



The Human Element

How we Collaborate to build trustworthy AI

Paul-Louis Nech

Staff ML Engineer



@PLNech



I teach *machines*
to serve **humans**



*Making **AI** speak **human**
fluently*

Maria Lungu
Software Engineer
 **algolia**



@marialungu



We're from Algolia

Context

Building AI products for **millions** of users

Our quest

Find how we can have both **powerful ML** and **great UX** in an AI product

Our challenge

ML and UX speak different **languages**, prioritize different **outcomes**, measure different **metrics**



North Star

Building AI-powered products
that truly serve people

A cinematic scene featuring a wizard and an elf standing on a rocky cliff at sunset. The wizard, on the left, is dressed in a grey robe and a pointed hat, holding a staff with a glowing blue orb. The elf, on the right, is wearing a green dress and holding two glowing golden spheres. A semi-transparent blue banner with the text "Where we stand" is centered over the image.

Where we stand

ML: AI should be invisible

Best AI experiences are “like Magic”:
they fade in the background

*"Any sufficiently advanced technology is
indistinguishable from magic." -Arthur C. Clarke.*





🌟 North Star of ML 🌟

Use AI to radically **enhance**
human capabilities

The background is a dark, textured surface resembling a night sky or a microscopic view of a material, with numerous fine, light-colored scratches and dust particles scattered across it. A large, white, rounded rectangular box is centered in the upper half of the image, containing the main text.

All we have to **decide** is **what to do**
with the time that is given us.

- Gandalf's perspective



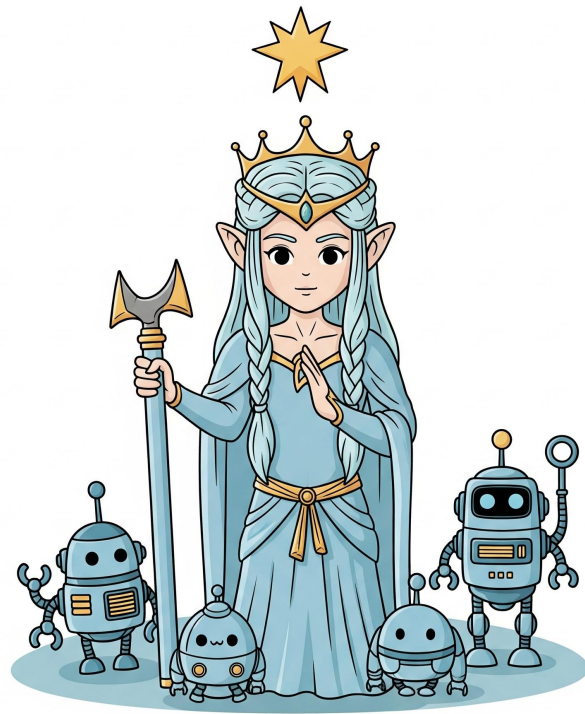
UX:

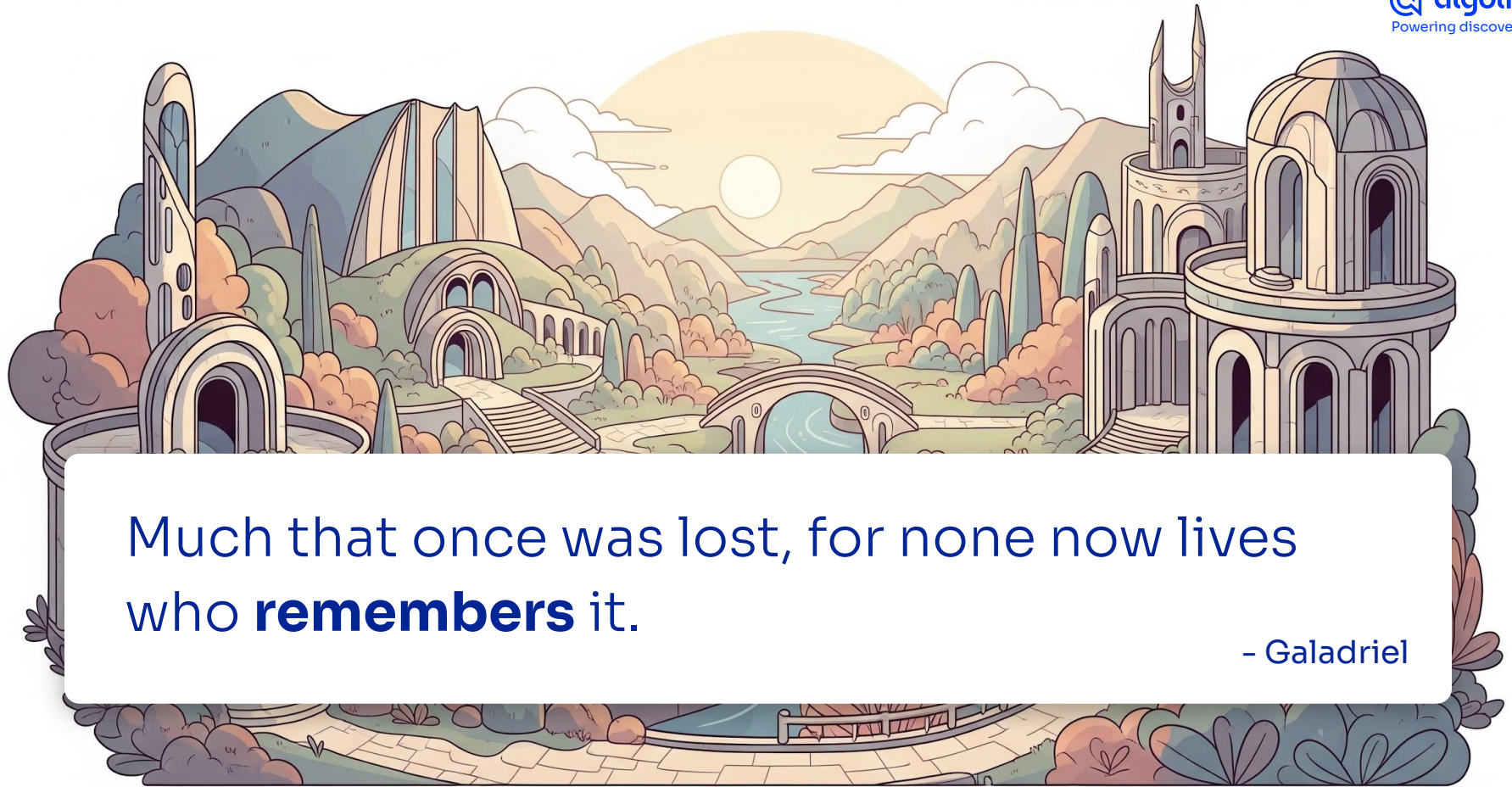
Guard human values

Building AI-powered products
for humans' well-being

★ North star of UX ★

“If AI doesn’t work for people,
it doesn’t work”





Much that once was lost, for none now lives
who **remembers** it.

– Galadriel



The battle

Battle 1. Friction vs. Flow



Should AI pause to ask permission?

MacBook Sale

Up to 25% of the latest Macs

[Shop now](#)

TV & Home Theater

[← Back](#)

TV & Home Theater ultimate guide

Get to know the features and benefits of Smart TVs. Learn how to connect to the internet, stream your favorite shows, and use apps directly from your television.

[Read more](#)

Understanding Smart TVs

Learn about the features of Smart TVs, their internet connectivity, and the variety of streaming services they support.

[Read more](#)

Smart TVs: What You Need to Know

Learn about the features and benefits of smart TVs, including streaming services, apps, and more, to determine if a smart TV is right for your home theater.

[Read more](#)

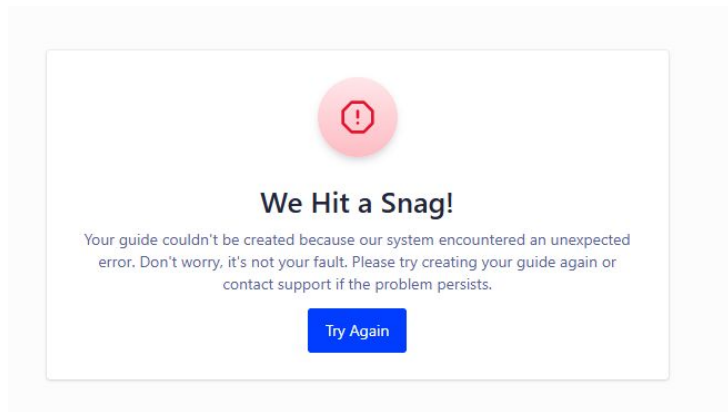
Exploring 4K Television Features

Discover the benefits of 4K resolution and how it enhances your viewing experience. Learn about the technology behind it and what to look for when purchasing a 4K TV.

[Read more](#)[Give us feedback](#)[Get expert help...](#)[I'm interested in chromecast](#)[I'm interested in fire tv](#)[I'm interested in remote](#)

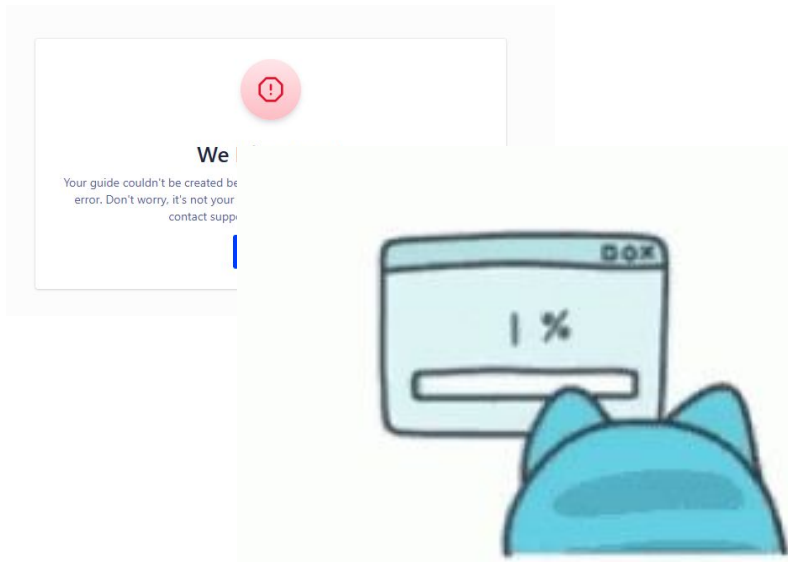
The Counter-Intuitive Truth: Not All Friction is Bad

Calibrate trust using explanations



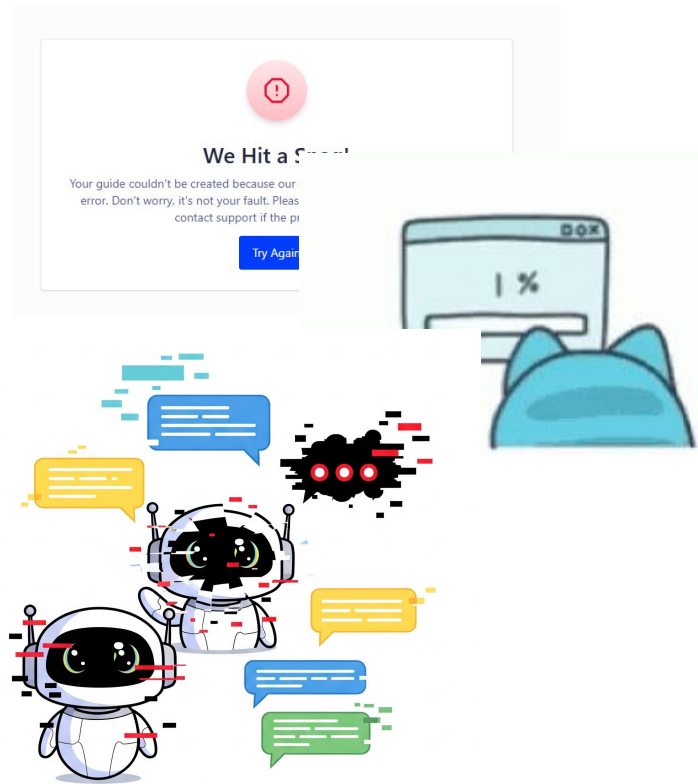
- Opaque **errors**

Calibrate trust using explanations



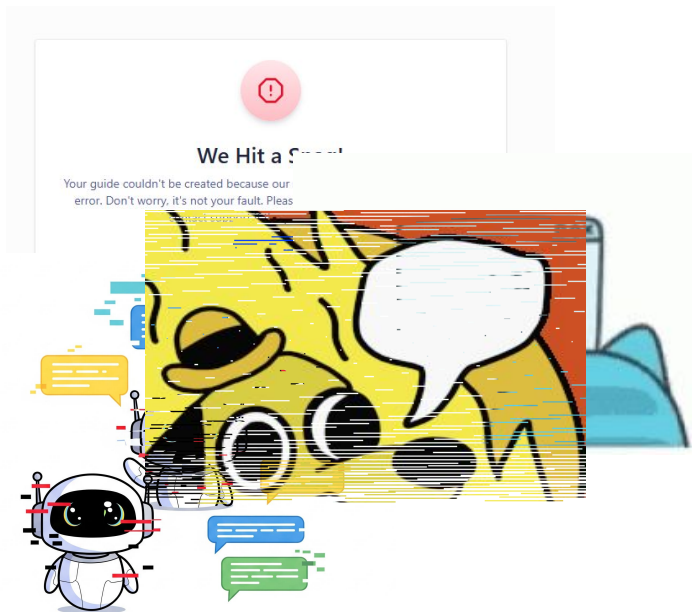
- Opaque **errors**
- Perceived **latency**
- Perceived **loss of control**

Calibrate trust using explanations



- Opaque **errors**
- Perceived **latency**
- Perceived **loss of control**
- Susceptible to **hidden errors**

Calibrate trust using explanations



- Opaque **errors**
- Perceived **latency**
- Perceived **loss of control**
- Susceptible to **hidden errors**

Calibrate trust using explanations

What's the difference between Nikon Z and the D780

★ Show thinking ▼

That's an excellent question, as the Nikon D780 holds a unique position, acting as a bridge between traditional DSLRs and Nikon's mirrorless Z-series. While the D780 is still a DSLR, it incorporates significant mirrorless technology.

Do any of those sound like they would fit your needs?

🔗 Sources



Take your guides a step further

Tailor headlines and content that capture attention and engage your readers effectively.

Unable to generate headlines

We're unable to generate headlines because restricted content was detected in one or both of the following:

- Records from the selected categories
- Manual input in the "Custom prompt" field

Please adjust your records and/or prompt.

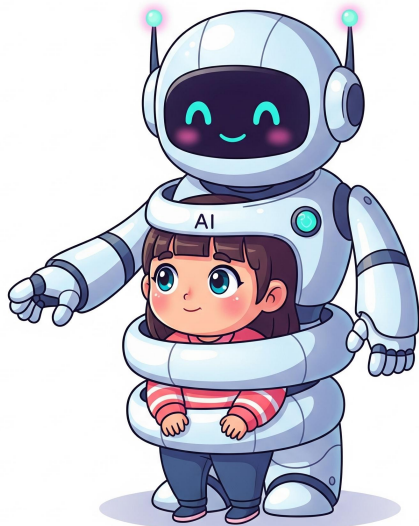
Close



Your message will exceed the length limit for this chat. Try shortening your message or starting a new conversation.



Friction prevents over-reliance



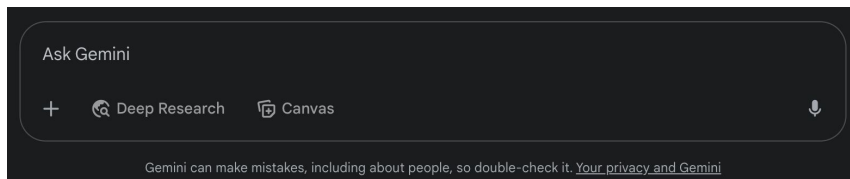
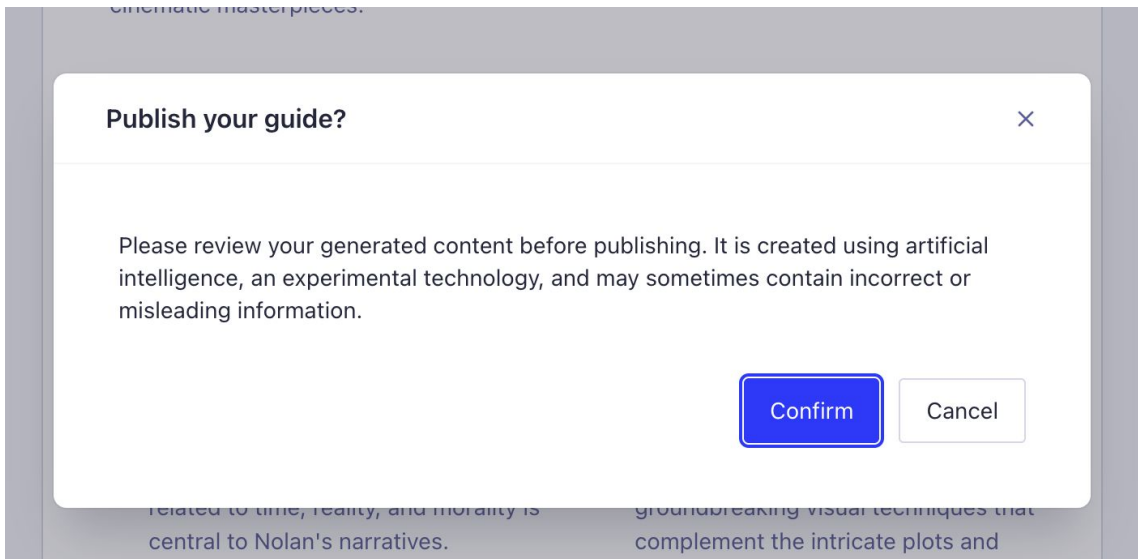
- Perpetuate **misinformation**
 - **Algorithmic flaws**
become **our own**
- Decline in **human expertise**
 - **Erosion of critical thinking**
- Lack of **accountability**

Strategic Friction



- Add **control points**
- Encourage users to **pause & reflect**
- Bring back **responsibility**

Strategic Friction: in practice



Bonus: Perfecting AI magic



Strategic **feedback** gathering

=

valuable **insights**

=

better AI long-term

UX Goal: Design for Trust and Reliance



Deliberate friction builds
trust and helps users avoid
over-reliance

ML Goal: but we said we want magic?

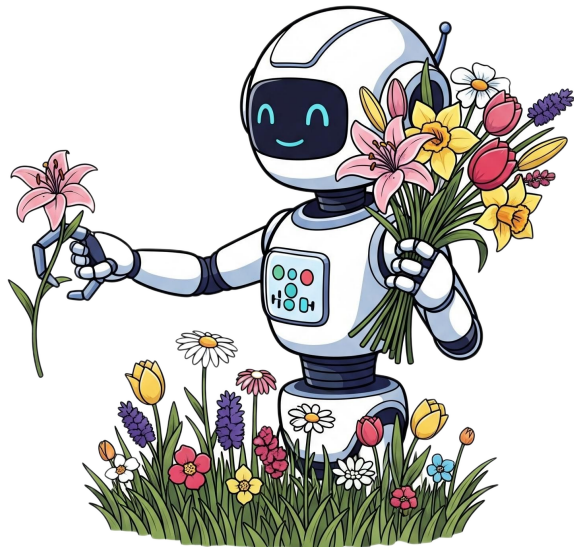


You want magic AI feature

We'll collect all the data we could need, right?



ML: we should not think before collecting



Data Collection should be the default

We need **extensive data** in order to measure, track, optimize everything

Opt-out == 3-4x more data than opt-in

ML: many search features are “magic”



 **Learning to Rank**

 **Personalized Search**

 **Automated Synonyms**

...

Magic is never free 

ML: we should not think before collecting



So we can't ask users

We should not depend on
users decisions:

- Learn from **implicit signals**
- Continuous **feedback loops**

Less friction == more data

Friction vs. Flow



Verdict: Truth is in the Middle Way



Key: **Progressive feedback**

low stakes = **low** friction

high stakes = **high** friction

Batte 2.

Promise vs.

Reality

Can we simply ship a lab prototype?

all of it

Analyzing image details for country/city identification

10s

I'll analyze this image systematically and use web search to help identify potential clues about the location.

modern conference room exposed ductwork industrial design white walls abstract a... 10 results

The search results show that this type of industrial-chic conference room design with e... 2s

Let me search for more specific design elements and regional characteristics that might help narrow down the location.

fire extinguisher wall mount industrial office design regulations by country 10 results

Searching for region-specific architectural design clues 3s

scandinavian nordic office design exposed ductwork minimalist conference room 10 results

Probing architectural details for location identification 3s

tech startup office conference room exposed ceiling berlin copenhagen stockholm 10 results

The search results mention several Nordic tech hubs and co-working spaces in Copenha... 4s

textured white wall art conference room abstract pattern 10 results

The textured wall art searches didn't give me specific location clues. 1s

innovation lab incubator space conference room "exposed ceiling" europe 10 results

Analyzed design trends to pinpoint conference room's global location. 6s

algolia

Based on my extensive research using web search tools, I've analyzed this modern conference room from multiple angles, but I need to be honest: **I cannot definitively determine the specific location of this space.**

Here's what I can tell you about the design and where it's most likely to be:

Most Probable Regions:

Nordic Countries (Denmark, Sweden, Norway) - This industrial-minimalist aesthetic with exposed ductwork, white walls, and natural wood is extremely popular in Scandinavian tech and innovation spaces.

Germany (particularly Berlin) - The tech startup scene there heavily favors this exact style of industrial-chic conference room design.

Bay Area 🤖

ML Goal: bring it all... and accelerate 🚀

AUTOMATE



ML Goal: bring it all... and accelerate

1 The accelerating pace of change ...

Agricultural Revolution $\xleftarrow{8,000 \text{ years}}$ Industrial Revolution $\xleftarrow{120 \text{ years}}$ Light-bulb $\xleftarrow{90 \text{ years}}$ Moon landing

$\xleftarrow{22 \text{ years}}$ World Wide Web $\xleftarrow{9 \text{ years}}$ Human genome sequenced

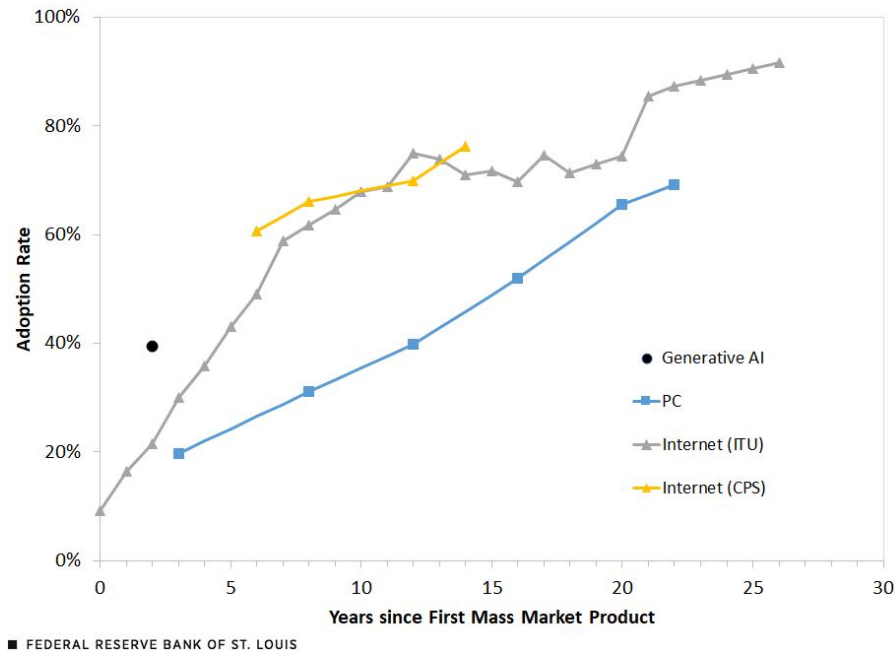
10^{26}
2045
Surpasses
brainpower
equivalent
to that of
all human
brains
combined

“Our intuition about the future is **linear**.
But the reality of IT is **exponential**, and that
makes a profound difference.”

“If I take 30 steps linearly, I get to **30**.
If I take 30 steps exponentially, I get to **a billion**.”
– Ray Kurzweil



ML Goal: accelerate – we're already doing it



See [The Rapid Adoption of Generative AI | St. Louis Fed](#) 

UX: Reality is not SOTA



Lab conditions don't reflect
human complexity

UX Goal: Reality is not SOTA

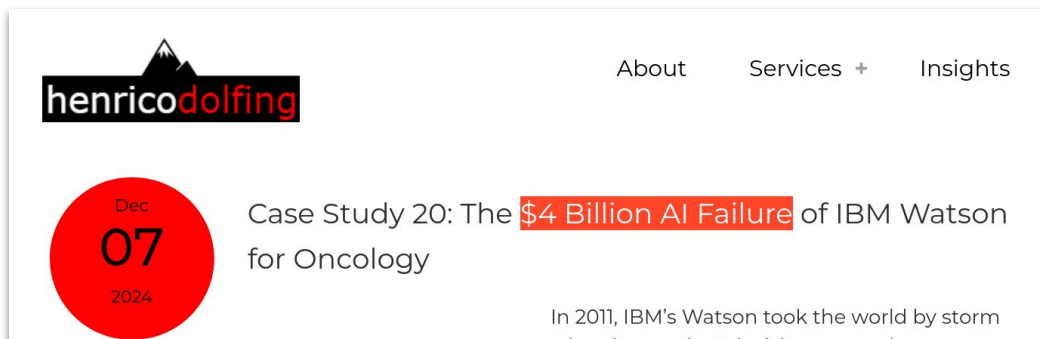


Cultural subtext?

Sarcasm?

User intent?

Datasets meet reality



The screenshot shows a webpage for 'henricodolfing'. The logo features a mountain icon above the text 'henricodolfing', where 'henrico' is in black and 'dolfing' is in red. Navigation links 'About', 'Services +', and 'Insights' are in the top right. A red circular badge on the left contains the text 'Dec 07 2024'. The main heading is 'Case Study 20: The \$4 Billion AI Failure of IBM Watson for Oncology', with '\$4 Billion AI Failure' highlighted in red. Below the heading, it says 'In 2011, IBM's Watson took the world by storm'.

henricodolfing

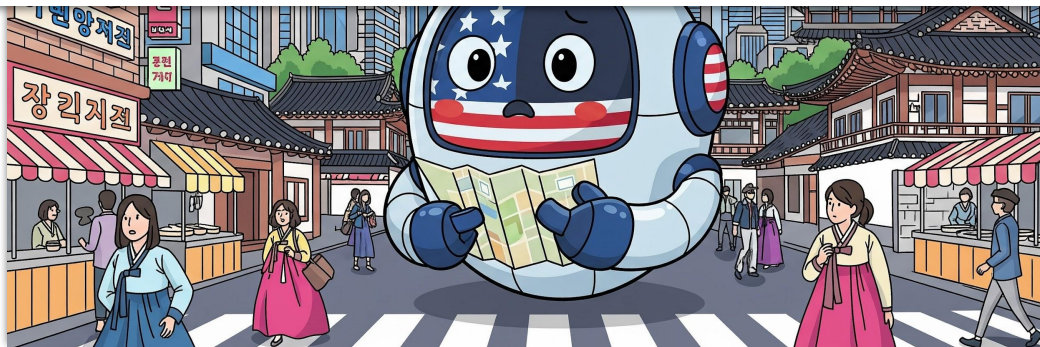
About Services + Insights

Dec 07 2024

Case Study 20: The \$4 Billion AI Failure of IBM Watson for Oncology

In 2011, IBM's Watson took the world by storm

However, this ambitious vision quickly collided with the complex realities of cancer care, resulting in widespread criticism and eventual failure.



It goes both ways



Teach AI systems about the users

Allow users to **correct** AI systems

UX Goal: Design for Mental Models

Build **mental models**
through **progressive disclosure**
of AI features



Promise vs. Reality



Verdict: Context is essential for Innovation



Real users are not datasets

User context is essential to validate innovation

Move fast, yet **progressively** disclose capabilities

Automate after **educate**

MARIA 

Battle 3.

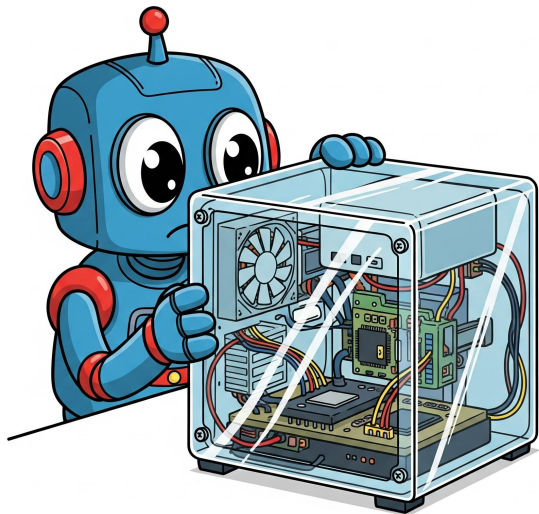
Transparency vs.

Magic

**Should users see
how the (AI) sausage is made,
or does that break the spell?**



Transparency empowers co-creation

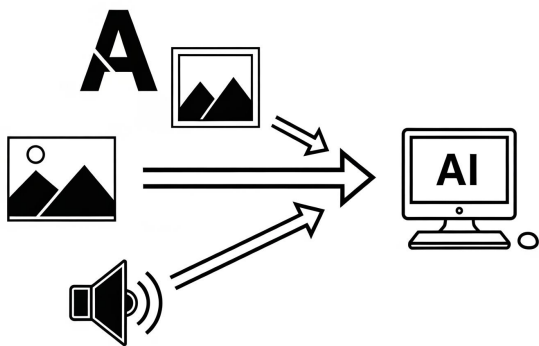


Support for **iterative work**

=

Building long term **trust**

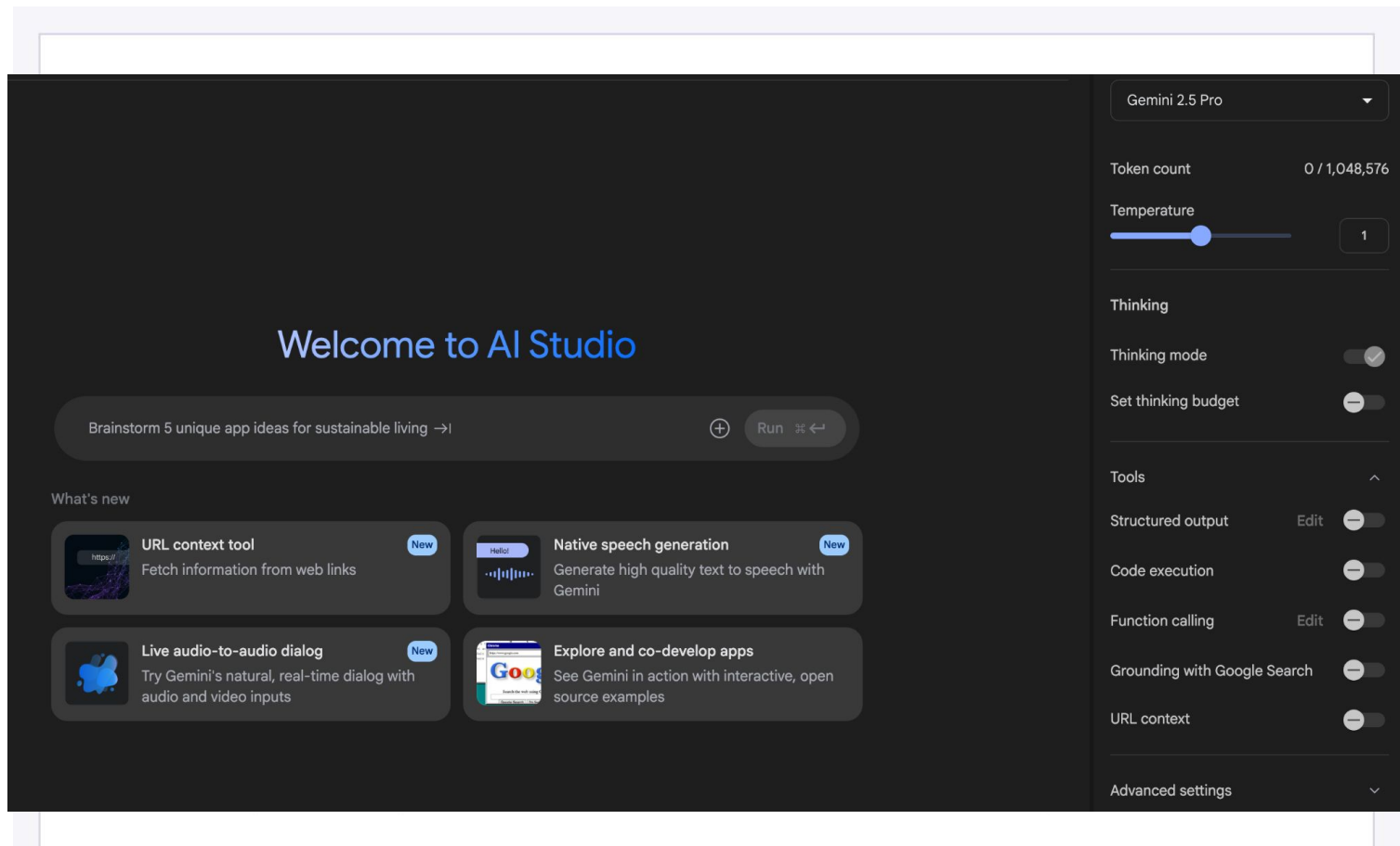
Focus on inputs



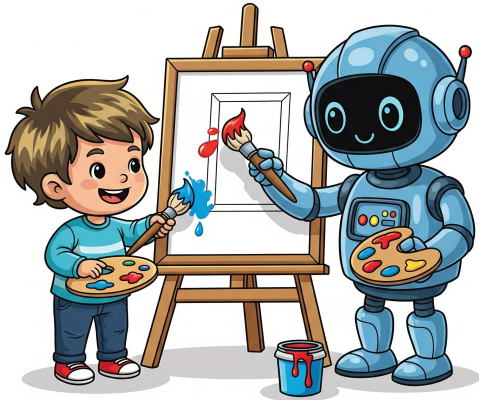
Design for **generative
variability** 📦

Visible **uncertainty**

In the wild



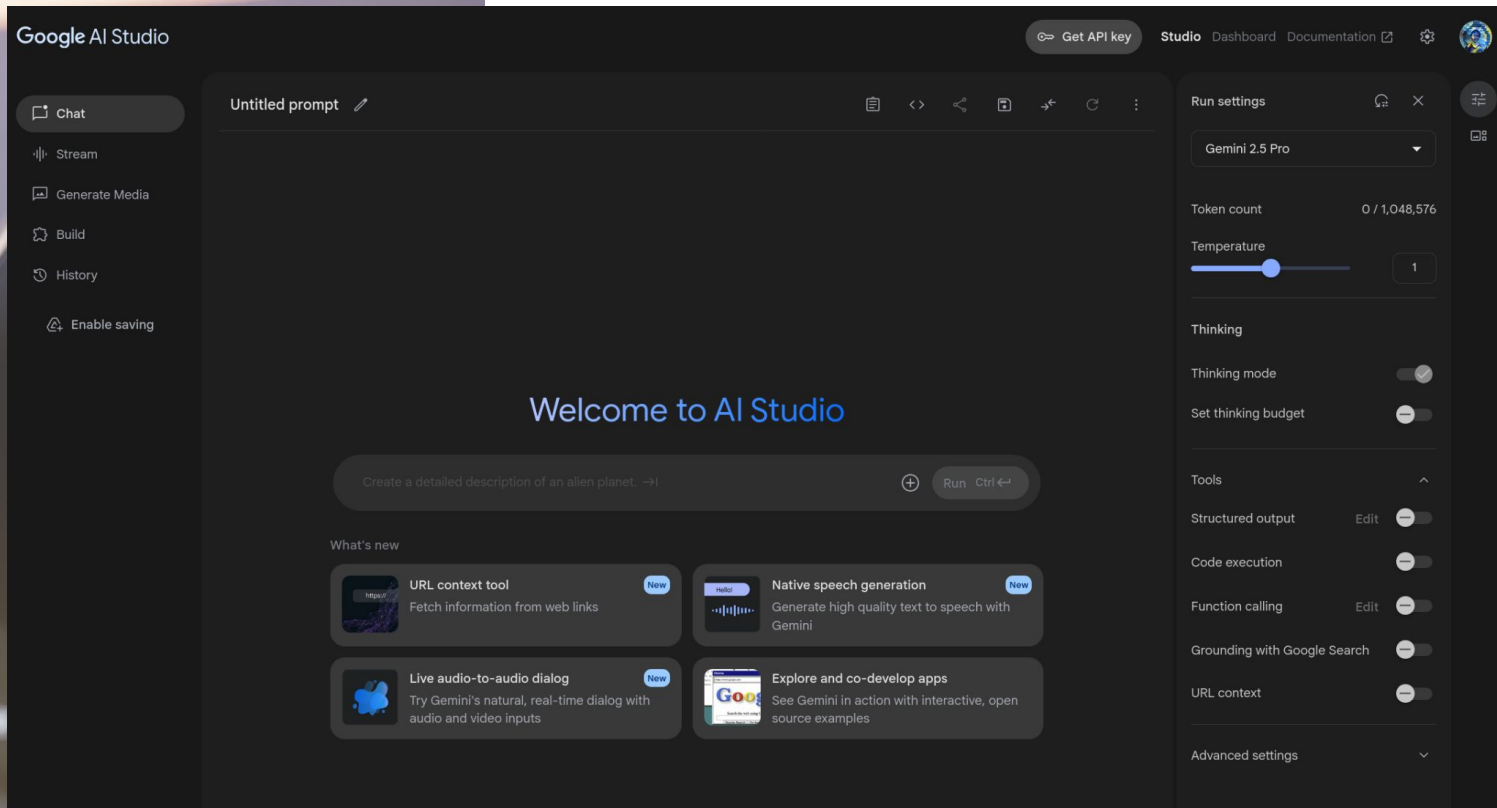
UX Goal: Design for Imperfection & Co-creation



Users are **partners** with AI

not **passive consumers**

ML Goal: Invisible



The screenshot displays the Google AI Studio web application. The interface is dark-themed and includes a left sidebar with navigation options: Chat, Stream, Generate Media, Build, History, and Enable saving. The main area features a large text input field labeled 'Untitled prompt' with a 'Run' button and a keyboard shortcut 'Ctrl+Enter'. Below the input field, a 'Welcome to AI Studio' message is displayed. A 'What's new' section highlights four features: URL context tool, Native speech generation, Live audio-to-audio dialog, and Explore and co-develop apps. The right sidebar contains 'Run settings' for Gemini 2.5 Pro, including token count, temperature, and thinking mode. Below this, a 'Tools' section lists various features like Structured output, Code execution, Function calling, Grounding with Google Search, URL context, and Advanced settings, each with an 'Edit' button and a toggle switch.

Google AI Studio

Get API key Studio Dashboard Documentation

Chat Stream Generate Media Build History Enable saving

Untitled prompt

Welcome to AI Studio

Create a detailed description of an alien planet. →

Run Ctrl+Enter

What's new

- URL context tool** (New) Fetch information from web links
- Native speech generation** (New) Generate high quality text to speech with Gemini
- Live audio-to-audio dialog** (New) Try Gemini's natural, real-time dialog with audio and video inputs
- Explore and co-develop apps** See Gemini in action with interactive, open source examples

Run settings

Gemini 2.5 Pro

Token count 0 / 1,048,576

Temperature 1

Thinking

Thinking mode ☒

Set thinking budget ☐

Tools

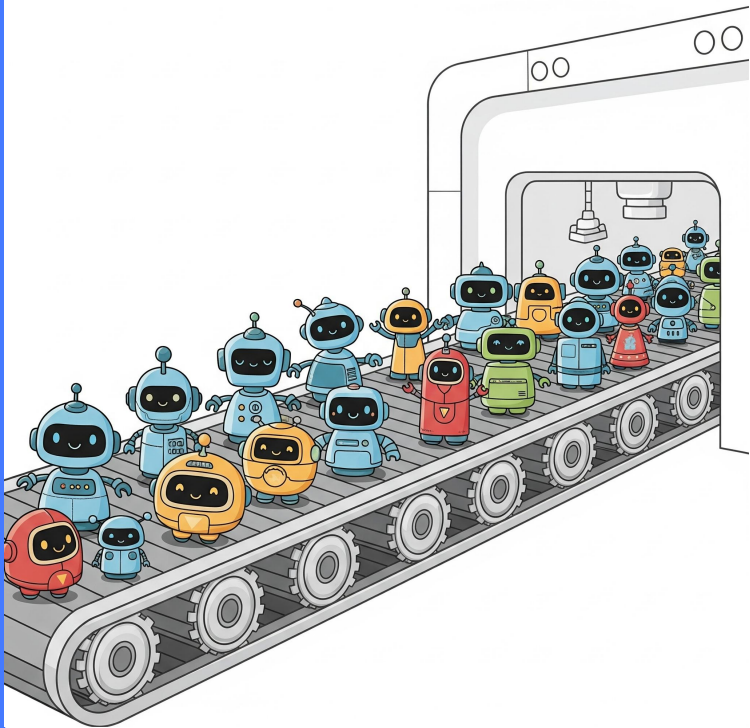
- Structured output Edit ☐
- Code execution ☐
- Function calling Edit ☐
- Grounding with Google Search ☐
- URL context ☐
- Advanced settings

ML: we should trust our outputs

AI output should go live –
not in a marketer's email
inbox

Example: “Create guide”
should mean “done” 😊
Not “go proofread the AI” 😓

“Make sure it works” is not a
user problem, it's **our job** 🧑‍🔧





ML: we should trust our outputs

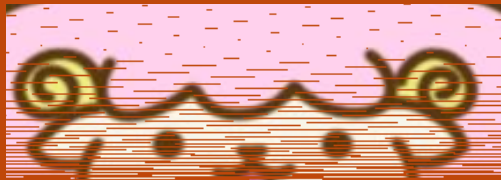


Trust comes via Reliability, Not Explanations

Users build trust through
consistent, reliable outputs 🚀

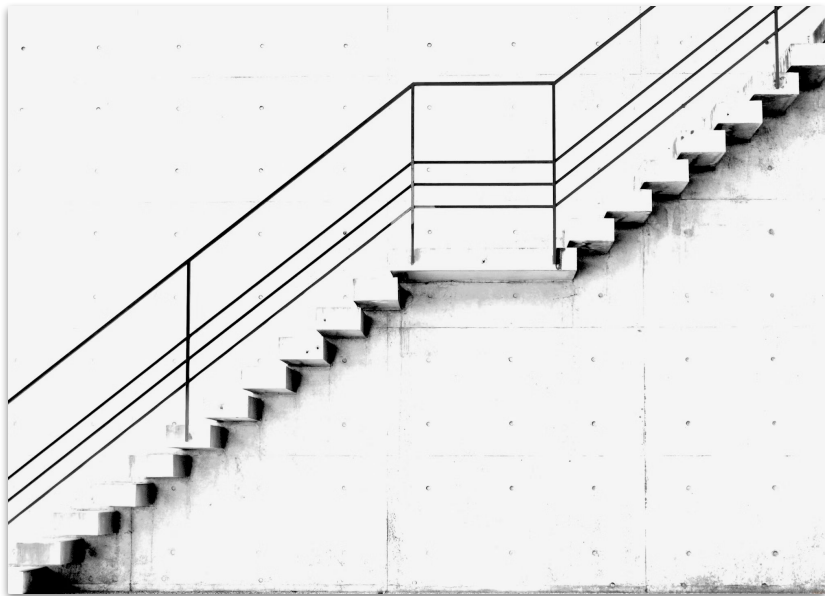
Intent should map
directly to **action** ✨💡

Transparency vs. Magic



MARIA 

Verdict: Progressive Complexity



 **Co-create** with the AI

 Build with **progressive complexity**

 Focus on **why**, not **how**



The wisdom

No **perspective** is superior to the other, nor should it be.

Building an AI product is not about whose viewpoint is better, but **who** you build it for.





- UX grounds ML in human reality
- ML pushes UX beyond traditional boundaries



It's Dangerous to go Alone

“Do not **tempt me**, Frodo!”

[ships 3 new modalities]

- Gandalf when left alone

This mirror shows things [UX issues]
that **were**, things that **are**,
But also things that **may** [or never] **be**.

- Galadriel when left alone

We're not competing—we're
completing each other.

ML provides the **intelligence**;
UX provides the **wisdom** to make it
meaningful to humans.

Thank you!

Ressources

- emojipedia.com // Emoji library
- emojis.com // Generate your own emojis
- unsplash.com // Free photos