

# 54th Annual MUD Conference

AI in Underwriting:  
From today's tools to  
tomorrow's transformation

**Jeff Heaton**, FLMI, Ph.D.

January 27, 2026



# About Jeff Heaton

- VP, AI Innovation, RGA
- Adjunct Instructor, Washington University
- YouTuber (95K Subscribers)
- Senior Member, IEEE
- Fellow, Life Management Institute
- M.IM. Information Management, Washington University
- Ph.D. Computer Science, Nova Southeastern University

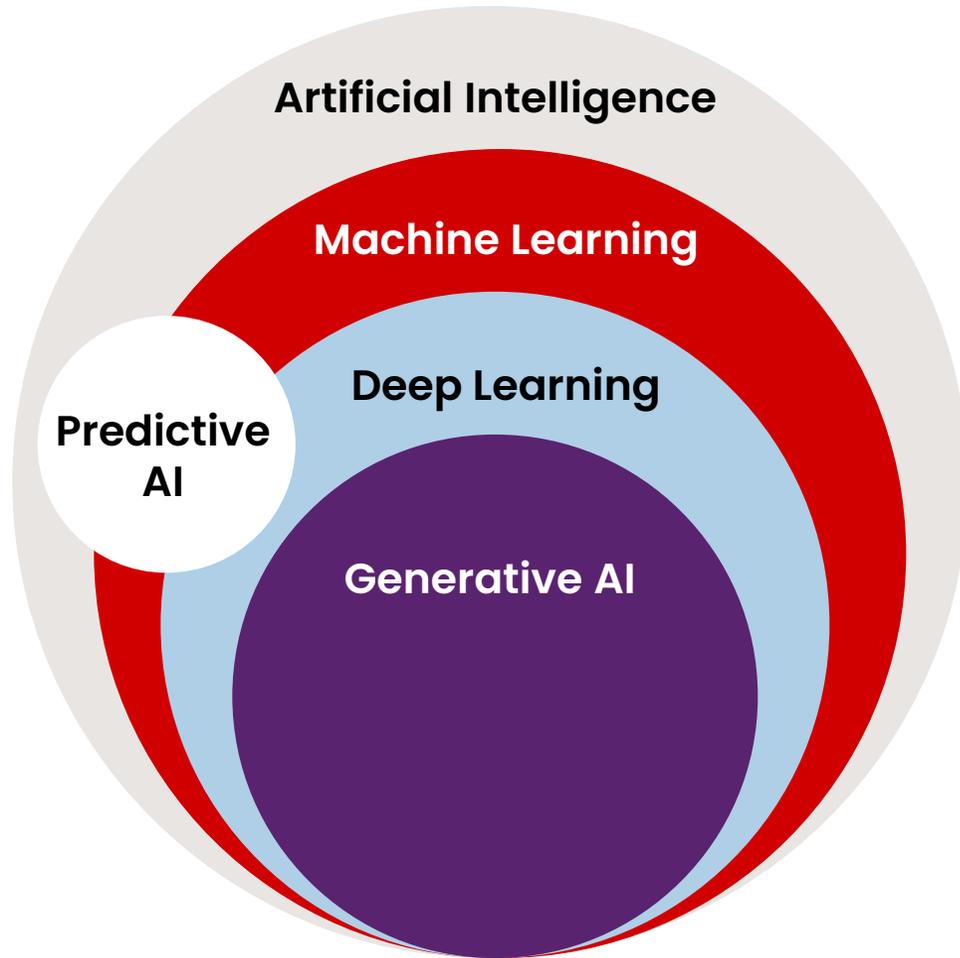


# Current State of AI in January 2026



# AI definitions

We use many overlapping and ambiguous terms to describe components of AI



- **AI** – Human-like decision-making by machines
- **ML** – Algorithms that learn from data
- **Deep Learning** – Neural networks that learn patterns
- **Predictive AI** – Modeling and forecasting from data
- **GenAI** – Generating text, images, summaries, and code

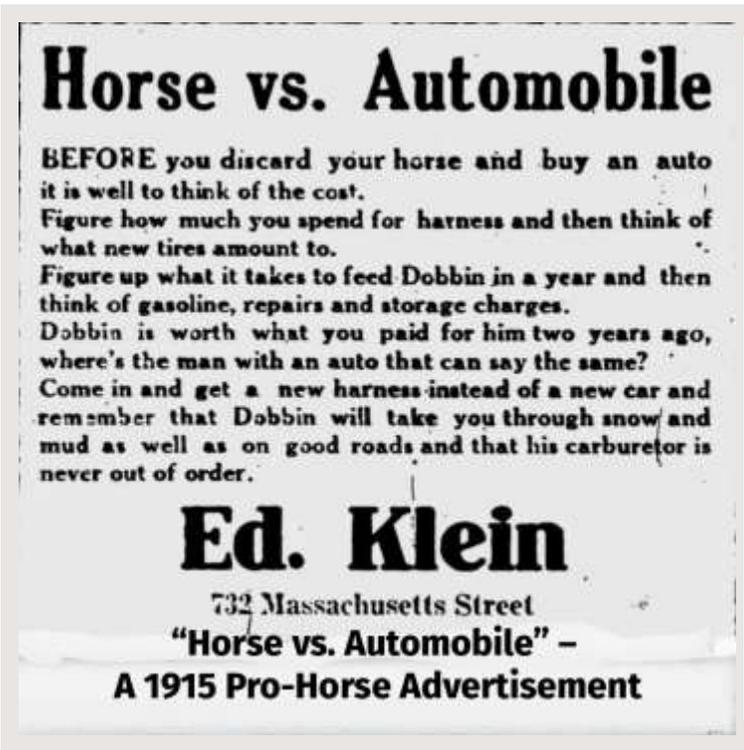
# Don't adopt new tech?

Lessons from the shift from horse and buggy to automobiles

Autos expensive and lose value

Autos many drawbacks vs horse

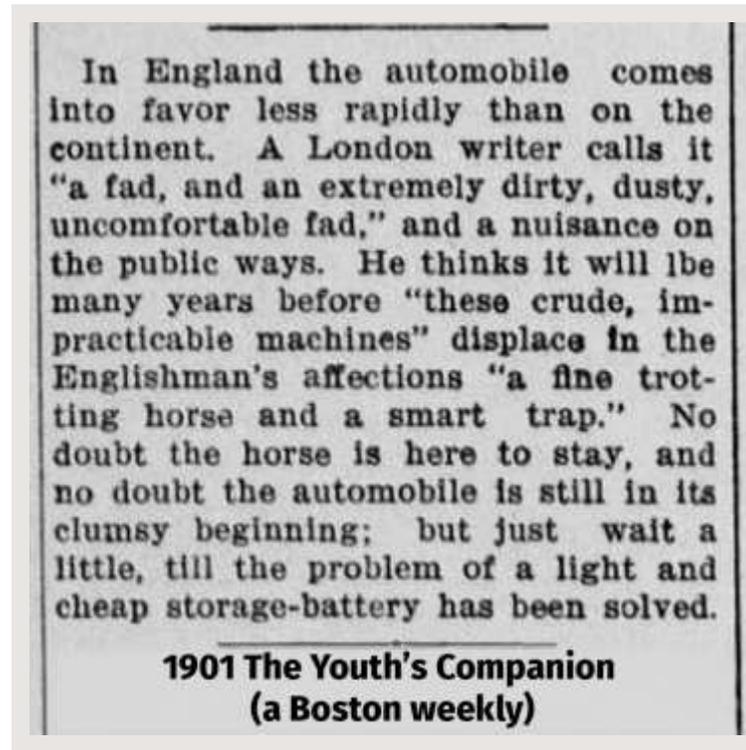
New technology is always met with stiff resistance. Critics often focus on limitations in the emerging technology and point to the long-held tradition of the existing technology. We had many concerns when cars began to replace the multi-thousand-year-old technology of horse and buggy.



**Horse vs. Automobile**

BEFORE you discard your horse and buy an auto it is well to think of the cost.  
Figure how much you spend for harness and then think of what new tires amount to.  
Figure up what it takes to feed Dobbin in a year and then think of gasoline, repairs and storage charges.  
Dobbin is worth what you paid for him two years ago, where's the man with an auto that can say the same?  
Come in and get a new harness instead of a new car and remember that Dobbin will take you through snow and mud as well as on good roads and that his carburetor is never out of order.

**Ed. Klein**  
732 Massachusetts Street  
"Horse vs. Automobile" -  
A 1915 Pro-Horse Advertisement



In England the automobile comes into favor less rapidly than on the continent. A London writer calls it "a fad, and an extremely dirty, dusty, uncomfortable fad," and a nuisance on the public ways. He thinks it will be many years before "these crude, impracticable machines" displace in the Englishman's affections "a fine trotting horse and a smart trap." No doubt the horse is here to stay, and no doubt the automobile is still in its clumsy beginning; but just wait a little, till the problem of a light and cheap storage-battery has been solved.

1901 The Youth's Companion  
(a Boston weekly)

# AI Difficulties

*“Realistic square image of red wine glass completely full, to the brim, no additional wine would fit, with an analog clock showing 10:45 in the background.”*

Not too long ago AI could not render completely full wine glasses; however, analog clocks remain elusive.



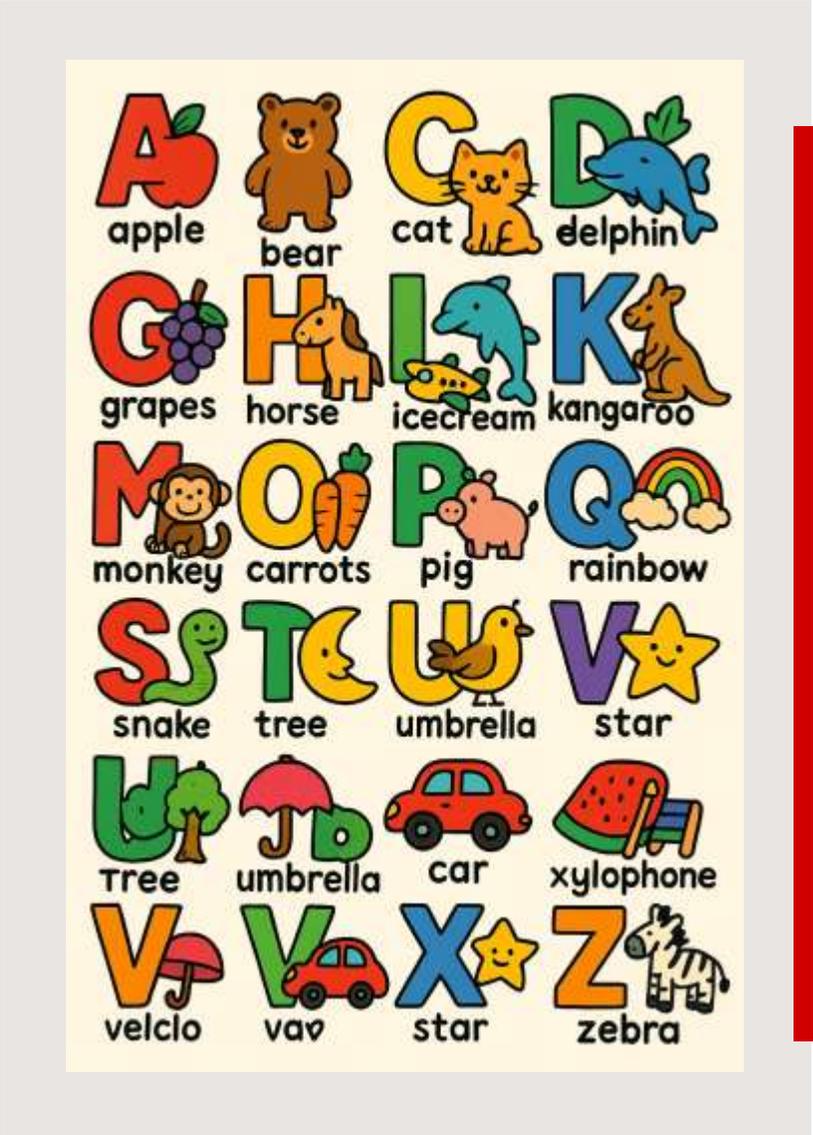
# Early AI's struggle with human anatomy

Halloween 2023: The five finger challenge

2023-era AI had a hard time giving humans 5 fingers. For Halloween 2023 I was a computer generated human. (look at my fingers)



# Mid-2025 difficulties



“Create an ABCs chart with a picture for each letter like a 1<sup>st</sup> grade teacher may use.”

Will GenAI assist  
augment or replace us?



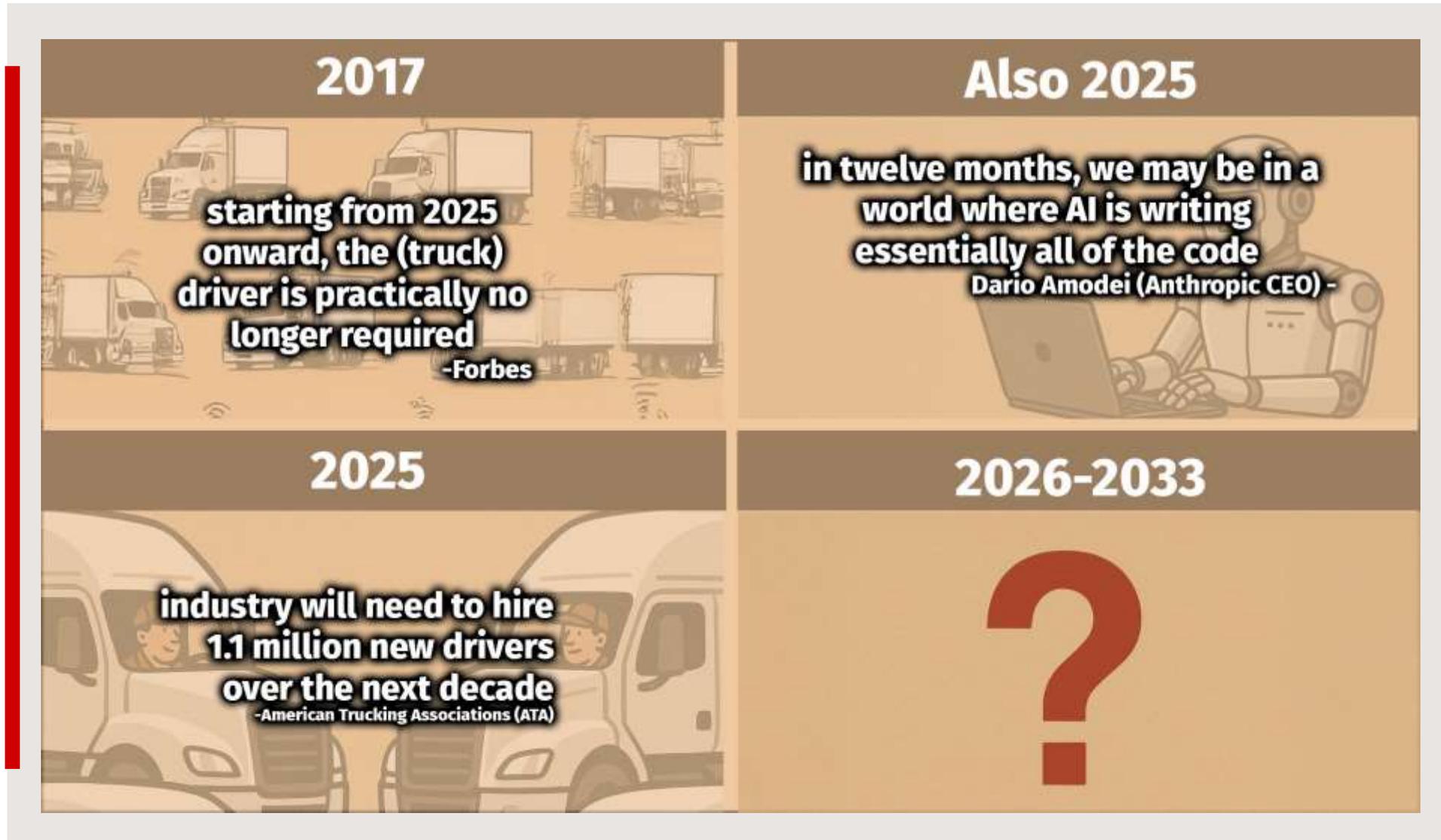
# Who will replace whom?

Those who master AI will replace those who don't.

Chainsaws didn't replace lumberjacks — lumberjacks with chainsaws did.

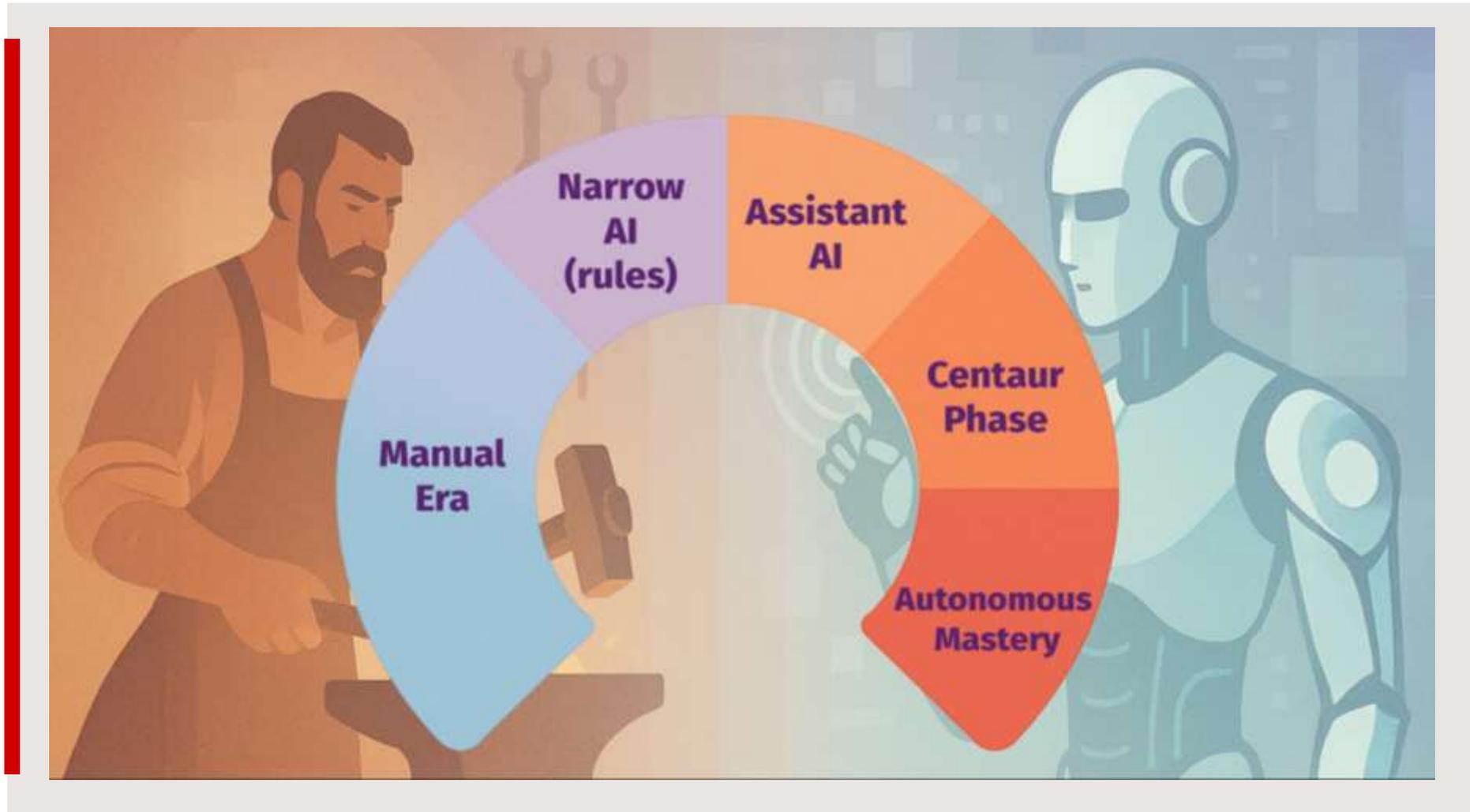


# AI: Assistant or replacement?



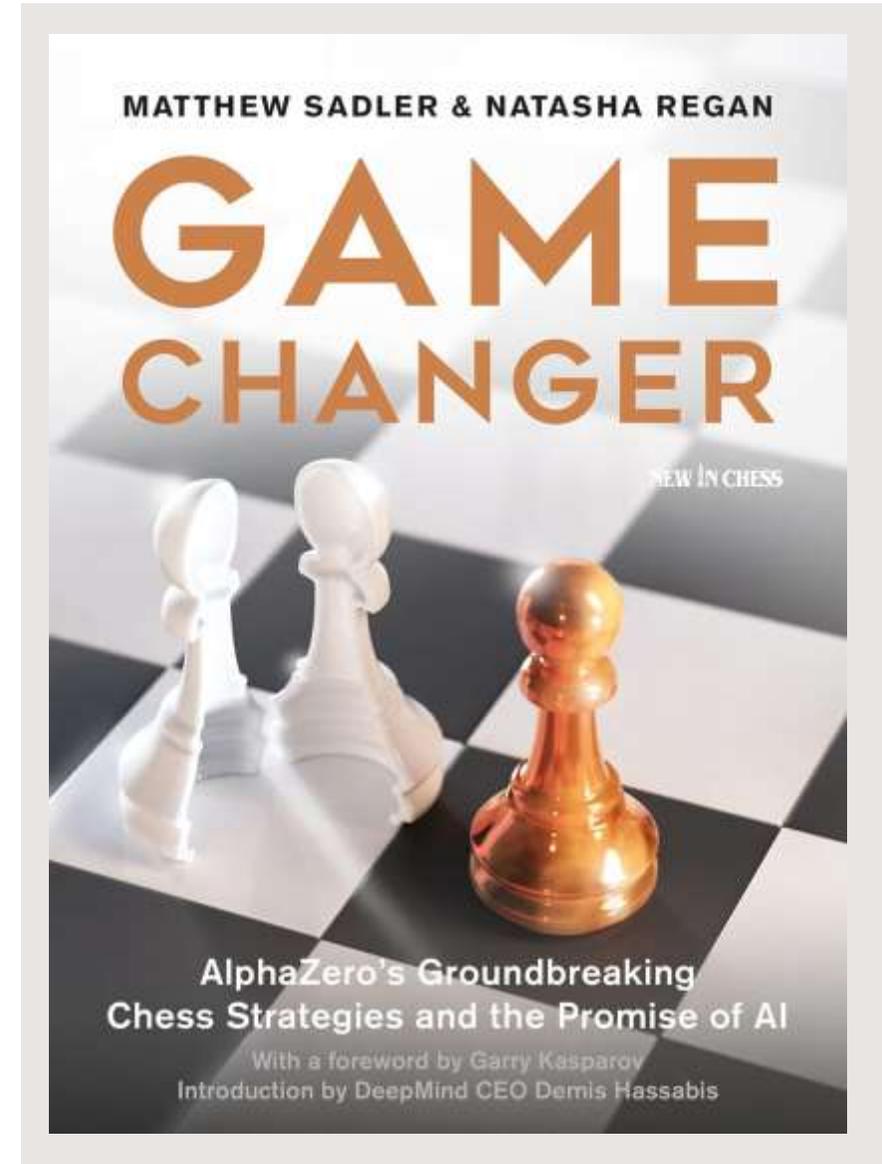
# The AI dominance arc

Domains transition to AI dominance through successive phases of automation



# AI Redefined how Humans Play Chess

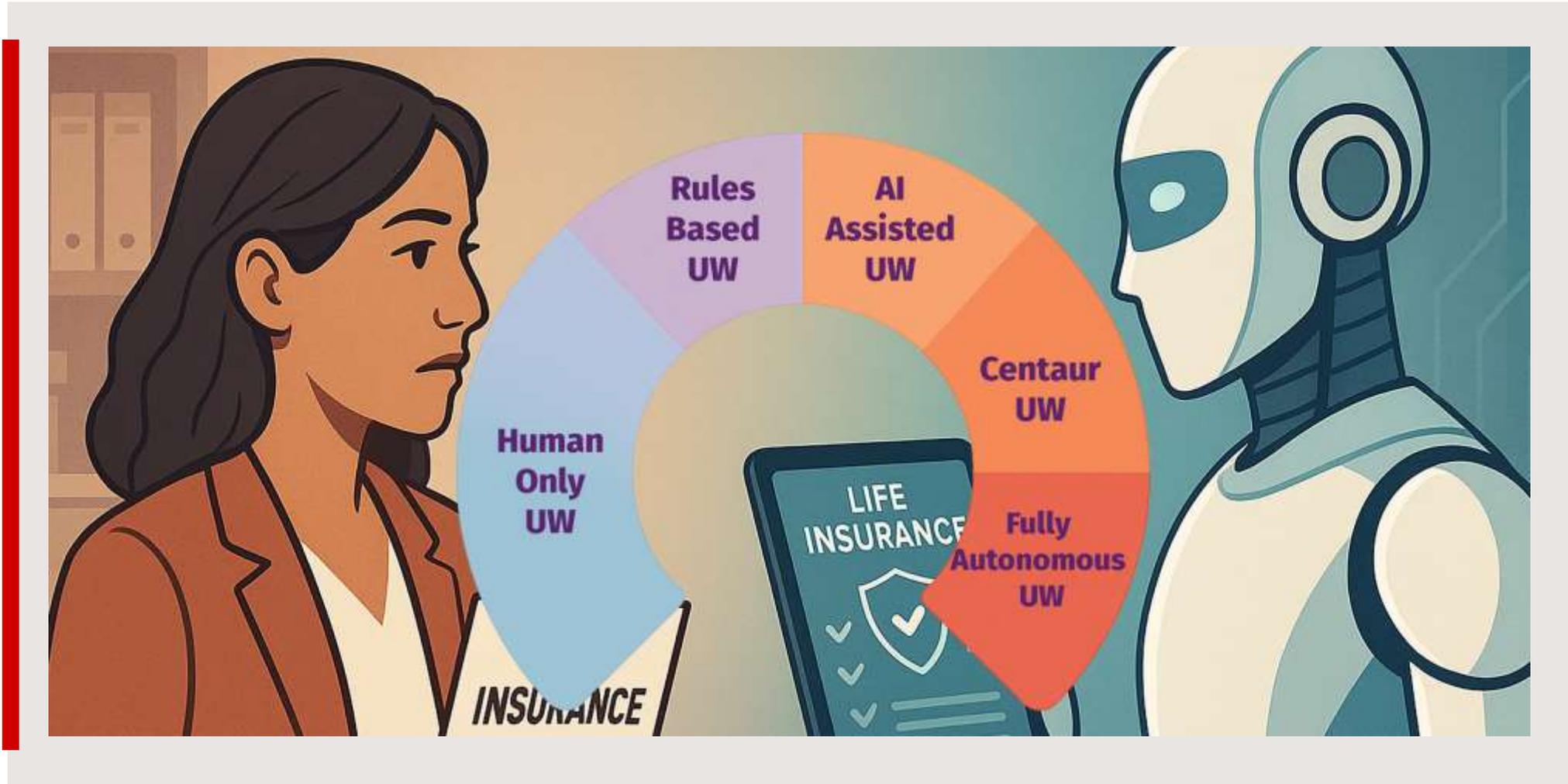
Modern chess strategy books now include strategies created by AI.



<https://www.chessable.com/game-changer-alphazeros-groundbreaking-chess-strategies-and-the-promise-of-ai-/course/19061/>

# AI in underwriting: Entering the age of assistance

AI now helps underwriters extract data, flag risks, and speed decisions — but remains a junior partner

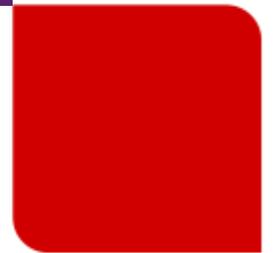


# But can AI dominate everything?

AI can master rules, but risk requires judgment

| Domain                 | Rule Complexity | Input Messiness | Error Sensitivity | Context Dependence | Generalization | Regulation | Slow Feedback |
|------------------------|-----------------|-----------------|-------------------|--------------------|----------------|------------|---------------|
| Chess                  | ✓ Easy          | ✓ Easy          | ✓ Low risk        | ✓ None             | ✓ Low          | ✓ None     | ✓ Fast        |
| OCR                    | ✓ Easy          | ✓ Easy          | ✓ Low             | ✓ None             | ✓ Low          | ✓ None     | ✓ Fast        |
| Protein Folding        | ◆ Medium        | ✓ Easy          | ✓ Low             | ✓ None             | ◆ Medium       | ✓ Low      | ✓ Fast        |
| Customer Support       | ◆ Medium        | ◆ Medium        | ◆ Moderate        | ✗ Medium           | ✗ High         | ◆ Medium   | ✓ Fast        |
| Software Engineering   | ◆ Medium        | ◆ Medium        | ◆ Moderate        | ✗ High             | ✗ High         | ✓ Low      | ◆ Moderate    |
| Radiology              | ◆ Medium        | ◆ Medium        | ✗ High            | ✗ High             | ◆ Medium       | ✗ High     | ◆ Moderate    |
| Automated Underwriting | ◆ Medium        | ◆ Medium        | ✗ High            | ✗ High             | ✗ High         | ✗ High     | ✗ Slow        |
| Creative Writing       | ✗ Hard          | ◆ Medium        | ◆ Moderate        | ✗ Very High        | ✗ Very High    | ✓ Low      | ✗ Slow        |

# Automation Tools for Underwriters



# Build vs buy vs enable

It used to be just build vs buy

## Build

- IT builds a solution to spec
- Business provides the spec
- Cost and flexibility both maximized



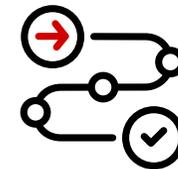
## Buy

- IT installs off-the-shelf platform
- Business customizes to desired specs
- Balance between flexibility and cost



## Enable

- No-Code Low-Code enables business to implement
- Considerable flexibility with possible cost reduction
- AI is a considerable driver in low-code no code systems



# Understand company policies

Most companies have AI policies

- Most companies will not allow you to use a personal software license for company business.
- Companies will have approved/vetted lists of AI software that you are allowed to use.
- Training and attestation may be required before using company approved AI software.
- You may be restricted on the sort of data you can use with AI tools.
- Personally Identifiable Information (PII) and Personal Health Information (PHI) often has special procedures.

Use only company-approved AI tools and follow required training and data handling procedures.

# Common individual underwriter use cases

- Document Processing & Information Extraction
  - Summarization of lengthy documents
- Risk Assessment Support
  - Query medical, internal, and regulatory documents
- Communication & Reporting
  - Meeting minutes and summarization
- Workflow Optimization
- Knowledge Management

Everyday tasks take time- AI can enhance underwriting efficiency and decision-making.

# Commonly available AI tools

- Microsoft Copilot, Agent Studio and Power Automate
- Google Documents and Gemini Tools
- ChatGPT, Claude and Gemini
- Perplexity
- Writer
- Retool



# Microsoft Copilot

What is Microsoft Copilot?

- **AI assistant integrated into Microsoft 365** – Works directly within Word, Excel, Outlook, Teams, and PowerPoint to automate routine tasks
- **Analyzes and summarizes documents instantly** – Extracts key information from medical records, applications, and financial statements in seconds
- **Generates professional content** – Drafts requirement letters, decline explanations, and case summaries from simple prompts
- **Turns data questions into insights** – Analyzes underwriting metrics and portfolios using plain English instead of complex formulas
- **Searches institutional knowledge** – Finds relevant guidelines, precedents, and prior decisions across all company documents and communications

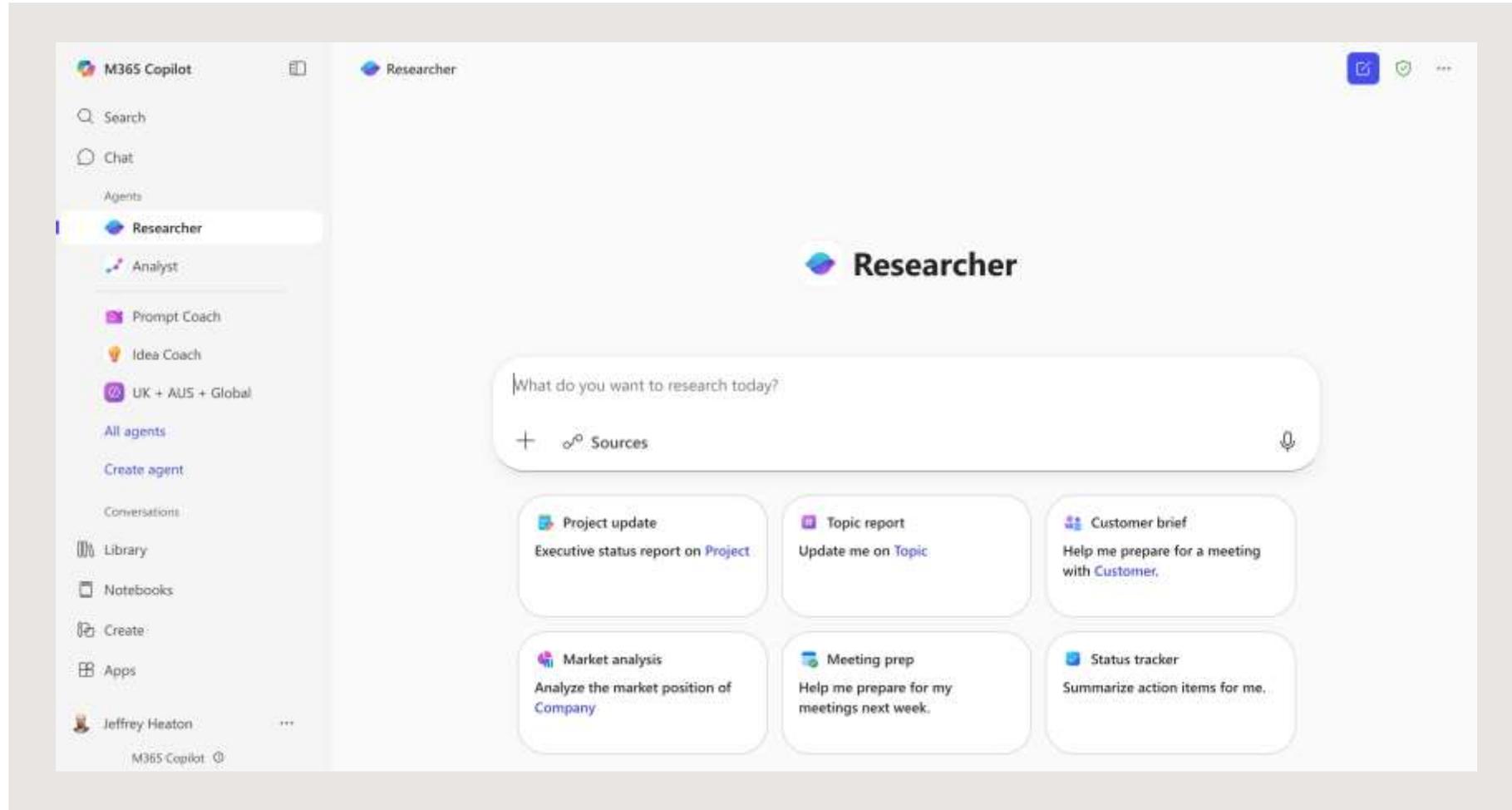
# Microsoft Copilot conventions

Copilot provides paths for five common tasks

- **Chat** – AI chat powered chat conversations.
- **Search** – AI-powered search spans all your work data and provides fast relevant results.
- **Agents** – A broad ecosystem of prebuilt agents and tools to build your own agents.
- **Notebooks** – Provides task-specific chatbots with document libraries and instructions
- **Create** – AI-generated images, posters, banners and videos aligned to brand identity.

# Microsoft Copilot

Access to chat, agents, notebooks and more



# Using chat

Ask, explore, and act in conversation

- **Conversational AI for productivity** – Ask questions, brainstorm ideas, and get instant answers in natural language.
- **Context-aware assistance** – Leverages enterprise data (emails, files, meetings) to provide tailored responses.
- **Multi-domain synthesis** – Combines insights from internal sources and external knowledge for comprehensive answers.
- **Task execution** – Draft emails, summarize documents, generate code, and create content directly in chat.
- **Interactive problem-solving** – Ideal for exploratory work, quick clarifications, and iterative collaboration.

# Using search

Find exactly what you need, fast

- **Fast, precise lookup** – Quickly find files, emails, chats, and enterprise resources.
- **Single-source retrieval** – Pull exact items without conversational back-and-forth.
- **Keyword-driven results** – Ideal for known terms, names, or document titles.
- **Enterprise-wide visibility** – Search across organizational data securely.
- **Best for locating, not reasoning** – Focused on finding content, not generating insights.

# Agents and Notebooks

Agents automate; Notebooks explore

- **Agents = Automation** – Purpose-built AI assistants that execute repeatable tasks and workflows.
- **Notebooks = Exploration** – Interactive workspace for organizing prompts, code, and outputs.
- **Agents are structured** – Designed for consistent, predefined inputs and outputs.
- **Notebooks are flexible** – Ideal for experimentation, documentation, and collaboration.
- **Key difference** – Agents run processes for you; Notebooks help you think, iterate, and share.

# Microsoft Copilot agents

Agents provided by Microsoft

**Built by Microsoft**

|   |   |  |
|---|---|--|
|  <b>App Builder (Frontier)</b><br>Transform your idea into an app.<br>No coding required.          |  <b>Workflows Agent (Front...</b><br>Build workflows with natural<br>language, no code needed. |  <b>SharePoint page agent</b><br>SharePoint page agent automates<br>news posts or pages creation. |
|  <b>People (Frontier)</b><br>Build connections, prepare for<br>interactions, and find the right... |  <b>Learning (Frontier)</b><br>Upskill in AI and other areas with<br>personalized learning...  |  <b>Surveys</b><br>Surveys agent automates survey<br>creation, distribution, and analysis.        |
|  <b>Skills (Frontier)</b><br>Find experts, areas to upskill, and<br>more.                          |  <b>Researcher</b><br>With Researcher, now every<br>employee has access to expertis...         |  <b>Analyst</b><br>Perform complex data analysis<br>over files in a variety of formats.           |
|  <b>Prompt Coach</b><br>Write and improve your prompts  |  <b>Idea Coach</b><br>Plan and navigate the<br>brainstorming process                          |  <b>Writing Coach</b><br>Take your writing to the next level<br>with Writing Coach               |
|  <b>Learning Coach</b><br>Unlock your potential with<br>Learning Coach                           |  <b>Career Coach</b><br>Elevate your career with Career<br>Coach                             |  |

# Meta prompting

- Meta Prompting is in many ways replacing Prompt Engineering
- Prompt Engineering is a moving target and varies by LLM
- Meta prompting is when you ask the chatbot to help improve your prompt
- Most LLMs can offer advice specific to themselves
- Microsoft Copilot provides a Prompt Coach

Metaprompting amplifies AI effectiveness.

Clear, structured prompts lead to better, safer, and more accurate outputs.

When should you use  
AI-assisted writing?



# When should you use AI-assisted writing?

Good judgement is needed when using AI writing and content

## YES

- Be careful of “AI Slop”
- Assist with correspondence
- Meeting minutes and summaries
- Can be used in a wide array of cases, but always double check

## NO

- Never represent AI writing as your own
- Published articles
- Academic writing
- Search engines detect and penalize AI writing

# How detectable is AI writing?

Regular Human Written Text (analyzed with GPTZero)

The screenshot displays the GPTZero AI Detection interface. On the left, a document titled "Untitled Docum..." contains three paragraphs of text. The first paragraph discusses AI in underwriting, the second discusses traditional data science models, and the third discusses GenAI techniques. The right sidebar shows the "Advanced scan" results, indicating the text is "human" with 100% confidence. A probability breakdown shows 0% AI generated, 0% Mixed, and 100% Human. Below this, there are sections for "AI Sentences" and "AI Vocab", "Advanced Sentence Scanning" with a bar chart, and "Top sentences driving Human probability" with a list of sentences.

Advanced scan  
Give feedback

human

GPTZero AI Detection Model 3.14b

We are highly confident this text is entirely human

Probability breakdown

0% AI generated 0% Mixed 100% Human

AI Sentences AI Vocab

Advanced Sentence Scanning

Sentences most impacting the probability score.

AI Human

Top sentences driving Human probability

High Human impact

Starting with models that were designed to predict the...

Scan to update results  
1,743 characters 270 words

Scan →

# How detectable is AI writing?

GPTZero vs Copyedited with "careful" AI (corrections provided by Grammarly)

The screenshot displays the GPTZero AI Detection interface. On the left, a document titled 'Untitled Docum...' is open, containing text about artificial intelligence in underwriting. The text is highlighted in green. On the right, the 'Advanced scan' results are shown. A green circle with the word 'human' inside indicates the detection result. The text states: 'We are highly confident this text is entirely human'. Below this, a 'Probability breakdown' shows '0% AI generated', '0% Mixed', and '100% Human'. There are buttons for 'AI Sentences' and 'AI Vocab'. The 'Advanced Sentence Scanning' section shows a bar chart with a green bar representing the probability score. The 'Top sentences driving Human probability' section lists 'Starting with models that were designed to predict the...'. At the bottom, there is a 'Scan' button and a note: 'Scan to update results 1,667 characters 256 words'. The interface also includes a 'Tell us what you think' button, a '222K credits of 300K remaining' indicator, and a user profile picture.

# How detectable is AI writing?

## GPTZero vs Human Writing Improved by AI

The screenshot displays the GPTZero AI Detection interface. On the left, a document titled "Untitled Docum..." is open, showing a paragraph of text about artificial intelligence in life insurance underwriting. The text is highlighted in yellow, indicating it was detected as AI-generated. The right sidebar shows the "Advanced scan" results, including a probability breakdown of 100% AI generated, 0% Mixed, and 0% Human. Below this, there are sections for "Advanced Sentence Scanning" and "Too sentences driving AI probability".

Artificial intelligence has been part of life insurance underwriting for years, mostly in the form of predictive models that estimate the risk of issuing a policy. Data scientists build these models by combining historical application information—health questionnaires, lab values, medical histories, prescription data, and other third-party evidence—and training on known outcomes (for example, claims experience or observed mortality). Once trained, the models can be applied to new applications where outcomes are not yet known, producing a risk score that reflects the likelihood of adverse experience relative to the insurer's portfolio.

Classic underwriting models tend to perform best with tabular data: information that fits neatly into rows and columns like a spreadsheet. This data is often numeric (age, BMI, cholesterol, blood pressure) with a smaller set of categorical fields (e.g., smoker / non-smoker / former smoker). The challenge is that a meaningful share of underwriting evidence is unstructured—doctor's notes, attending physician statements (APS), narrative summaries, and free-text explanations—where key facts are embedded in paragraphs, abbreviations, and context. Traditional techniques can use this kind of text, but they often require significant feature engineering, coding effort, and ongoing maintenance to keep pace with evolving language and medical documentation practices.

Generative AI (GenAI) introduces practical new ways to convert unstructured underwriting evidence into structured, model-ready signals. Rather than relying on a single prompt to assign an "overall risk" (which is typically too generic and may not align with a carrier's underwriting manual, philosophy, and appetite), GenAI is more effective when used in targeted, constrained tasks. For example, it can extract clinical entities (conditions, dates, severity, treatments), identify relevant impairments and red flags, normalize terminology, and produce consistent summaries of doctor's notes. Those outputs—ideally returned in a structured format with clear source references—can then be incorporated as additional

In practice, this positions GenAI as an augmentation layer: improving data completeness.

Advanced scan  
Give feedback

222K credits of 300K remaining

GPTZero AI Detection Model 3.14b

We are highly confident this text was AI generated

Probability breakdown

100% AI generated 0% Mixed 0% Human

AI Sentences AI Vocab

Advanced Sentence Scanning

Sentences most impacting the probability score.

Why is this text AI like?

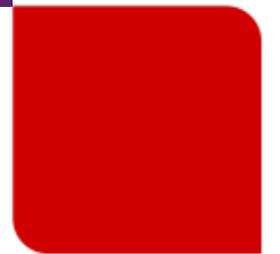
Compare to ChatGPT Text

Too sentences driving AI probability

Scan to update results  
2,750 characters 372 words

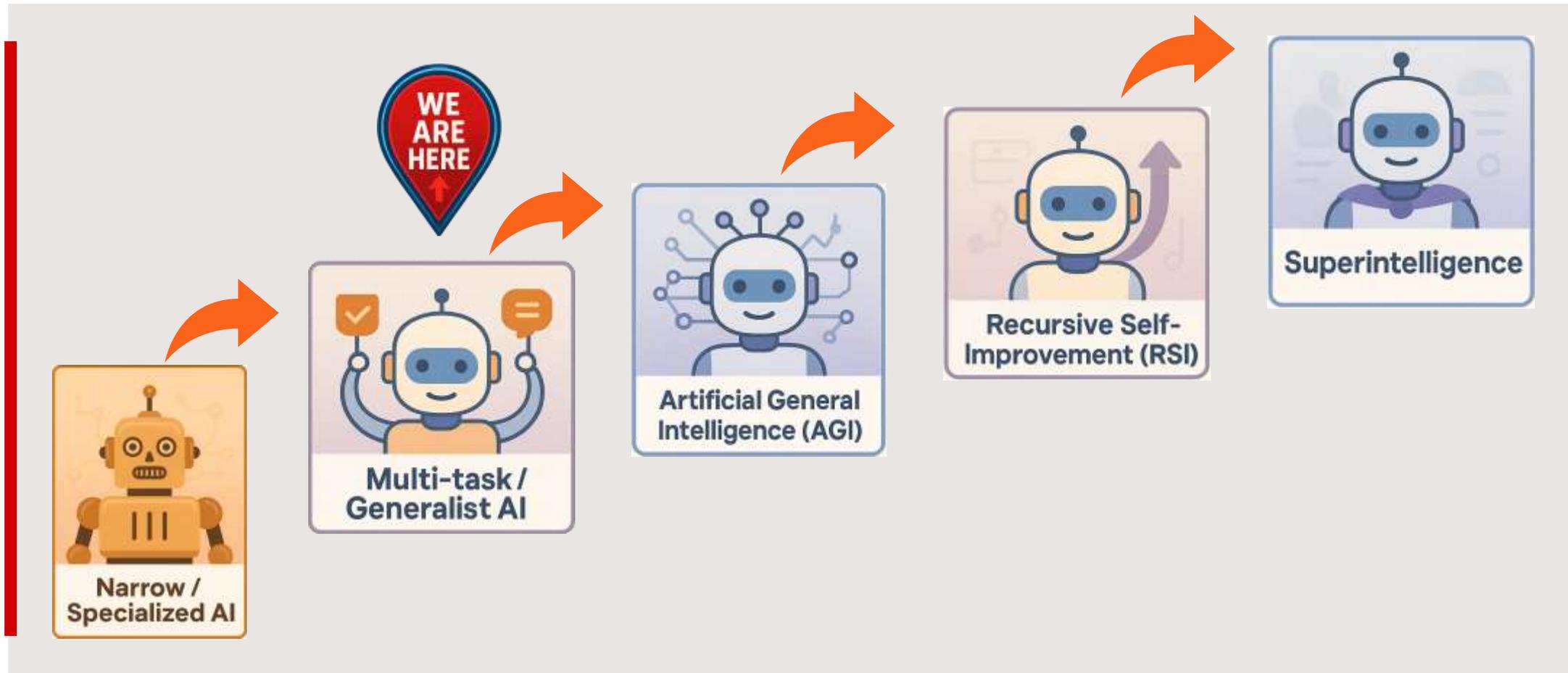
Scan

What does the  
future hold?



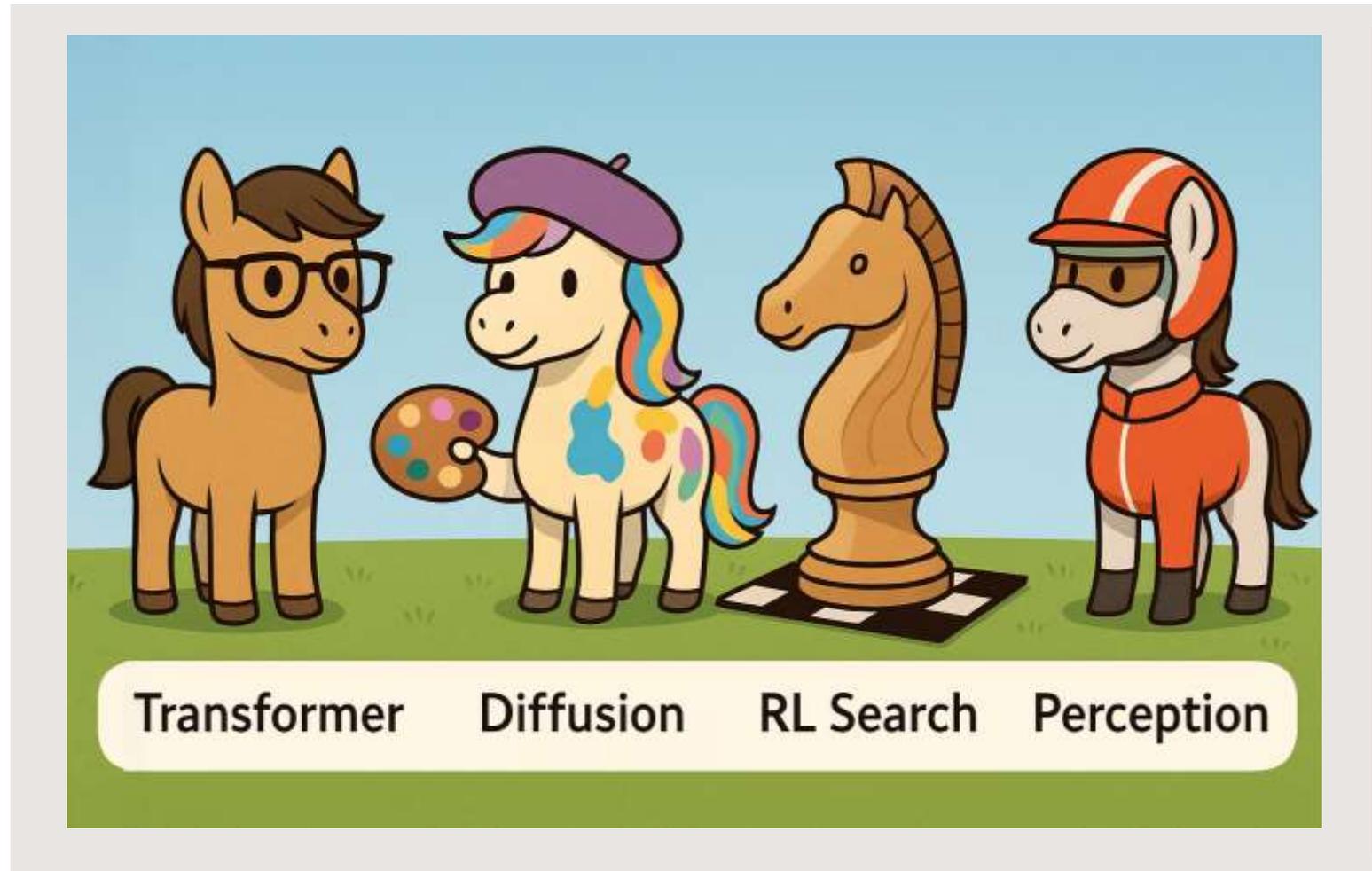
# The march to superintelligence

AI is progressing several steps to superintelligence



# Modern AI is run by multiple “one trick ponies”

AGI will unify these to one single model



# Human brains vs GPUs

Human brains and GPUs are very different

|                         | Human Brain                      | H100 GPU  |
|-------------------------|----------------------------------|---|
| <b>Power Needed</b>     | 20 Watts                         | 350-700 Watts   |
| <b>Weight</b>           | 1.4 kg                           | 1.7 Kg  |
| <b>Volume</b>           | 1.4 L                            | 1.1 L   |
| <b>Weights/Synapses</b> | 100 to 1,000 trillion            | ~50.5 B (BF16/FP16)   |
| <b>Production</b>       | 2 parents, food/water, 9 months, | rare-earth mining, semiconductor fabs, nm-scale photolithography, multi-stage packaging, and precision assembly |
| <b>Parallelism</b>      | ~ $10^{14}$ synapses firing      | 10s of thousands of CUDA cores (~16k)   |
| <b>Longevity</b>        | ~80 years                        | 3-5 years before replacement/obsolescence   |
| <b>Self-Repair</b>      | neuroplasticity                  | None, replace   |
| <b>Cluster Size</b>     | 1                                | 8   |



Trusted partner.  
Proven results.

©2026 RGA. All rights reserved.

No part of this publication may be reproduced in any form without the prior permission of RGA.

The information in this publication is for the exclusive, internal use of the recipient and may not be relied upon by any other party other than the recipient and its affiliates, or published, quoted or disseminated to any party other than the recipient without the prior written consent of RGA.