



University
of Glasgow

School of Computing Science

Demystifying AI


Prof. Dr. Wim Vanderbauwhede

Part I: Generative AI (GenAI) VS Machine Learning (ML)

Artificial Intelligence (AI)

- Marketing term
- **Is not intelligent:**
 - Doesn't think
 - Doesn't reason
 - Doesn't know right from wrong
- But algorithms don't need intelligence

Artificial Intelligence (AI)



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graph TD; AI[Artificial Intelligence (AI)] --> GenAI[Generative AI (GenAI)]; AI --> ML[Machine Learning (ML)]
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Generative AI
(GenAI)

Machine Learning
(ML)

Generative Artificial Intelligence (GenAI)

- Aka Large Language Models (LLM)
- Generates new information
- Best known: ChatGPT, CoPilot, Zoom AI Assistant

Generative AI

- General purpose **best-guess machine**
- Trained on very large amounts of data
- The model calculates the most likely response to your prompt/input
 - combines information snippets
 - so it's essentially pick and mix

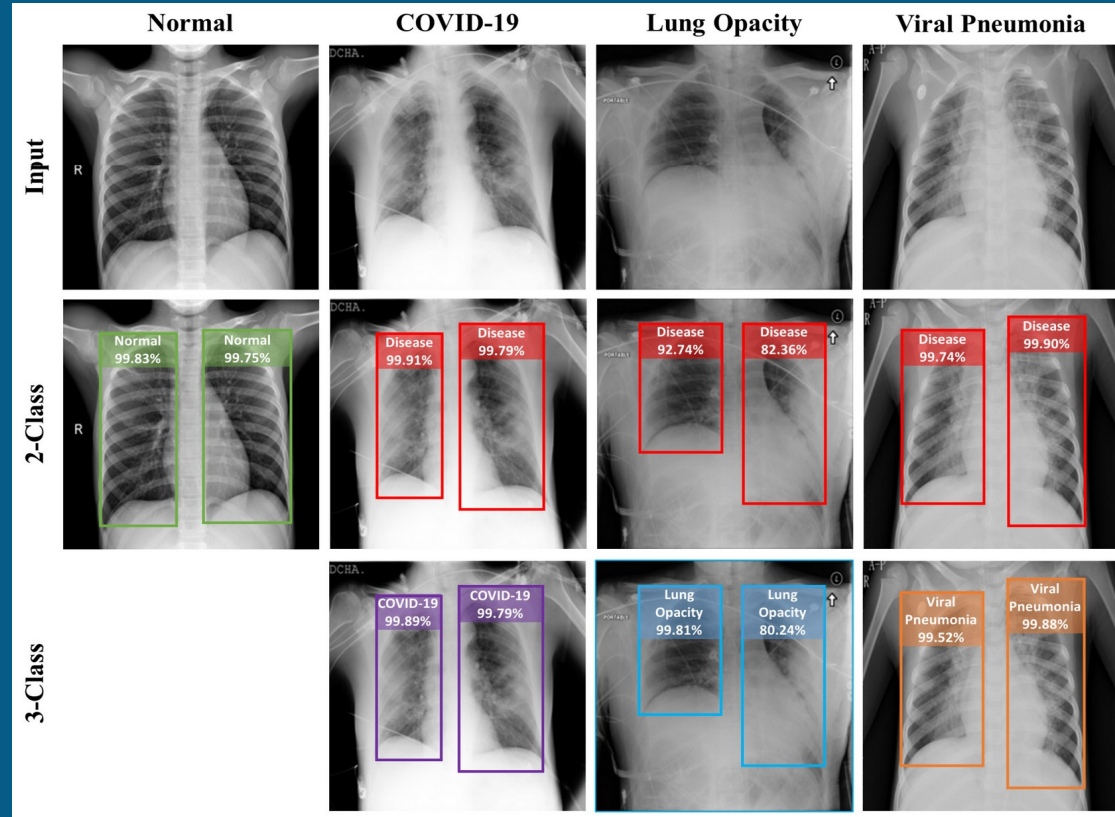
Examples of Generative AI

- Text generation: ChatGPT, Claude, Copilot, Zoom AI assistant
- Image generation: ChatGPT, StableDiffusion, Midjourney, Adobe FireFly, ...
- Video + audio generation (deep fakes): ChatGPT, Google Gemini, ...

Machine Learning (ML)

- Does not generate new information
- For specific applications
- Typical example: medical imaging

- Composite X-ray image with Yes (prob)/No
- Not generative



GenAI versus ML

- Machine learning:
high accuracy for a
specific task
- Generative AI:
inherently inaccurate



More examples of machine learning

- Transcript, auto captions, machine translation
- Medical: diagnosis, X-ray/MRI analysis, ...
- Cybersecurity: intrusion detection, ...
- Power management: laptops, phones, servers, etc
- Renewables: better predictions
- Agriculture: improve yield

Generative AI

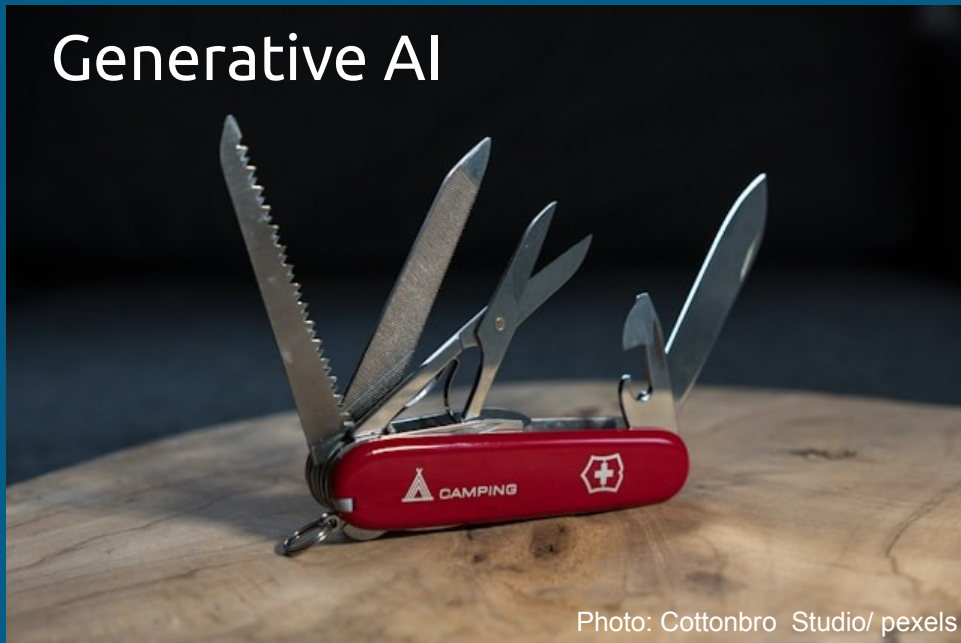


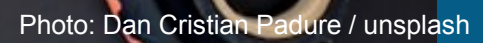
Photo: Cottonbro Studio/ pexels

Machine Learning



Photo: Maciej Karon/ unsplash

Part II: GenAI-based tools



How do GenAI tools work?

- Make the **most likely guess** based on data it has been trained on and prompt
- No intelligence
- No intent
- No notion of correctness

How do GenAI tools work?

- No “hallucinations”
 - These are not errors
 - It’s just how the best-guess machine works: inappropriate best guesses
- Confident but often wrong
 - The perceived confidence is our interpretation

GenAI for summarizing text

- Doesn't summarise but shortens – not based on meaning but on similarity of words
- May replace crucial words or add points that are not in the original
- Studies show poor performance:
 - BBC conclusion: unable to accurately summarise news
 - Australian government study: much worse than humans at summarizing

Real life example

- Friend used GenAI used to summarise a council document on housing policy
- At first sight, summary seemed fine
- Detailed review showed many problems, e.g. GenAI tool replaced “rent” with “buy” + added points not in the document


Data leakage via GenAI tools



"EXTREMELY SENSITIVE CONVERSATIONS"

ChatGPT users shocked to learn their chats were in Google search results

OpenAI scrambles to remove personal ChatGPT conversations from Google results.

ASHLEY BELANGER – 1 AUG 2025 18:21 |  174

Data leakage GenAI tools

- **Serious risk** if using confidential/sensitive data
- Data you enter can show up in other people's chat responses
- Data shared with companies providing the GenAI service

GenAI for researching

Tools like ChatGPT are **unreliable** for researching a topic:

- Invents sources
- Cites non-supporting sources for claims
- Misses angles
- Is biased

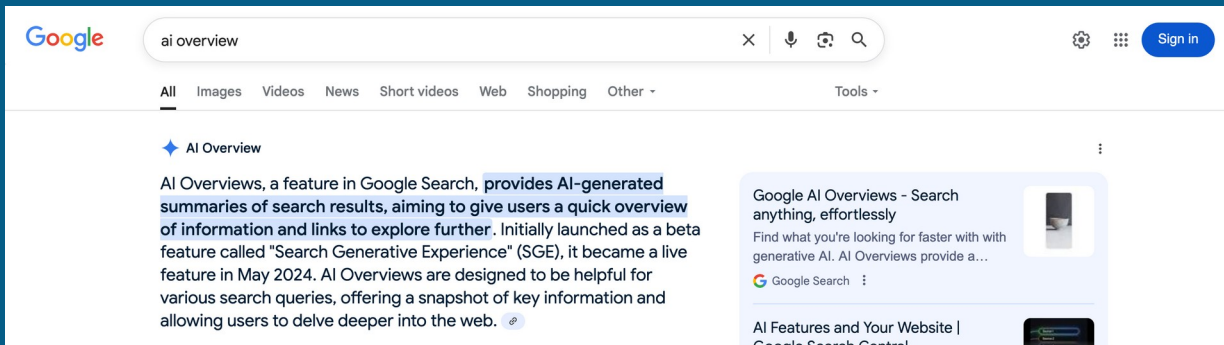
(Klaudia Jaźwińska, Aisvarya Chandrasekar, *Columbia Journalism Review*, 2025)

Real life example

- Masters student dissertation with AI-generated sources
- Looked superficially convincing
- On closer inspection, **none of the sources existed**

GenAI in search engines

- “AI overview” is **not a search summary** but an AI generated output



- Combines several sources but not based on understanding, **often wildly inaccurate**
- **Environmental impact:** 100x more energy than the search itself

Real life example

- Searching information about Lyme disease
- AI overview mixed information from US and UK Lyme disease
- But UK strain of Lyme is different from US strain
- Result was **dangerously incorrect information** because clinical manifestations of Lyme disease involving the skin occur exclusively in infections acquired in Europe



Photo: Boris Izmaylov / unsplash

Productivity studies

- When experienced software developers used GenAI tools, work took 19% longer to complete (METR study, 2025)
- MIT report: 95% of generative AI pilots at companies are failing (MIT project NANDA report, 2025)

NEWSLETTERS · CFO DAILY

MIT report: 95% of generative AI pilots at companies are failing



BY **SHERYL ESTRADA**

SENIOR WRITER AND AUTHOR OF CFO DAILY



August 18, 2025 at 6:54 AM EDT



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UK government trial of M365 Copilot finds no clear productivity boost

 [Paul Kunert](#)

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As Klarna flips from AI-first to hiring people again, a new landmark survey reveals most AI projects fail to deliver



BY IRINA IVANOVA

DEPUTY US NEWS EDITOR

May 9, 2025 at 7:07 AM EDT

Updated May 9, 2025 at 1:01 PM EDT





Goldman
Sachs



TOP OF MIND

Gen AI: too much spend, too little benefit?

Jun 27, 2024

Productivity

- What are you **missing out** on with GenAI tools?
 - Creative thinking
 - Knowledge
 - Focused work
- (Hamsa Bastani et al, 2024)
- Fast and easy but inaccurate
- Problems later down the line



Photo: Christopher Williams / unsplash



Part III: Ethical issues



Photo: Juladzislau Petrushkevich / unsplash

Theft of work/content

- “Companies like Meta and OpenAI are hoovering millions of copyrighted books, songs and films into their AI tools **without permission**” (The Good Law Project)
- A court ruled that Anthropic’s downloading of millions of books from the pirate websites was **theft**
- Any work without a permissive license or in the public domain is “all rights reserved”, using it for GenAI training is **theft**

Theft of work/content

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Anthropic to pay at least \$1.5 billion to authors whose work it knowingly pirated

Expect more 'slush funds' of this sort, analyst tells *El Reg*

 Simon Sharwood

Mon 8 Sep 2025 // 05:32 UTC

GenAI for summarizing text

Important misunderstanding:

“When summarising my text, GenAI is not using others’ work”

This is false – the summarising GenAI tool was **trained using others’ stolen content**

Applies to e.g ChatGPT, AI notetakers, ...

Need for data workers

- GenAI can only generate images or video if the training data have been manually selected and labeled, image per image
- This is labour intensive so it is done by armies of low-wage workers in Africa (less than \$2/hour)

Harm to data workers

- A lot of the content GenAI is trained on is harmful: child pornography, extreme violence
- Workers are constantly exposed to this harmful content
- Many are traumatised as a result – this is the new colonialism



The African Women of Content Moderation

by Botlhokwa Ranta

This zine sheds light on the experiences of women, mothers, and migrants working as content moderators at Sama.



Mental Health and Drug Dependency in Content Moderation

by Fasica Berhane Gebrekidan

Exploited by subcontractors like Sama, Meta content moderators in Nairobi face psychological trauma and silencing.

psychological trauma and silencing

Data Workers'
Inquiry
(data-workers.org)

Biases

- Biases in training data cause **biases in results**
- Examples
 - Policing: AI-driven law enforcement amplifies existing biases, particularly against minorities, replicating and intensifying **systemic racism** (Amnesty International, 2025)
 - Hiring with AI:
 - Discrimination against women (Amazon)
 - Discrimination against older applicants (iTutorGroup)

Summarizing text: Culmination of several issues

Perception

ChatGPT, AI notetaker, etc



Reality

ChatGPT, AI notetaker, etc



Built on
stolen content
Using exploited
workers



Environmental issues

- Already, GenAI data centres cause **more emissions than the entire aviation industry**
- The current trend in GenAI means no other emissions are allowed to keep to 2°C warming
- Data centres also use **huge amounts of water**: Google's data centres consume 8,000 olympic swimming pools per year

Global data centers in areas
with high water-stress



AI IS DRAINING WATER FROM AREAS THAT NEED IT MOST

By [Leonardo Nicoletti](#), [Michelle Ma](#) and [Dina Bass](#)
for **Bloomberg Technology + Green**
May 8, 2025

photo by Md. Hasanuzzaman Himel
/ unsplash



Photo: Lucas Van Oort / unsplash

Part IV: Societal impact



Photo: Leo Visions / unsplash

Impact on knowledge work

- Impact on **ability to learn and innovate**
(Hamsa Bastani et al, 2024)
- Poisoning of knowledge – “oil spill in our information system”
- Compromises learning for the next generation

Impact on knowledge economy

- Generative AI tools are fast but frequently **inaccurate and wrong**
- Checking all generated content would undo the time gains
- By relying on generated content you are **biased towards accepting** it and not thinking critically yourself
- Therefore the quality of the work decreases

The hype

- Damage of the hype
 - Reinforcing systemic racism and biases
 - Phasing out of fossil fuels delayed – irreversible impact on climate change
- The need has been created
- Ask yourself: who is driving this need?

Big tech companies are pulling the strings



Photo: Bengi Su / pexels

Inevitable?

- Just part of society these days?
- Just another tool?
- Unstoppable?

Or is it?

History has quite a few examples of individuals standing up to the "inevitable":

- Rosa Parks: "mother of the civil rights movement"
- Suffragettes
- Black Lives Matter
- Greta Thunberg and the Schools Strike



Highlights

GenAI tools in a nutshell

- Makes the most likely guess based on data it has been trained on and prompt
- No intelligence, no intent
- No notion of correctness:
 - Unreliable for summarising text
 - Unreliable for researching topics

GenAI tools: ethics

Lots of ethical issues relating to people and planet

- Theft of work/content
- Environmental issues
- Harm to data workers
- Biases

Don't believe the hype

- It's not genius – it's just genius marketing
- It's not inevitable – nothing is



Photo: Gelgas Airlangga / pexels

What can **you** do?

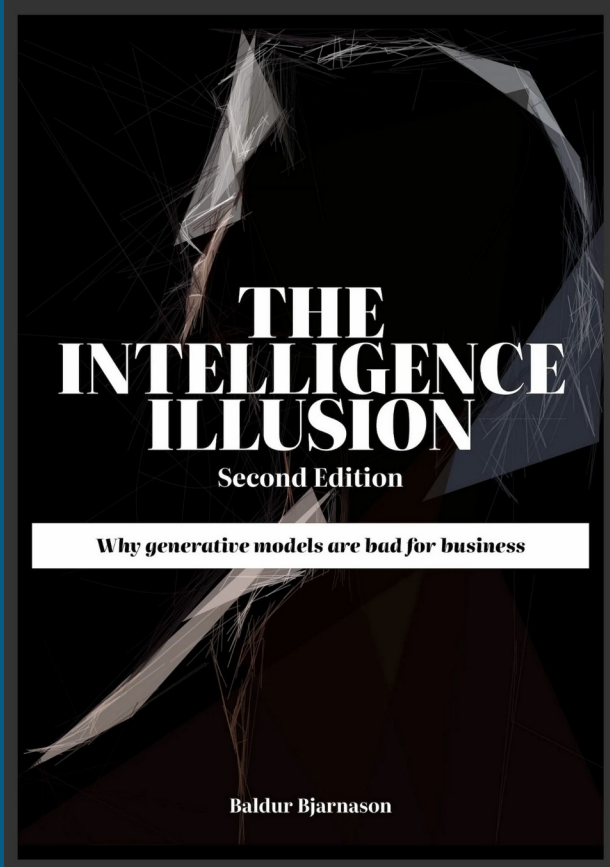
Consider:

- How does adoption of GenAI fit with the **values of your organisation?**
- With **your values** as an individual?

What can **you** do?

When commissioning work:

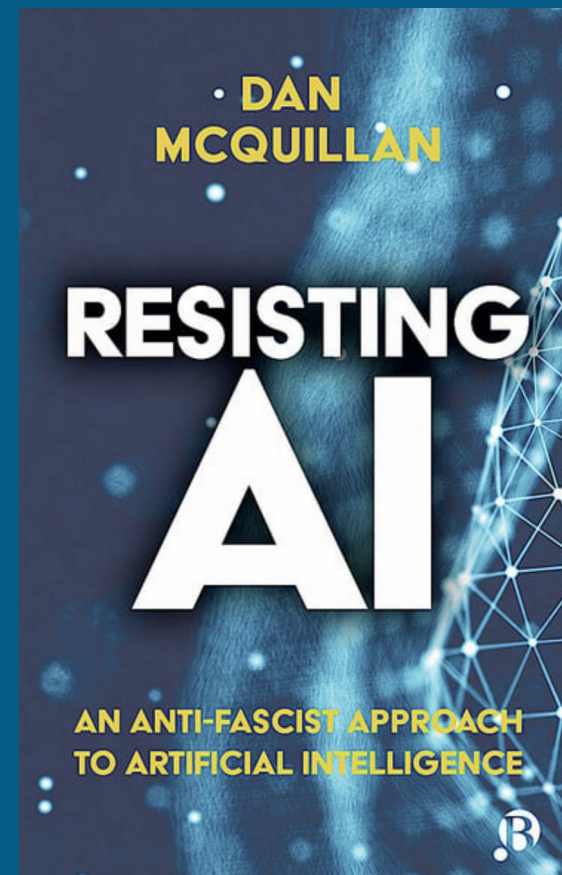
- Are you asking a **volume of work** that can only be done by using GenAI?
What is the knock-on impact of **GenAI biases and inaccuracies** on your organisation's work?
- Should ethical considerations about GenAI be treated on a similar footing to **Fair Work and Modern Slavery?**



The Intelligence Illusion
Baldur Bjarnason



The AI Con
Emily M Bender
& Alex Hanna



Resisting AI
Dan Mcquillan

Thank you



References

Full references can be found at

<https://limited.systems/articles/demystifying-ai>