

Generative AI for Maternal and Child Health Leaders

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Welcome and introduction



- Tell us your name
- Tell us in 1-2 words what AI is to you
- We'll tell you a bit about what AI is to us

Warm-up discussion

Pre-session question

*What excitement,
concerns, or fears do you
have about using artificial
intelligence (AI) in public
health contexts?*

Warm-up discussion

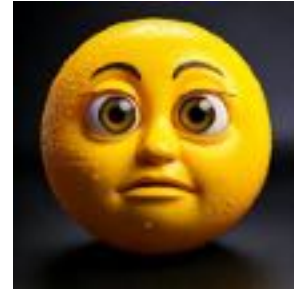
Pre-session question

What excitement, concerns, or fears do you have about using artificial intelligence (AI) in public health contexts?

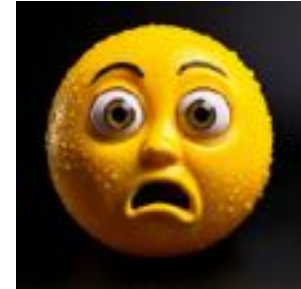
What do you feel at this point regarding AI?



Excitement



Concern



Fear

- Instructions: On a sticky, label your feeling and write down what AI tools you commonly use and for what purpose?
- We'll return to this at the end.

What we'll cover today

Leadership Training Program goals:

- Critical thinking
- Communication
- Ethical decision-making
- Systems thinking

Our roadmap:

- Introduce you to AI and genAI
- Run through a scenario
- Discuss decision-making and ethics

Part 1

An overview: genAI in Maternal and Child Health leadership

Establishing a context of AI and genAI.



Overview



Eras of AI: a historical background

- Rule-based system – if/then (1950-1980)

- <https://en.Wikipedia.org/wiki/Mycin>

- Probabilistic approach (1980-2000)

- Bayesian networks

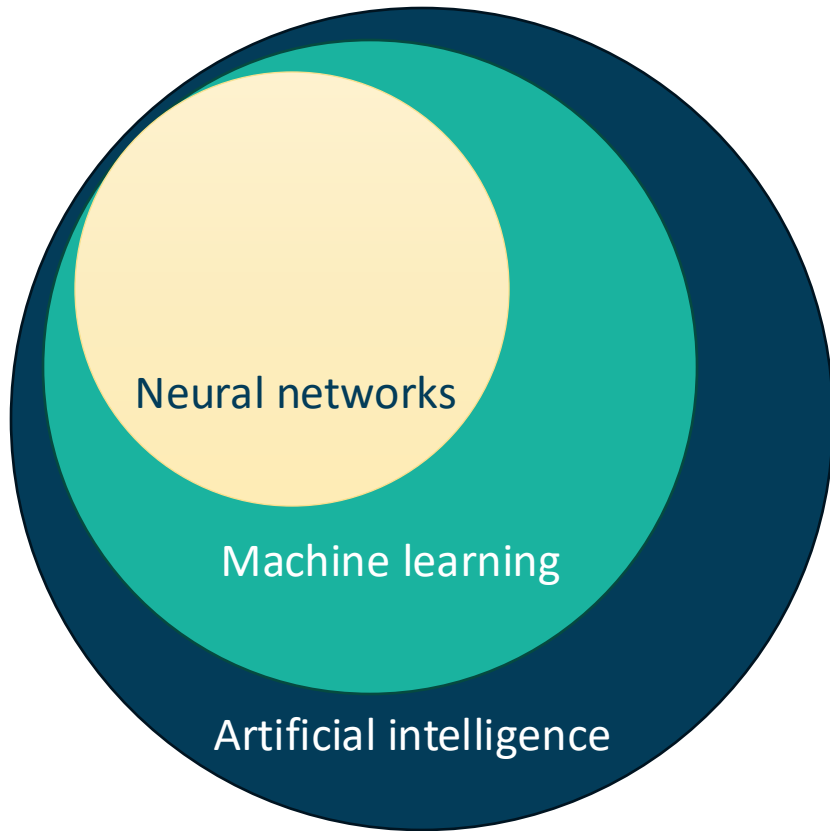
- Functional era – present era (2000-present) $\sum_{i=1}^n (y - \hat{y})^2$

- Random forests

- Support vector machines

- Neural networks

Machine learning



Overview

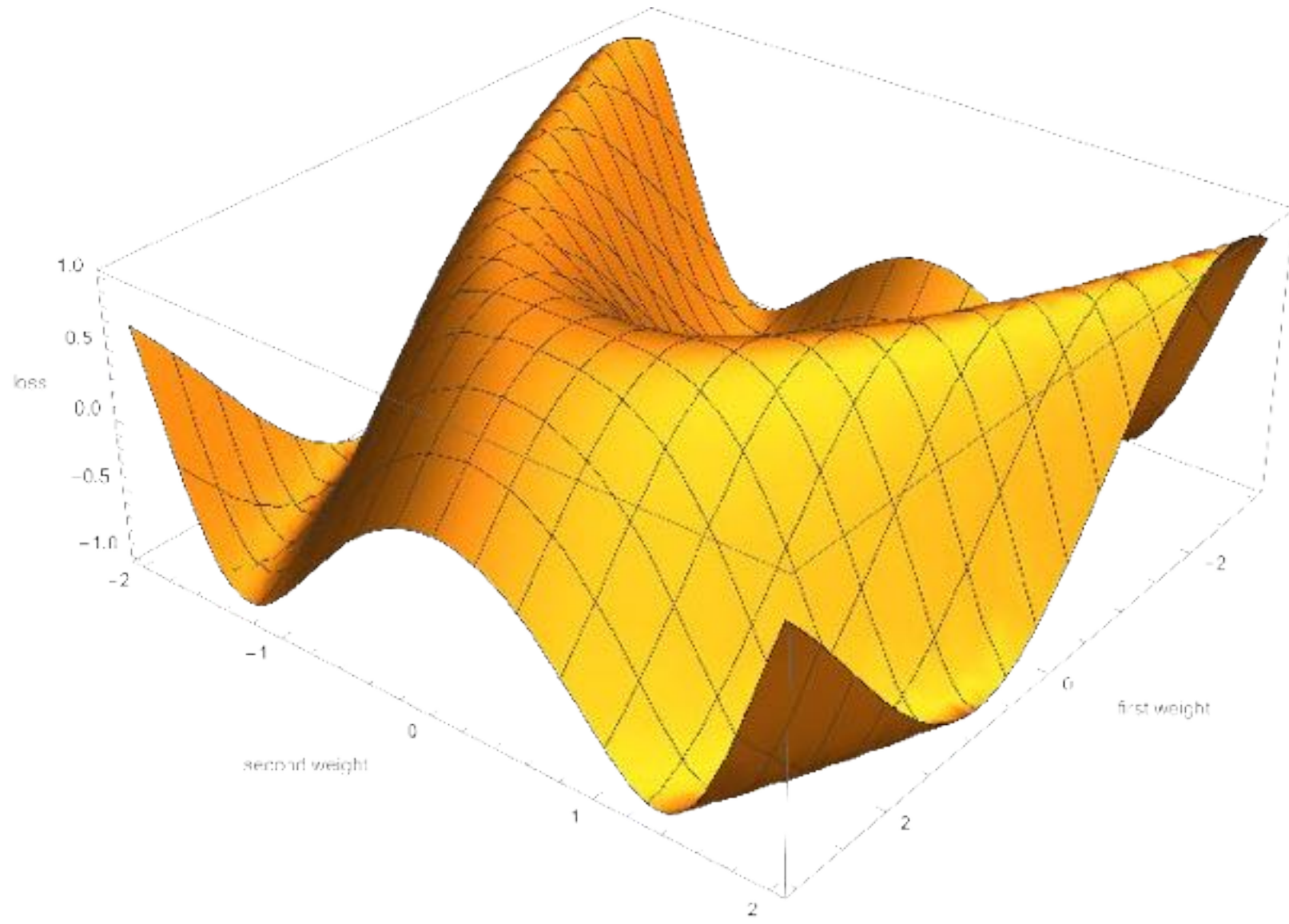


- Classical machine learning
 - Classification
 - Regression
 - Reinforcement
- Generative artificial intelligence
 - Architectures that generate content (i.e., transformers)
 - Trained on massive datasets
 - Atom is the token
 - Example
 - Text
 - Audio
 - Images and video

[How neural networks work](#)

[How transformers work](#)

The functional approach





Overview



Summary of genAI tool types

- Image generation
 - Midjourney, Microsoft Designer
- Video generation
 - OpenAI Sora, Heygen, Google Veo
- Speech generation
 - Elevenlabs
- Music creation
 - Udio
- Writing assistance
 - Lex
- Research assistance and communication
 - Consensus, NotebookLLM

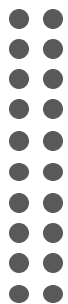


Support for human well-being

- AI companions and friends
- AI spiritual guides
- AI training
 - “Designing AI to Cultivate Human Well-Being”
@ Stanford University
 - Purpose
 - Autonomy
 - Collaboration
 - Excellence

Overview





Potentially relevant activities for MCH

Note: Capabilities identified via Google search and collaborating with ChatGPT.

Overview



- **Knowledge aggregation**
 - Summarize existing research, guidelines, policy
- **Needs assessment and gap analysis**
 - Identify service gaps in communities
- **Data analysis**
 - Sort through large data sets
- **Planning and strategy**
 - Propose program outlines, strategic plans
- **Grant writing and reporting**
 - Draft proposals or summarize project outcomes
- **Community engagement**
 - Craft outreach materials
- **Risk communication**
 - Draft public health advisories
- **Language translation**
 - Facilitate multilingual communication
- **Administrative tasks**
 - Automate routine tasks (scheduling, organizing data)

Part 2

Scenario

Consider and collaboratively work through a real-world scenario
with Jay H Kloppe, M.D.

Scenario

You are working for the Pennsylvania Department of Health's Maternal and Child Health (MCH) Bureau. Your director briefs you about a new challenge she faces. The Health Resources and Services Administration (HRSA) is requiring all MCH Bureaus to conduct a needs assessment for MCH services, by county. As a first step, your director has asked you to identify 1) all community-based organizations offering MCH services, by county; 2) what services are currently being provided; and 3) where there might be gaps in the services available for MCH constituents.

Q: How would you work with genAI to create a solution for your director?

Discussion questions

1. Can AI *do it all*?
2. Did AI help at all?
3. What strengths and weaknesses do you see in the tools demonstrated?
4. Do you feel that you can trust AI to do this work with you? If not, why?
5. How would you verify AI findings?
6. If a service gap is found, how would you decide whether this gap is real or the result of incomplete data?
7. Do you feel you need to take steps to protect data privacy and managing bias?



Part 3

Decision-making and ethics

Considering the challenges regarding decision-making and ethics in the application of (generative) AI.



Inequality in tools and inequity in access

- Affordability and output – ***differ in quality***
 - OpenAI – \$20-200/month
 - Perplexity – \$20/month or \$200/yearly
 - Microsoft CoPilot – MS365 subscription, \$100-130/yearly
- Design principles – differ across creators
- Access and use policies – differ across organizations
- Platforms – differ in features

Decision-making & Ethics





Decision-making & Ethics



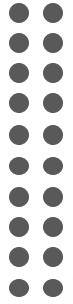
Decision-making with AI

Let's imagine you need to **lead** and **give guidance** on AI use.
How do you start determining (appropriate) use?

1. Consider benefits and risks
 2. Discover capabilities
 3. Determine “safe” to share
 4. Set expectations
-

Example challenges:

- **Using for admin tasks and/or idea generation**
may... save time, cause laziness, over-simplify the big picture
- **Using for research**
may... discover relationships in studies, hallucinate, promote biases



Ethical decision points

Areas you will need to make decisions when working with AI.

Decision-making & Ethics



- **Data integrity**
 - *How to ensure data is current, complete, and representative?*
- **Informed consent and privacy**
 - *Should you share sensitive data with AI platforms?*
- **Bias and equity**
 - *Do AI results perpetuate biases? Is it accessible?*
- **Transparency**
 - *When do you tell others of AI use in work, research, etc.?*
- **Resource allocation**
 - *What measures should be used to determine AI cost justification? Who has access and who does not?*
- **Human oversight**
 - *When and how should humans be involved?*



Physical manifestations

Each being granted decision authority and learning how to make decisions.

- Humanoid robots
- AI agents – an autonomous actor
 - Ex. Hippocratic AI
- Drones: aerial, animal, insect, submersibles

Decision-making & Ethics



Pre-session question reflection

1. In what ways do you hope AI may complement human expertise?
2. How do you think AI may impact diversity, equity, and inclusion in Maternal and Child Health practice?
3. How can you imagine the roles and responsibilities of public health professionals shifting with AI?



Decision-making & Ethics



Part 4

Wrap-up

Recommendations, return to the whiteboard, and open Q&A.

Recommendations

- Build your AI literacy
 - Knowledge of what, when, where, why, and how to use AI technologies
 - Be intentional about use
- Practice communicating with AI
 - Ground truth
 - Write for clarity
 - Write for details
 - Iterative questions and verification of answers
- Build working with AI into your workflow
 - Proper task off-loading
 - Drafting outlines and frameworks
- Elevate your human expertise
 - Research assistance to increase your expertise.

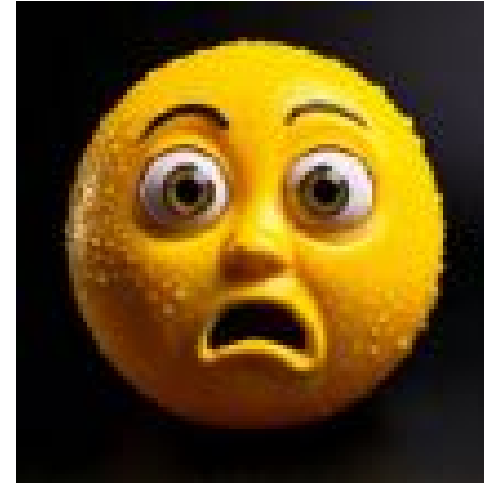
Have your feels changed regarding the use of AI?



Excitement



Concern



Fear



Thank you

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