



AI + UX

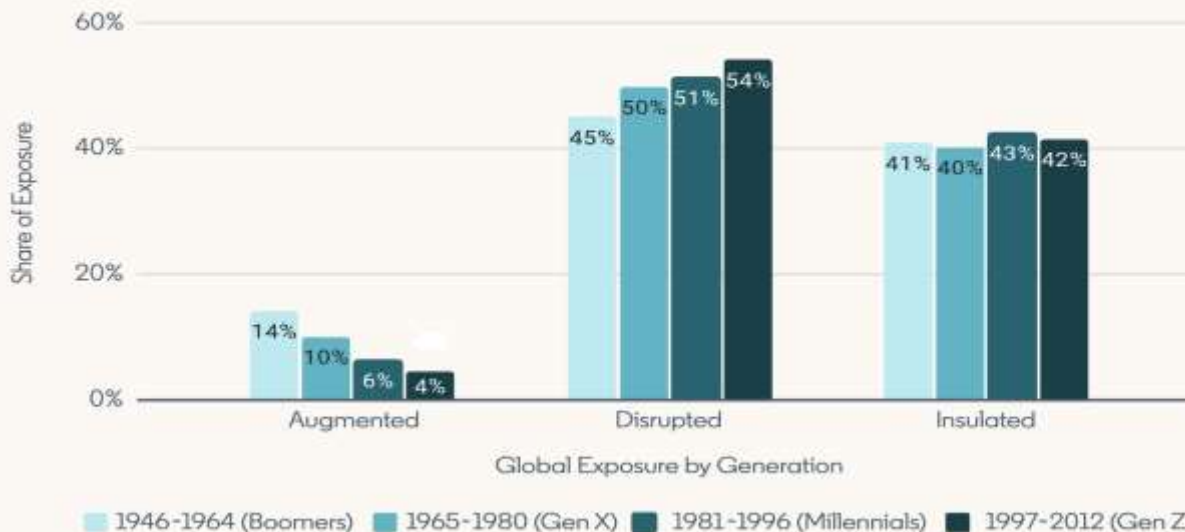
Responsible AI users
Prompt Engineering

“Create an innovative, but cute picture for my HCI undergraduate class to show case the power of ChatGPT in image generation” - ChatGPT

Why learn Gen AI usage for UX engineering

The impact of GAI extends beyond the Tech industry or tech workers. While Tech leads in the adoption of GAI skills with 77% of workers in occupations likely to be affected by GAI to different extents, all industries employ workers in roles that stand to be transformed by these new technologies. The diffusion across industries points to a broadening impact of GAI across the economy. [1: LinkedIn]

Gen Z, Millennials are most likely to see their jobs disrupted by GAI



Sums may not add up to 100% due to rounding.

Why learn Gen AI usage for UX engineering

A recent LinkedIn survey revealed that 52% of Millennials and 48% of Gen Z globally believe that AI will help move their career forward by providing faster access to knowledge and insights, which will help them be more confident at work.

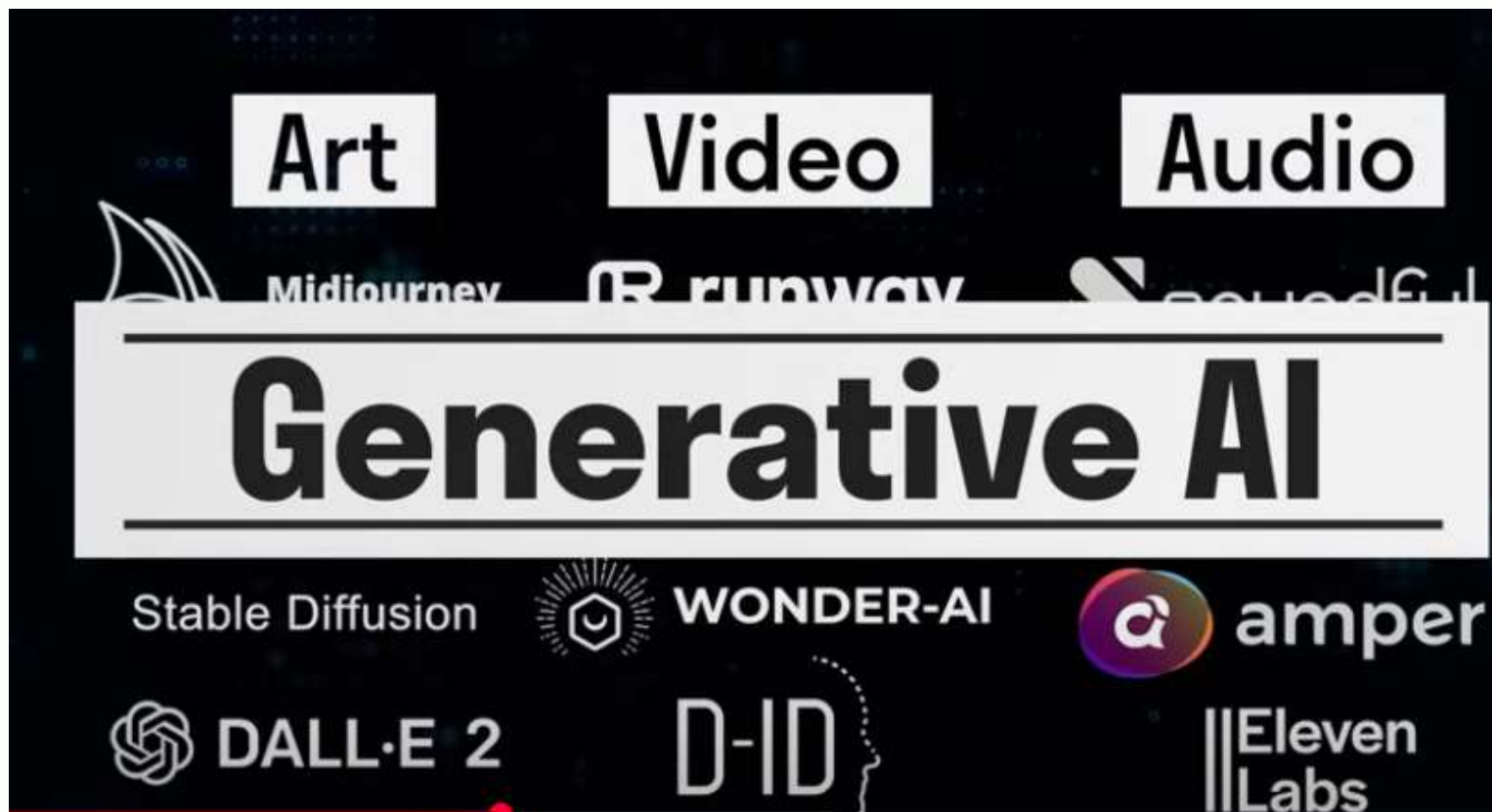


[2]

What is GenAI?



<https://www.youtube.com/watch?v=t9gmyvf7JYo&t=1s>
from 1:50 to 6:50



genAI? Scope for the class

By definition: Generative AI refers to artificial intelligence systems that create new content, such as text, images, music, or code, by learning patterns from existing data.

- “Generative AI” is a broad term
 - Particular instantiated model (e.g. GPT-4.5)
 - For this class, when we talk about genAI, we refer to it as a term for tools such as ChatGPT, Copilot, Claude, Gemini, etc.
 - i.e. a productized system comprised of
 - Multiple models
 - Safety heuristics
 - UI affordances

Use of genAI in Class

- GenAI as a partner:
 - Creative buddy to explore innovative features, ideate
 - Research buddy to identify target user needs
 - Critique buddy to identify UX problems with your/existing product features
 - Overall helper: critique your assignments, help with persona, sketches,

If your team does not want to use genAI, please talk to me.

Generative AI + Ethics

What are the pros and cons of using (Gen) AI?

Responsible AI x UX Design

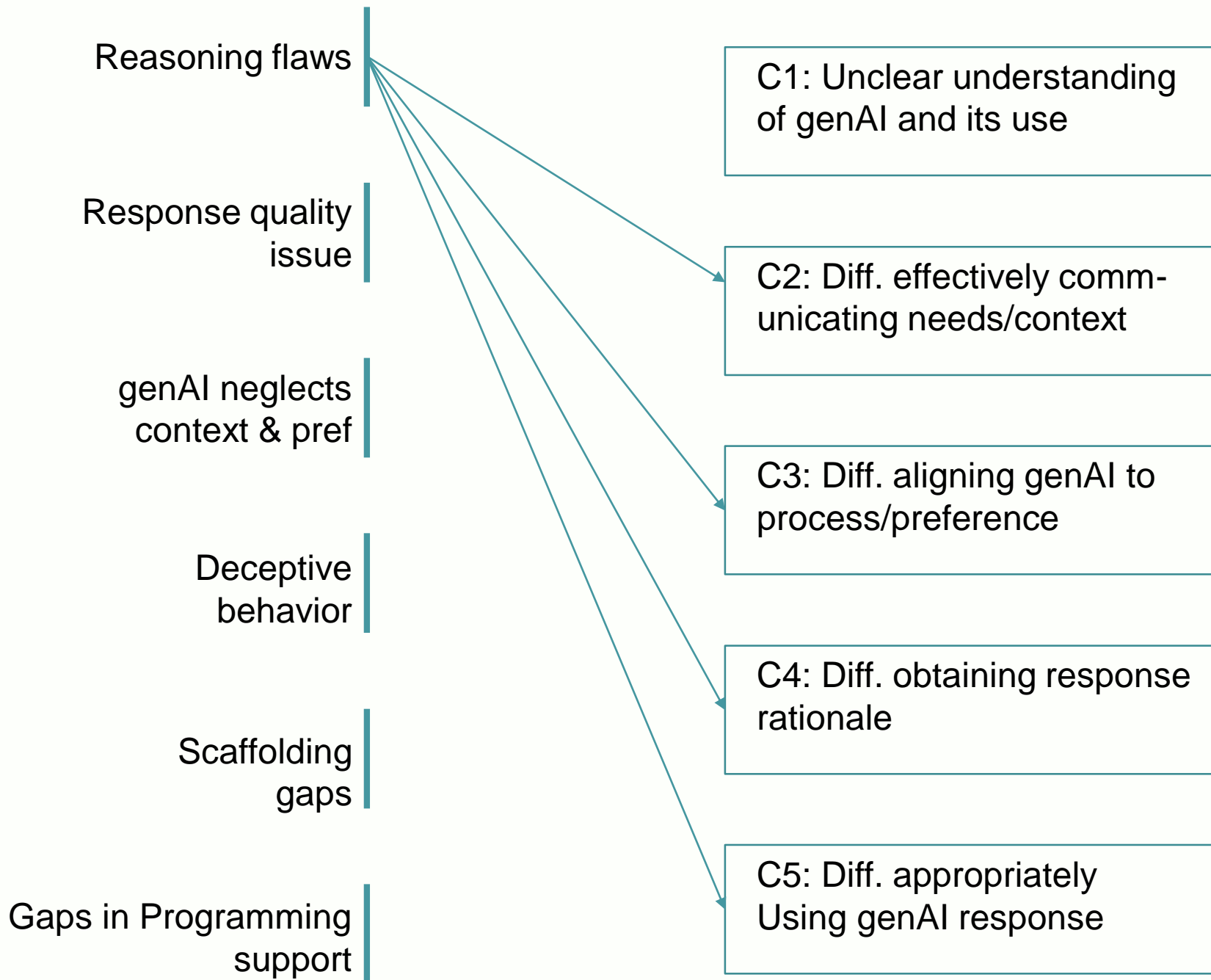
- Understand Bias in AI
- Ensure Transparency
- Respect User Privacy
- Test for Diverse Users
- Stay Informed of AI ethics guidelines
- Question AI's Outputs

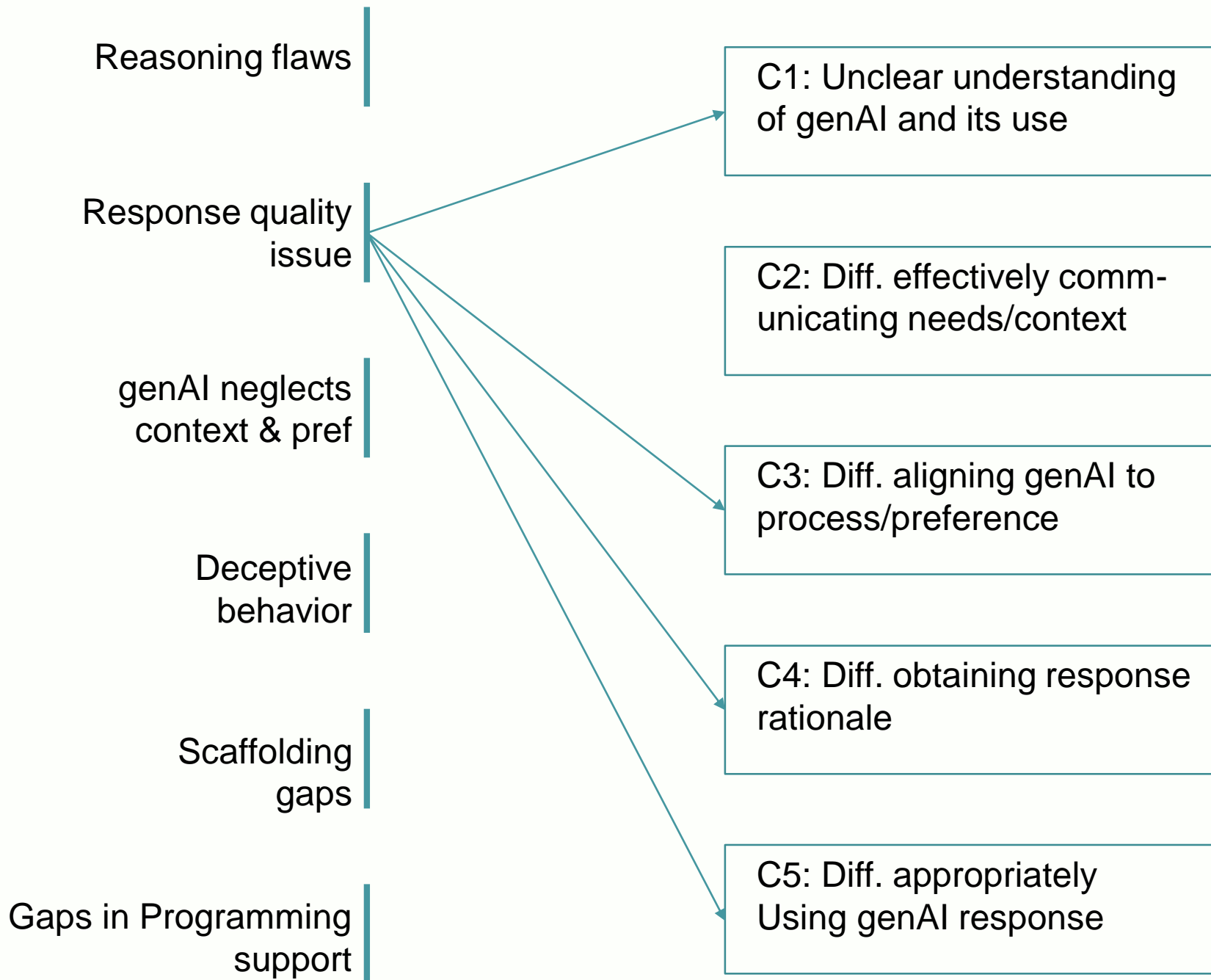
<https://guides.library.oregonstate.edu/c.php?g=1427182>

UNESCO video: <https://www.youtube.com/watch?v=VqFqWlqOB1g&t=355s>

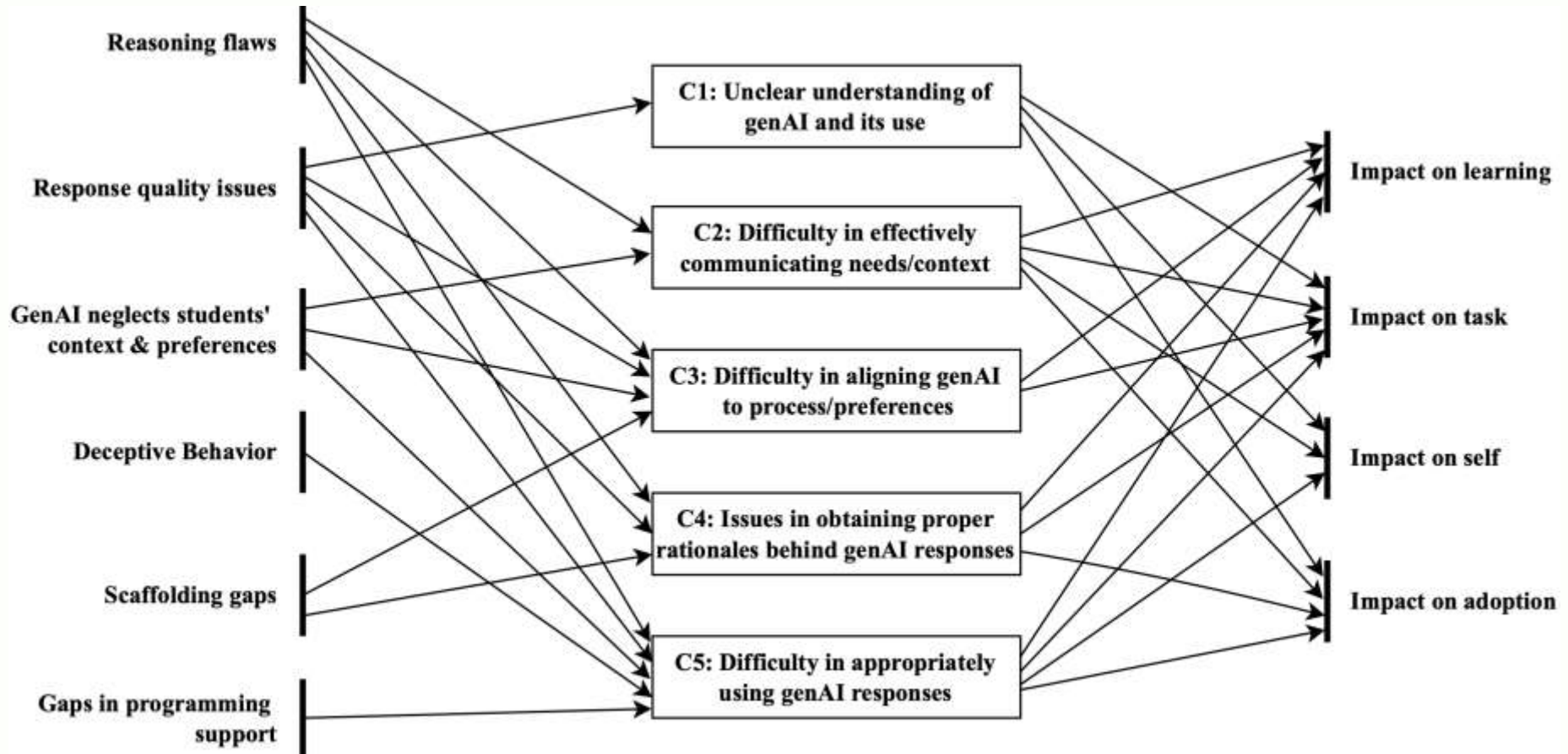
Responsible AI x UX Design (non-AI powered tools)

- **Acknowledge AI Assistance** – Disclose and Cite AI-generated content is used in research, writing, or design.
- **Verify AI-Generated Content** – Cross-check for accuracy, bias, and ethical concerns. Compare with different models or other literature.
- **Ensure Accessibility & Inclusivity** – Review AI outputs for cultural sensitivity and universal usability.
- **Respect Intellectual Property** – Use AI outputs within copyright and fair use guidelines.
- **Consider Ethical Impacts** – Assess unintended consequences of AI-generated content.
- **Stay Updated on AI Ethics** – Follow guidelines for design and use from ACM, IEEE, and industry leaders (e.g. Google PAIR, Microsoft HAX).
- **Minimize AI Over-Reliance** – Use AI as a tool, not a replacement for creativity and critical thinking.





Overview of Challenges, Faults, and Impact



Prompt Engineering

- Principles of Prompt Engineering:
 - **Be specific:** The more criteria you give, the more focused is the output
 - **Work in steps:** Decompose tasks into smaller units
 - **Iterate and refine:** Re-work the inputs and have GenAI improve its own output.

Why Prompt Engineering?

- What's the hype about? Is it even a real thing?
- What does it help with?
- Does it even work?

Let's try to answer this today through an example.

Goal: Design fitness app to motivate kids to exercise
- Use genAI to harvest top 3 features

Building a prompt

Components of A Prompt:

Provide

- Guidance
- Context
- Role
- Steps to complete
- Constraints

Goal: Design fitness app to motivate kids to exercise

Components of prompt - 1

- Guidance
 - Divergent: Explore as many solutions as you can to ‘....’
 - Convergent: From the output above...identify the solutions that are the most relevant to [target population] and easy to [build]
- Problem solving: Find as many UX bugs you can find in [...] that reduces [*problem*: people leaving without purchasing]

Components of prompt - 2

- Guidance: [divergent] Explore as many solutions as you can to 'design a fitness app to motivate kids to exercise [every day]'
- Context:
 - Diabetes II is increasingly prevalent in pre-adolescent kids
 - There is high correlation of diabetes with lower SES, so solution has to be accessible to SES diverse population
 - Its important to keep kids engaged
 - Its important to design the app to non-addictive

Components of prompt - 3

- Role: Imagine the role of a fitness expert, an UX designer, and a child psychologist
- Steps to complete:
 - Reason through different ideas that create the unique selling proposition for the app
 - Provide actual data and sources for the reasons
 - Explain each idea in an intuitive manner for an investor pitch
 - Use delimiters to distinguish exciting parts

Components of prompt - 4

- Set constraints:
 - Give the top three distinct ideas
 - Give the output in 3-5 paragraphs
 - Be succinct and factual in your answers
 - Use simple words

Example Base Prompts for UX - 1

Idea Generation

"Create five unique homepage layouts for a lifestyle blog, incorporating a minimalist aesthetic with interactive elements."

Personalization

"Design a user profile page for a fitness app that adapts to the user's age, gender, and fitness level, displaying personalized workout plans and nutrition tips."

Data-Driven Design Decisions

"Using user engagement data [provide here], redesign our e-commerce product page to highlight the most clicked items and optimize for higher conversion rates."

Source: www.interaction-design.org/literature/topics/prompt-engineering

Example Base Prompts for UX – 2

Accessibility design

"Produce a website layout compliant with WCAG 2.1 guidelines, featuring high contrast colors, screen reader-friendly navigation, and easy keyboard accessibility."

Interactive design

"Develop a dynamic UI for a [app type] application that changes its theme and layout based on current weather conditions and user location."

Testing and prototyping

"Generate three variations of a [page] for [A/B testing](#), each with different call-to-action placements and color schemes to evaluate user interaction patterns."

Source: www.interaction-design.org/literature/topics/prompt-engineering

N-shot Prompting

Zero shot: no previous data or guidelines

“Find UX bugs in [Goodreads website] that violate usability goals”

One shot: One piece of data or guideline

“Using this example [UX bug] as a reference,”

Few shot: Multiple pieces of data or guideline

“Using these examples [1, 2, 3] as a reference,”

Let's try an example zero vs one.

Providing context in a prompt:

Make AI Ask Before Answering

- Guide genAI to ask for clarifications before giving an answer.
- Helps model converge faster to your context

Template:

You are an expert in [...]. My question is [question]. Your task is to [task]. Please ask any questions you have in bullet points so that I can improve my prompt before you complete your task.

Making genAI reason:

Chain of Thought (COT) template

- Guide the model to work through *intermediate reasoning* steps, making it more adept at solving complex tasks
- Add context, and ask it to “think step by step”

Template for UX design:

*List the essential features of [add goal/context here], then {design/ideate/...} [ask what you need here] based on these features. **Think step by step***

Example for UX design:

List the essential features of fitness app, then design a prototype based on these features. **Think step by step.**

Next Class

We will cover Interviews, another way to collect empirical data

Activity

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

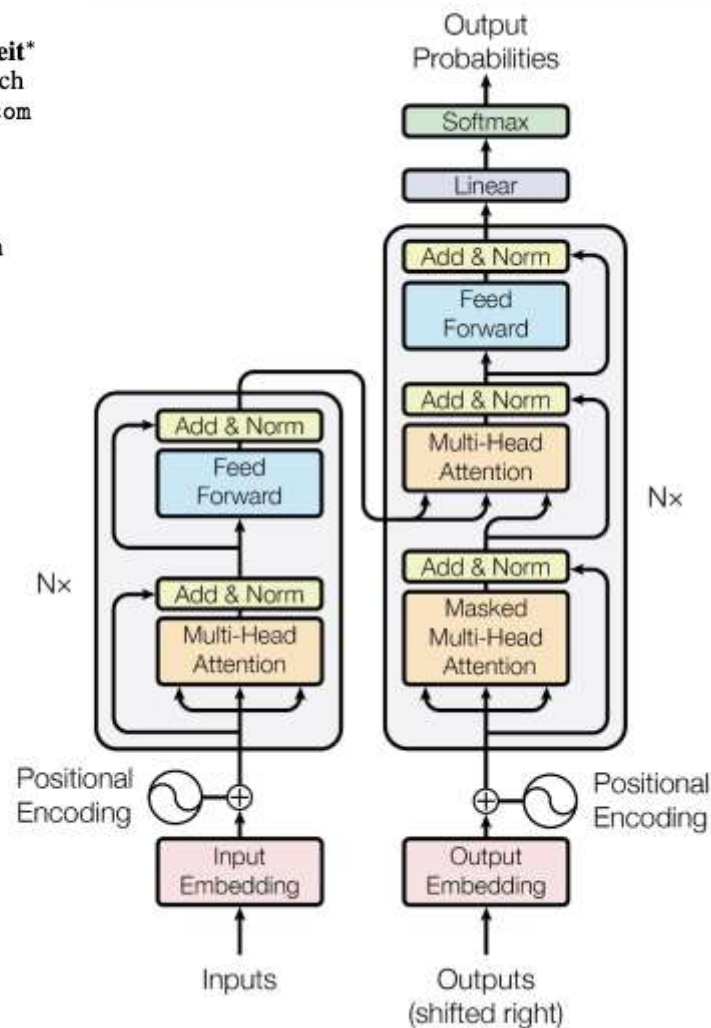
Llion Jones*
Google Research
llion@google.com

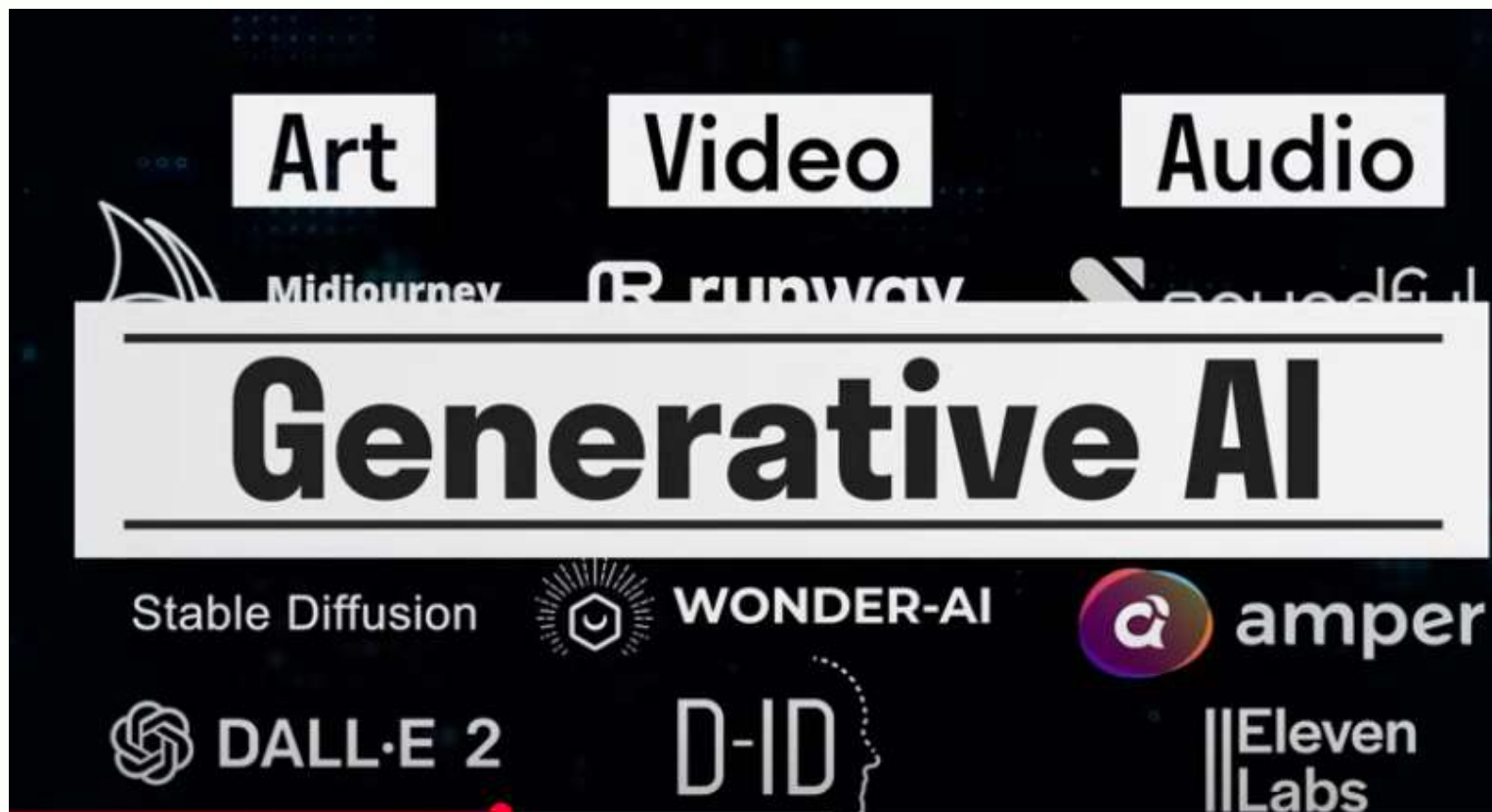
Aidan N. Gomez*[†]
University of Toronto
aidan@cs.toronto.edu

Łukasz Kaiser*
Google Brain
lukaszkaizer@google.com

Illia Polosukhin*[‡]
illia.polosukhin@gmail.com

2017 paper





Air Pollution in India

