent engagement on socials
- Difficult to get a ton of engagement w/o marketing team
- New team!
 - Divij Gupta, Caitlin Mamaril, and David Roh

A nonlinear PhD: Year 5

- To get more science communication experience I approached Illinois Public Media
 - Weather Realness
 - Throughout News Director's career in journalism has seen a lot of public interest in weather, and climate is a timely topic
- liked podcast experience and atmospheric science experience



Weather Realness

- New format
 - Wanted to leverage expertise at the University
- Weekly hour-long radio show
- Have a different weather or climate topic this week
- Can listen on the air or any time via the website



Weather Realness

- I write scripts and interview questions, contact guests, and host the show with a faculty member



Example Episodes



Image: Andy Olson, UIUC



Image: NASH.edu



Image: DOE

- Dr. Lara Waldrop and Dr. Tim Killen: Space weather
- Dr. Katy Huff: Nuclear energy
 - Former Assistant Secretary for Nuclear Energy, Biden
- Athletic Department: Extreme weather and football

Example Episodes



Image: Andrew Pritchard

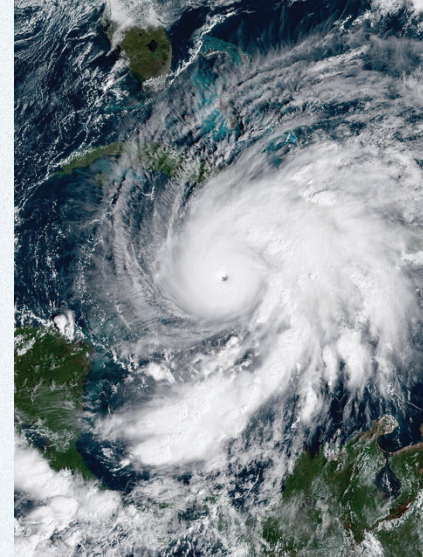


Image: NOAA

- July 4th Texas Floods
- Hurricane Melissa
- Snowiest November in Urbana since 1885

Weather Realness

- 30 episodes
- Good engagement!
- Would like more call-ins
- Might be moving to a live format

State of Change

- Annual environmental TV special
- Associate Producer
- Interviewing for TV
 - Dr. Rosalin LaPier
 - UIUC History Professor and
Smithsonian Research
Associate



Image: Illinois Public Media

Podcasting: DIY vs News Outlet

DIY



- Smaller audience (150 views per video)
- Need to do all production and marketing roles
- More freedom
- Big time commitment

News Outlet



- Built-in audience
- Built-in promotion
- Professional studio, sound engineers, editors, news director etc
- Less freedom*
- More cost and time efficient

Questions about this or science communication in general?

Post-grad plans

- Postdoc at Duke in science communication with Dr. Emily Edwards
 - Planning an exhibit
 - Creative sci com tools

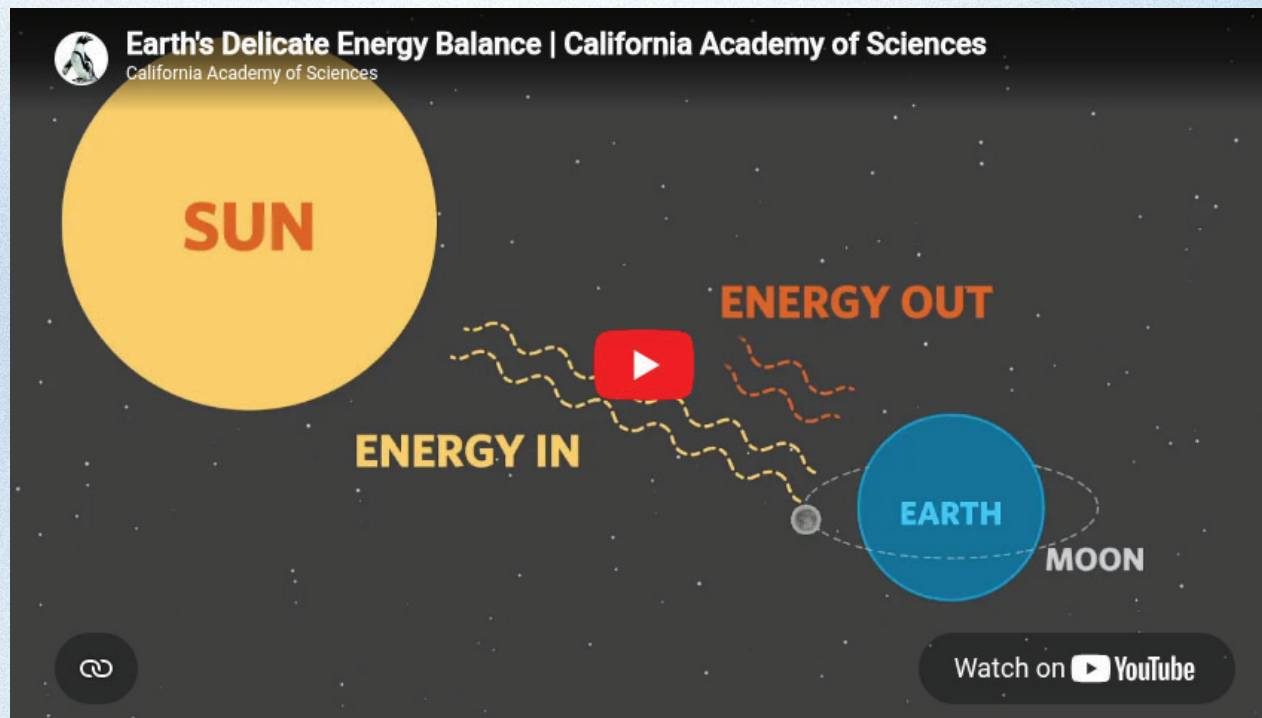


Opportunities in Climate Science

Physicists can help!

- We will be facing severe impacts from climate change in the future
- However we don't fully understand these impacts and are in need of climate solutions
- Physicists are in a great position to help!
- Climate change is a problem of balancing energy flows
 - Applied thermodynamics

Earth's Energy Balance



Climate science: why physicists?

- Complex modeling, thinking quantitatively and with an interdisciplinary lens, processing uncertain data, and assessing rapidly evolving technologies
- Many climate scientists hold a physics degree



Ryan Sriver: Uncertainty in climate impacts



Climate modelers: understanding of complex physical systems



Kate Marvel: Senior scientist at Project Drawdown

Physicists in Climate Science

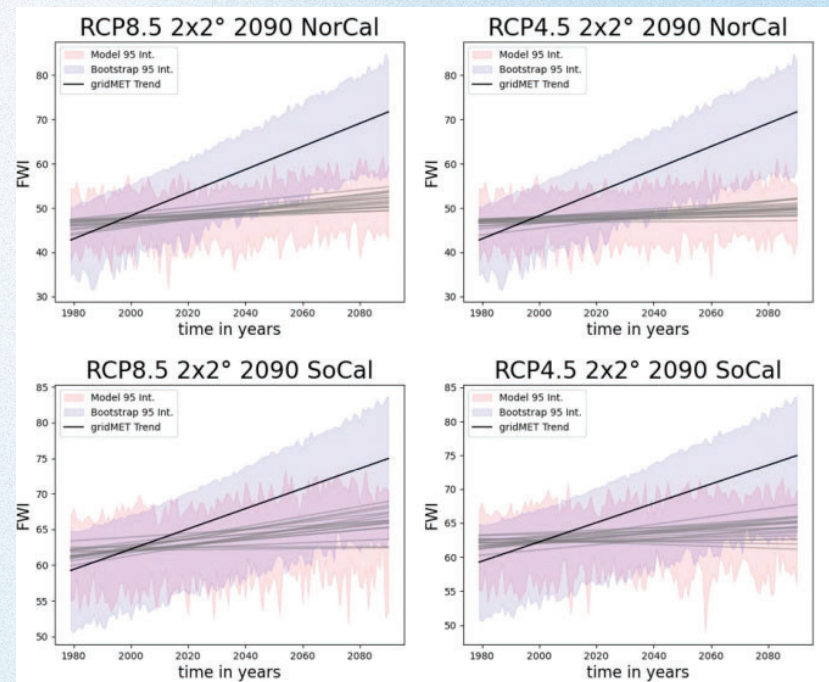
- Theory
 - How Earth's energy balance is driving climate change
 - Cloud microphysics - thermodynamics, fluid dynamics
 - Microclimate (ex. urban heat island) - process based models
- Experiment
 - Quantum information systems for greenhouse gas detection
- Clean Energy
 - Micro nuclear reactor
 - Optimizing wind turbines

My thesis

- Western wildfire risk
 - Models underestimate fire risk
 - data extrapolated
- Prescribed fire
 - Ideal weather conditions



Image: Nature Conservancy



Any questions on climate science so far?





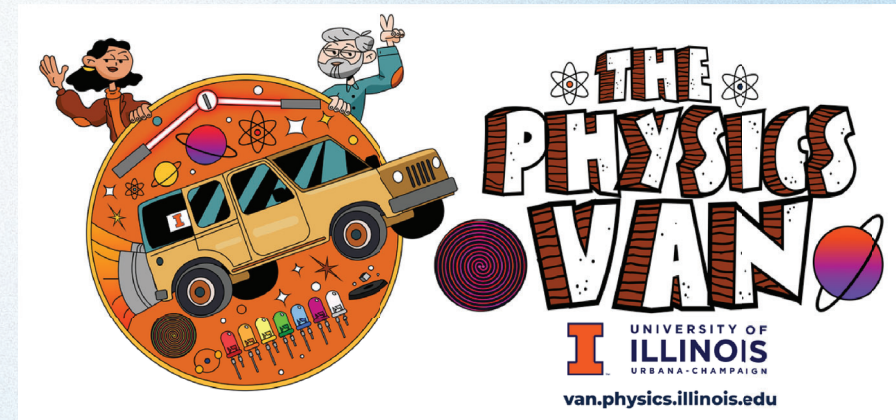
Opportunities in Science Communication

At Illinois: Writing

- Illinois Physics Communications
 - Hire science communication interns – Siv Schwink
 - Mainly looking for writers, but can also pitch
- IQUIST Communications
 - Angela Graham
- Courses
 - Physics 595 – Communicating Scientific Research
 - School of Integrative Biology – Dr. Esther Ngumbi

At Illinois: Outreach

- Illinois Physics
 - Science at the Market
 - LabEscape
 - Physics Van
- IQUIST
 - Develop curriculum, summer school, K-12
 - EOH
 - Reach out to Micheal Smith



At Illinois: Art and Science

- Courses
 - Smitha's PHYS 498: Where Art Meets Physics
 - PHYS 495 and ARTS 499
 - Nico, Jessica, Patrick Hammie (studio art)
- CASCaDe, a Collective for Art-Science, Creativity and Discovery
 - Reach out to Smitha



Sci Art

- Communicating or depicting science through artistic mediums
 - Film, Illustration, Poetry, Music, Visual Arts, Socials

Dance: EIGENSTATE



Image: Adelyn Mui

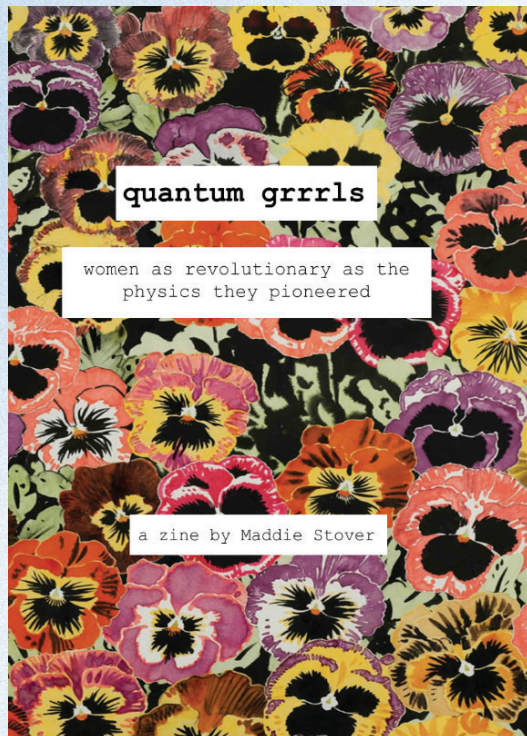
Music: *Bell and Shor Take the Spinductor for a Walk*



Image: Illinois Physics

Example: “quantum grrrl”

Zine (short self-published magazine) on this history of women in quantum physics





Beyond Illinois

- AAAS Mass Media Fellowship (need writing samples and some experience)
- The Open Notebook
- Finding community
 - National association of Science Writers - will pair you with a mentor
 - Regional groups - MAISE - Midwest Association of Interdisciplinary Science Expositors
 - Build a portfolio
- Quantum communications conference at UMD
- Tarbell Fellowship for AI Journalism

For Faculty/Postdocs: Op Eds

- A persuasive article expressing an opinion on a **timely** public issue
- Faculty are expert opinions
- Can have a real impact on policy

The Washington Post

Our oceans brim with climate solutions. We need a Blue New Deal.

December 10, 2019 More than 6 years ago

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 Make us preferred on Google



A female orca leaps from the water while breaching in Puget Sound west of Seattle, as seen from a federal research vessel that has been tracking the whale. (Elaine Thompson/AP)

By Ayana Elizabeth Johnson

OpEd Fellowship

- OpEd Project Public Voices Fellowship
 - “Help faculty amplify their expertise in ways that can contribute to public conversations”
 - Mentored by a journalist who will help you publish opinion pieces



Smitha Vishveshwara: What connects us in this polarizing moment through space and time and humanity

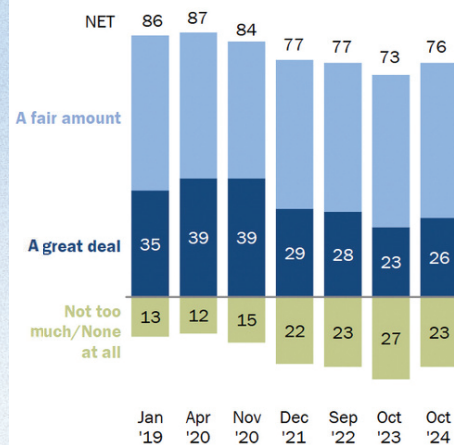
DECEMBER 10, 2024 AT 1:53 P.M.

The 2024 solar eclipse offered me links to two physics branches that have changed our perception of nature: relativity and quantum physics.

Your voice matters!

Confidence in scientists up slightly but remains lower than before pandemic

% of U.S. adults who have ___ of confidence in scientists to act in the best interests of the public



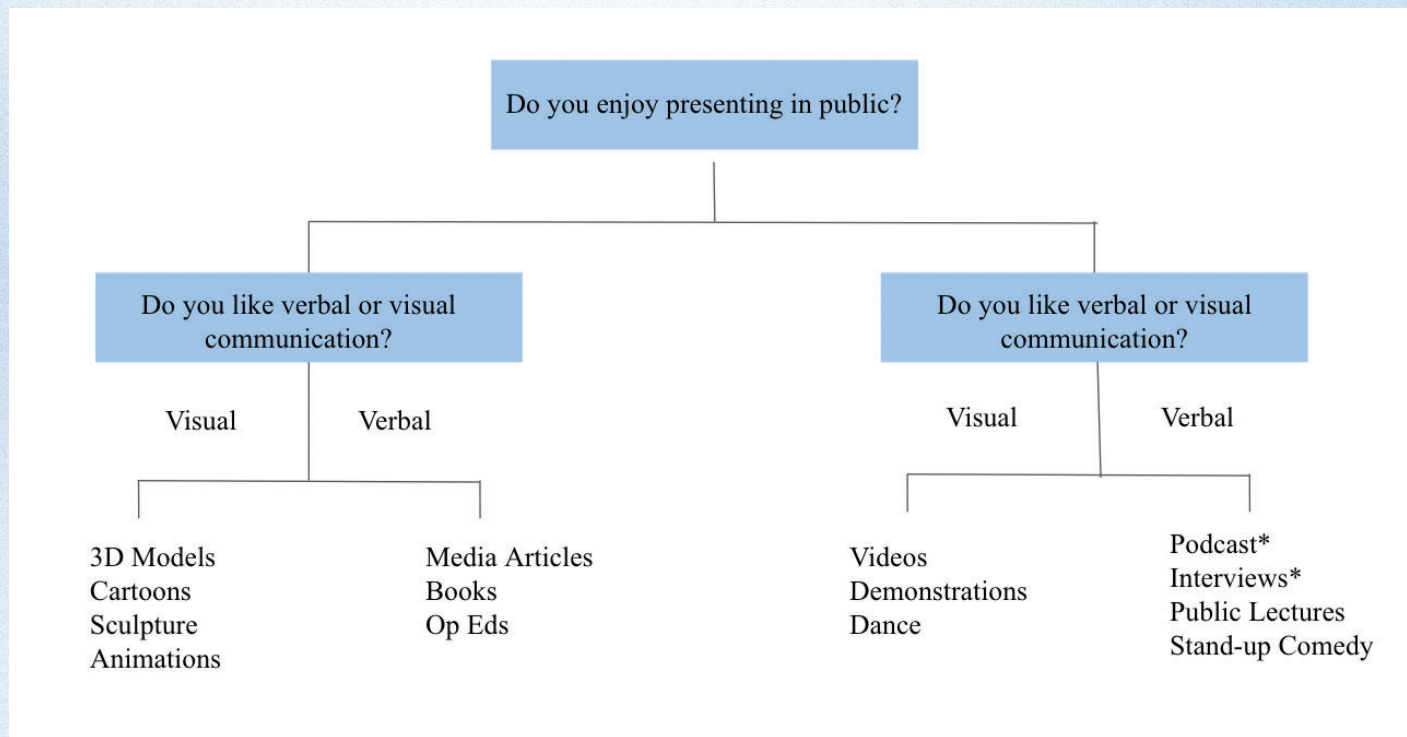
Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted Oct. 21-27, 2024.
"Public Trust in Scientists and Views on Their Role in Policymaking"
PEW RESEARCH CENTER

- Public trust of science has yet to return to pre-pandemic levels
- Funding for science in the US slashed

If science communication is of interest, now is a great time!

Talking with your local representative, Canvassing,
Providing expert testimony in Congress

What type of science communication is right for you?



Adapted from Cheryl McCutchan

Takeaways

- Don't worry if your PhD path is nonlinear
- There are great opportunities for physicists in climate research and science communication
- If you want to try science communication
 - Find a medium you enjoy
 - Pitch ideas and make things!

**THANK
YOU**



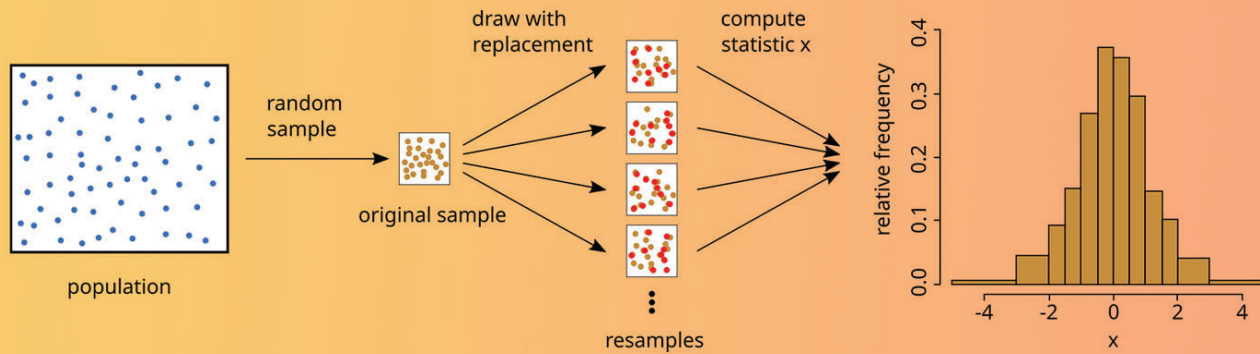
mstover2@illinois.edu

Questions?



Bootstrapping Explained

Population Sample:



Credit: Statistics Globe