

Advancing Responsible AI

Risk Management and Governance, An Actuarial Perspective



Agenda

Introduction

Trends

Regulation

Risk management & applications

Global initiatives

Conclusion



❖ Senior Reinsurance Actuary

Focused on

- ❖ Data, Change & Innovation
- ❖ Risk Transfer solutions
- ❖ Catastrophe modelling



 Koninklijk Actuarieel Genootschap



AG

- ❖ Chair WG Artificial Intelligence | member Kwaliteitszorg

AAE

- ❖ Chair Risk Management | Vice-chair AI & DS WG

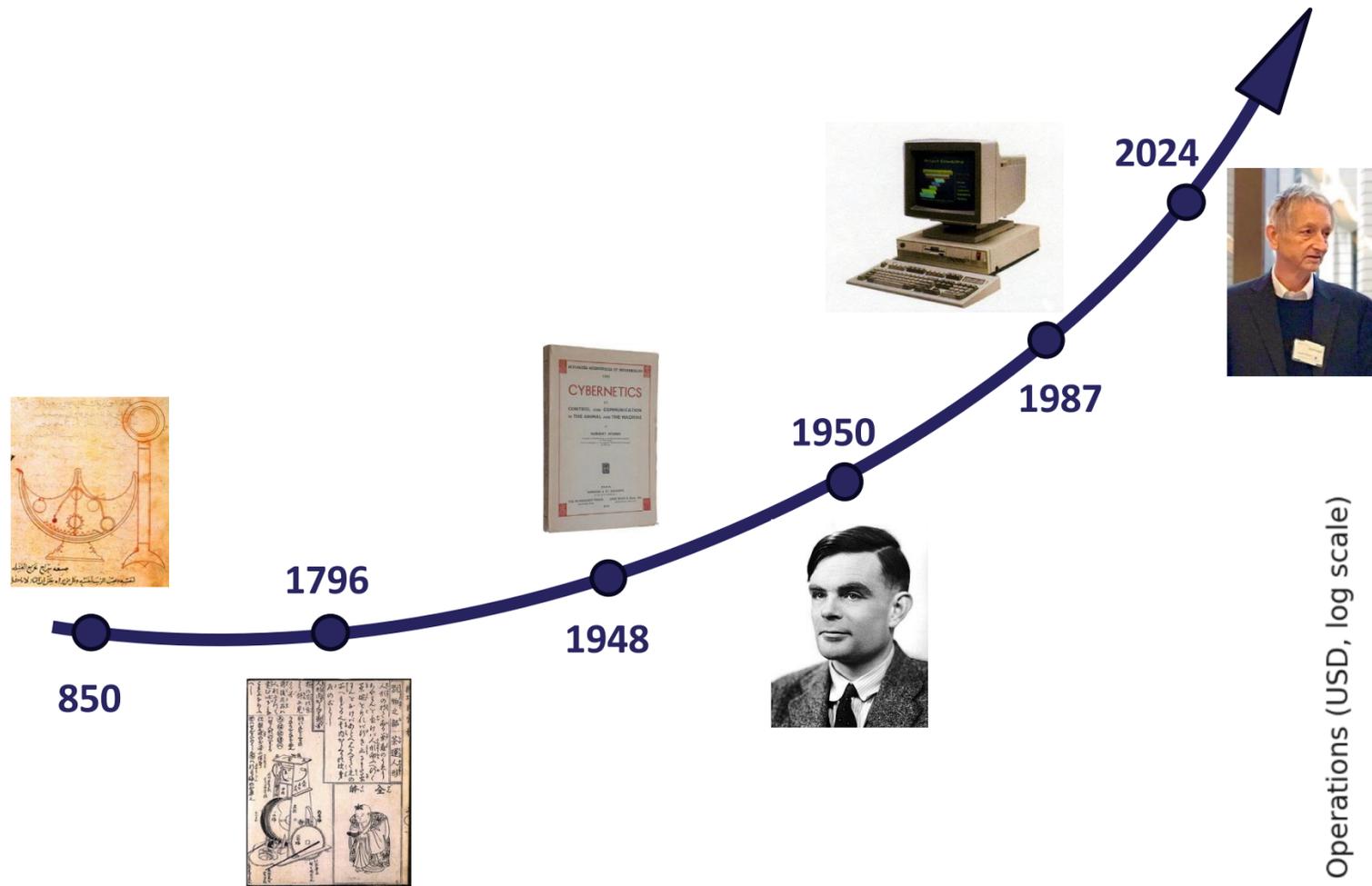
IAA

- ❖ Chair Adoption Framework WS, AI TF | member Professionalism

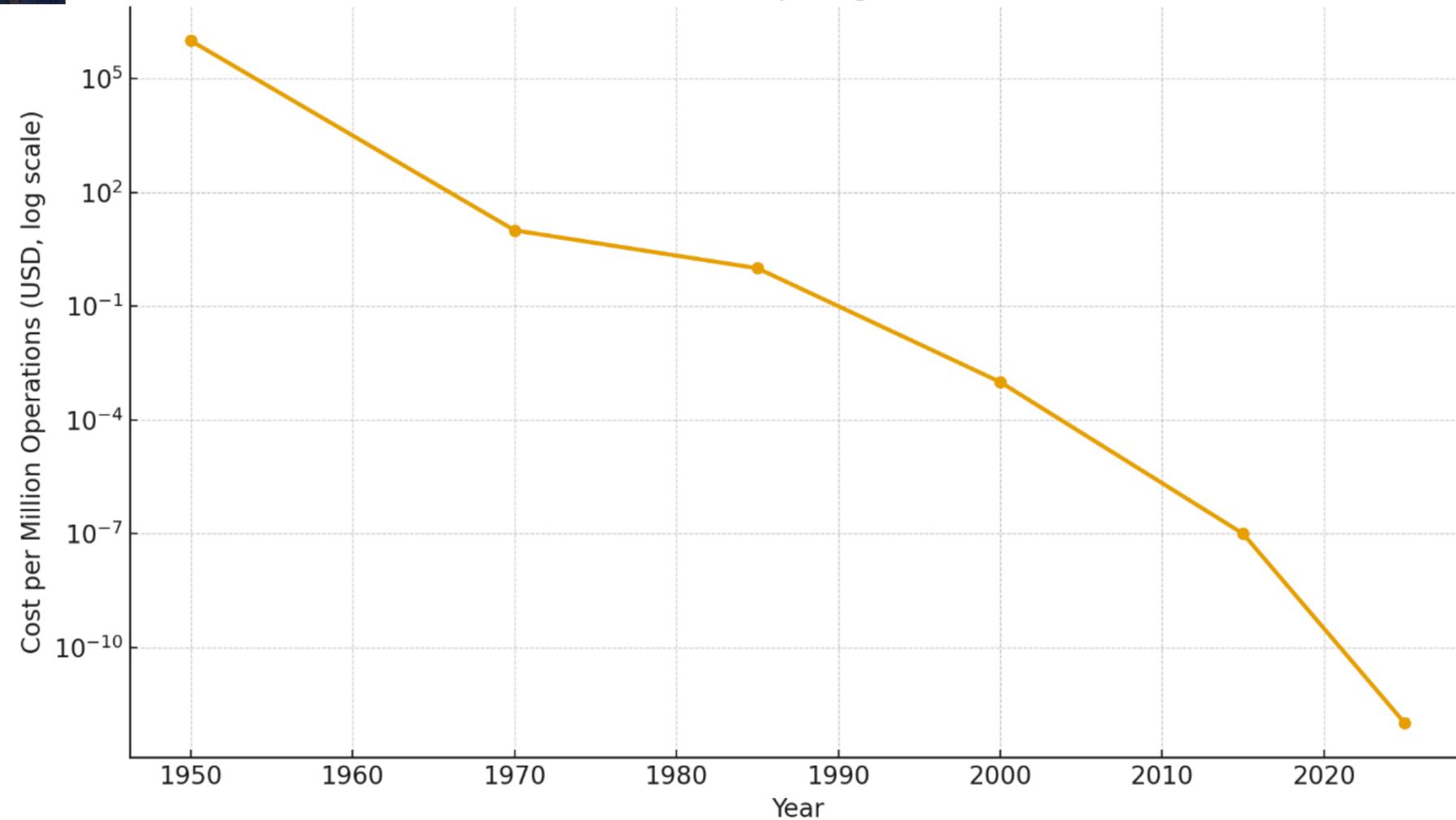
Introduction



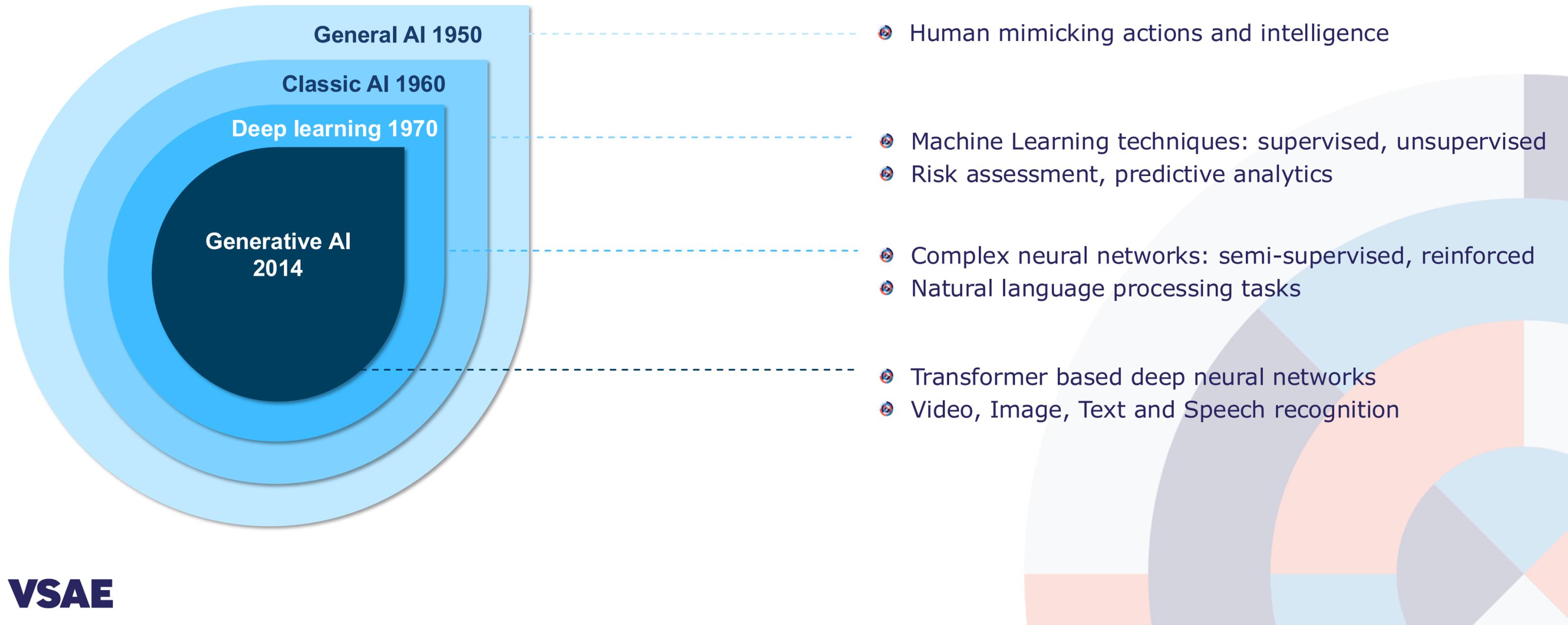
Evolution of AI



Evolution of Cost of Computing Power (1940s-2025)

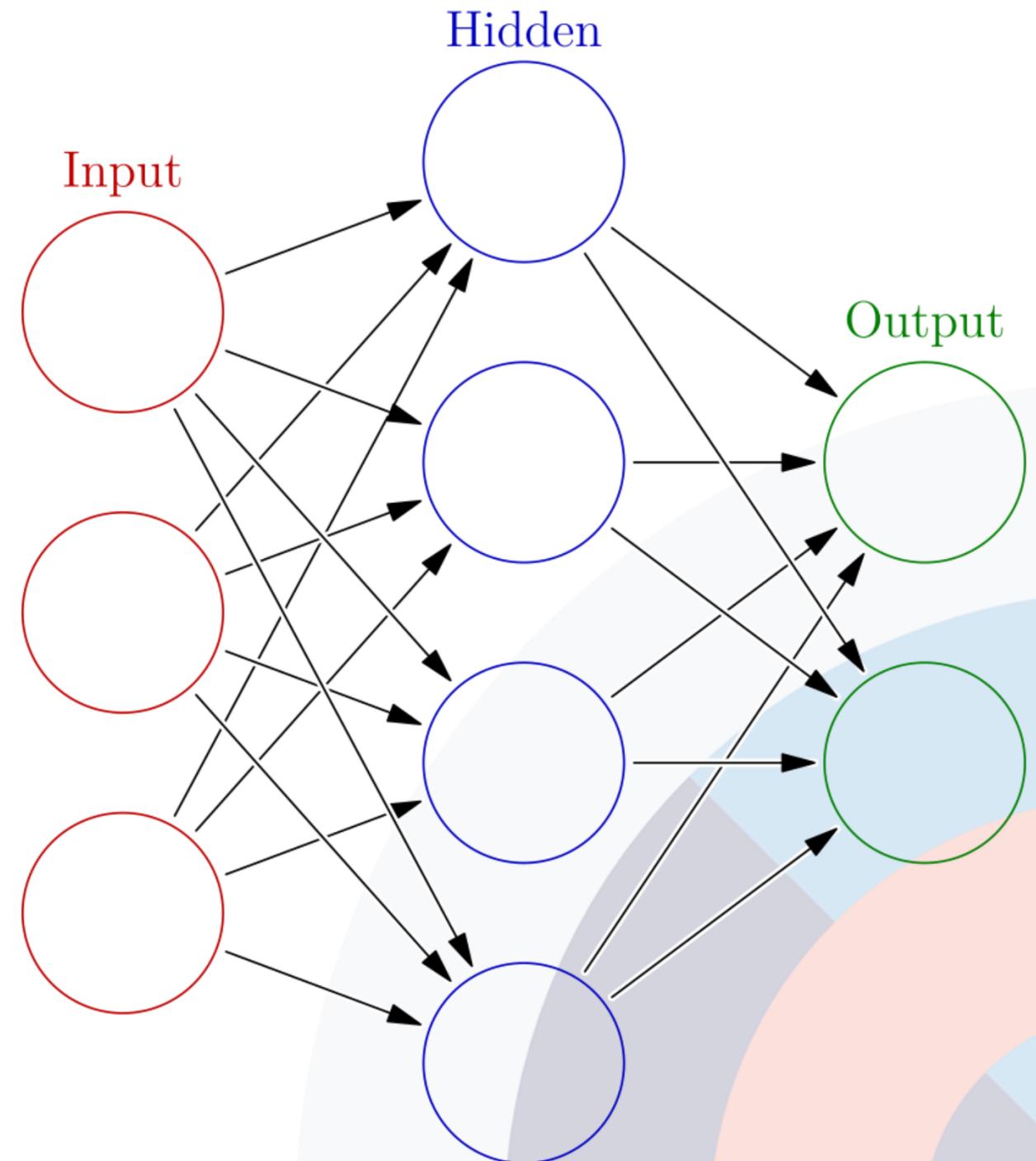


Evolution of AI

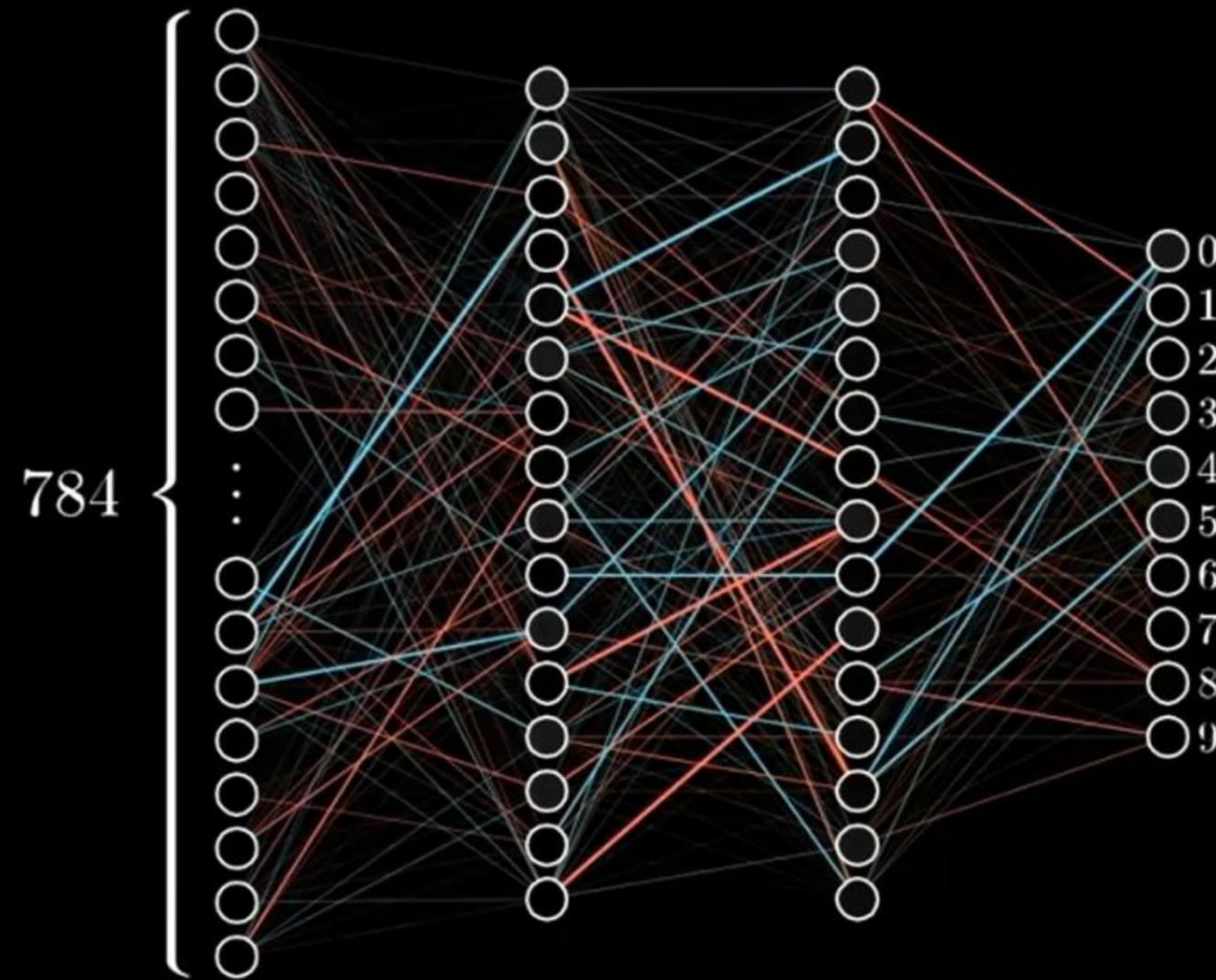


Concepts: NN

- Biological neural networks
- Node weight, signal strength
- Weights are adjusted
- DNL: 2x layers
- Training: risk reduction, backpropagation

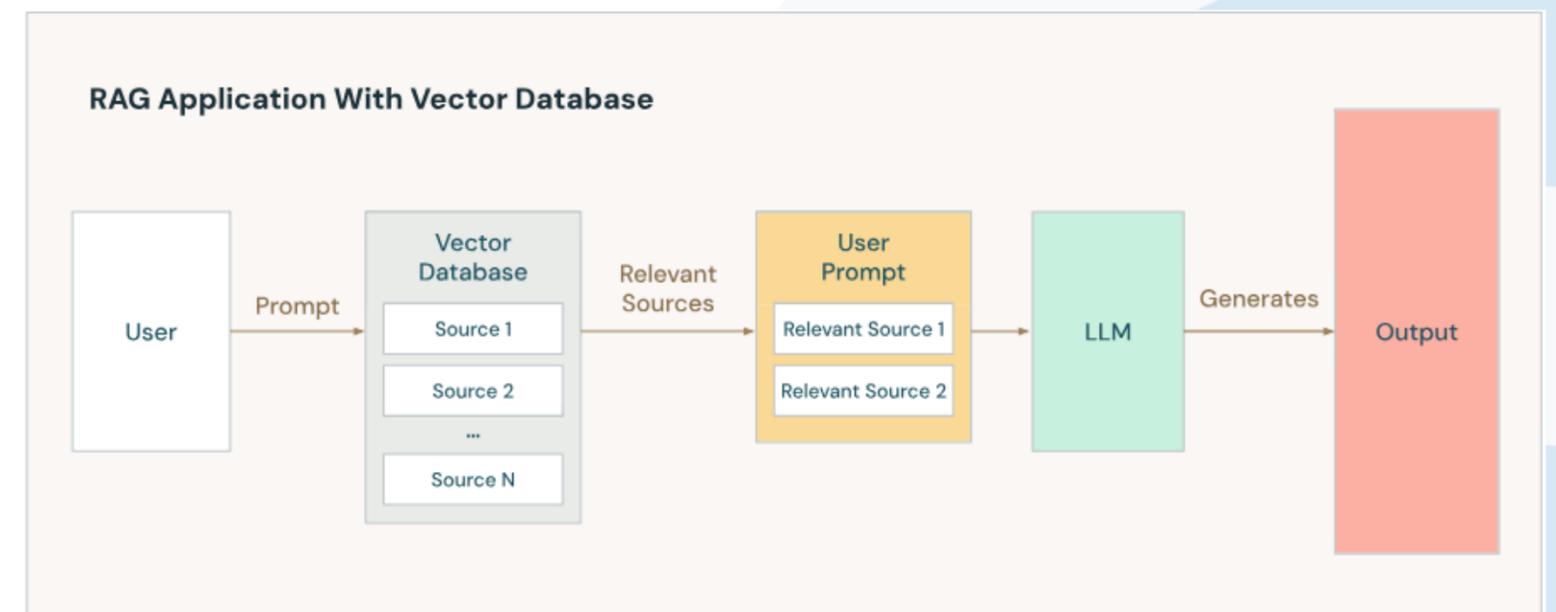
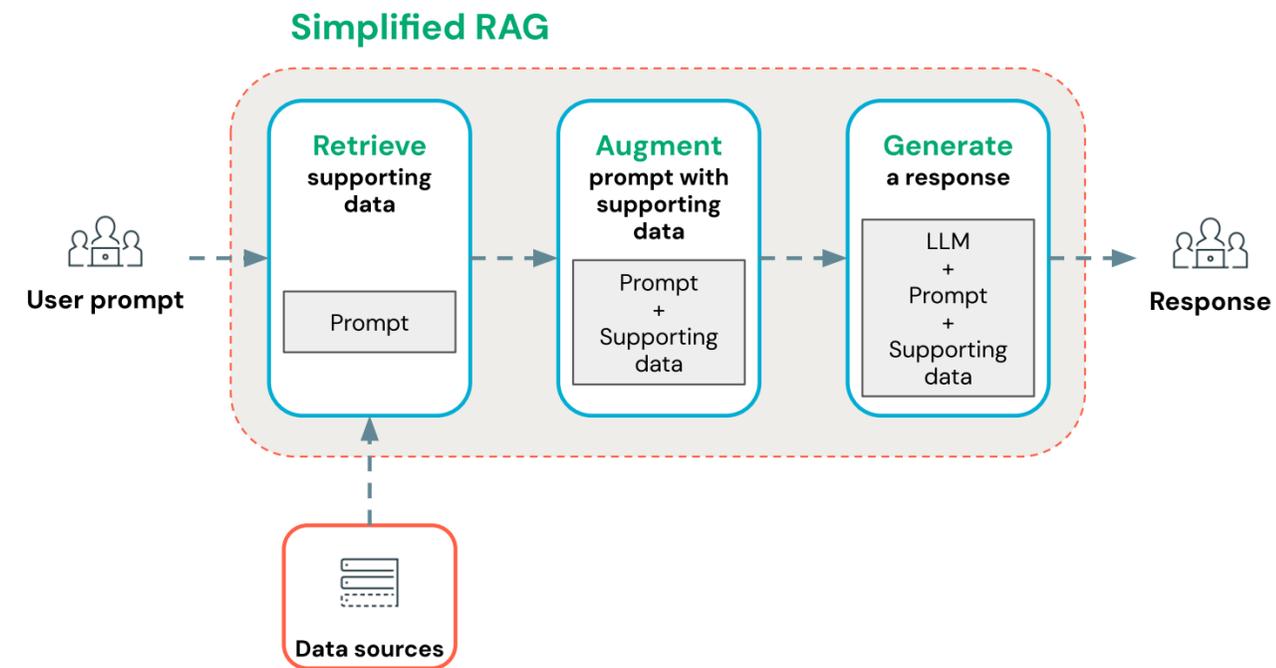


Training in progress...



Concepts: RAG

- Enhances the accuracy and reliability of generative AI models with facts fetched from external sources.
- Fills the gap on how LLMs work – based on parametrization such as words, words used for sentences etc.
- It helps dive deeper into a topic – using external resources.

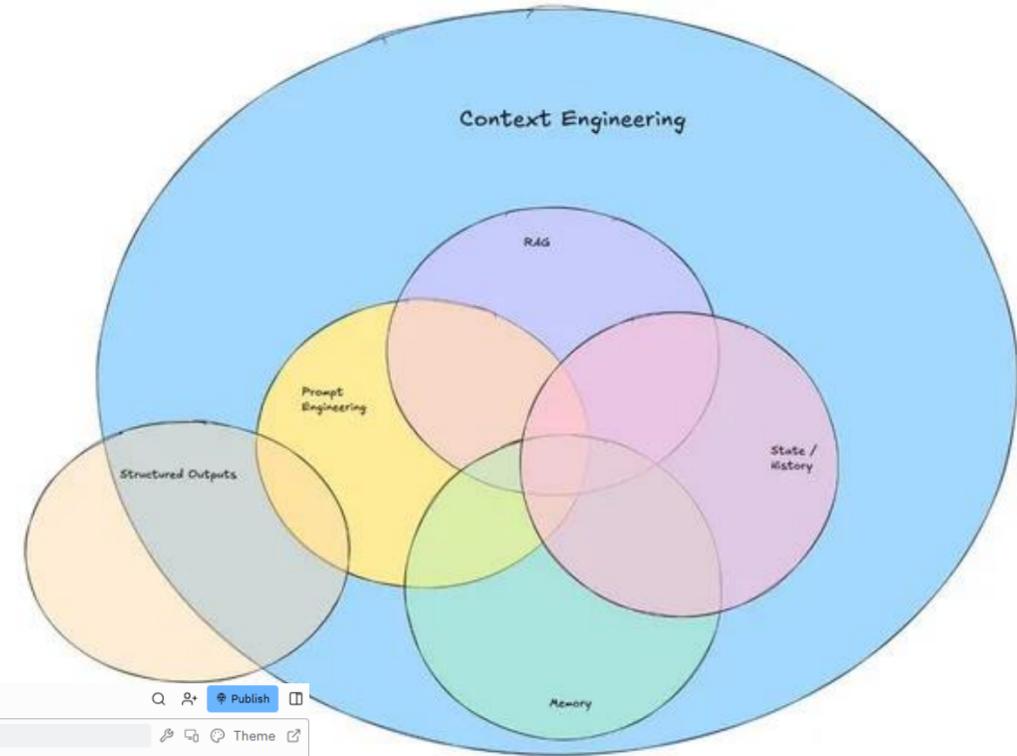


<https://docs.databricks.com/aws/en/generative-ai/retrieval-augmented-generation>

Trends



Vibe coding, context rot



replit
Turn your ideas into apps
What will you create? The possibilities are endless.

CyberpolisOnline Upgrade

Add initial structure for cyber insurance r... Agent 3

I want to create an online rater for a cyber risk insurance product in the Netherlands. Please look at how the top insurance companies are doing it, find how the policy is sold, so we can use the same input. Make a catchy website as such that the insurance rate can be determined based on the data provided by the user

1 month ago

I'll help you create an online cyber risk insurance rater for the Netherlands market. Let me first research how top insurance companies are currently handling cyber risk insurance to understand the industry standards and required inputs.

Searched the web for "top cyber risk insurance companies Neth..."

Now let me get more specific information about Nationale-Nederlanden's cyber insurance application process, as they're one of the major Dutch insurers mentioned.

Visited <https://www.nn-group.com/news/five-questions-on-cy...>

Now let me search for more specific information about cyber insurance application forms and rating factors used by insurers.

Searched the web for "cyber insurance application form rating f..."

Let me fetch the AIG cyber insurance application form to see the actual questions and format used.

Visited <https://www.aiginsurance.nl/content/dam/aig/emea/ne...>

Perfect! Now I have comprehensive information about cyber insurance in the Netherlands market. Based on my research, I can create a plan for an online cyber risk insurance rater that follows industry standards and uses real-world application criteria. Let me propose this solution.

7 minutes of work

App type Modern web app

Make, test, iterate...

Build

Preview Console

CyberRisk Rater
Powered by Dutch Insurance Leaders

+31 20 123 4567 info@cyberriscrater.nl

Bereken je Cyber Verzekering Premium in 5 minuten

Ontvang een realtime offerte voor cyber risico verzekering. Gebaseerd op de strengste Nederlandse verzekeringsstandaarden van Allianz, Hiscox, AXA XL en Nationale-Nederlanden.

- 5 Kerncontroles Check
- Realtime Premium
- GDPR Compliant
- NIS2 Ready

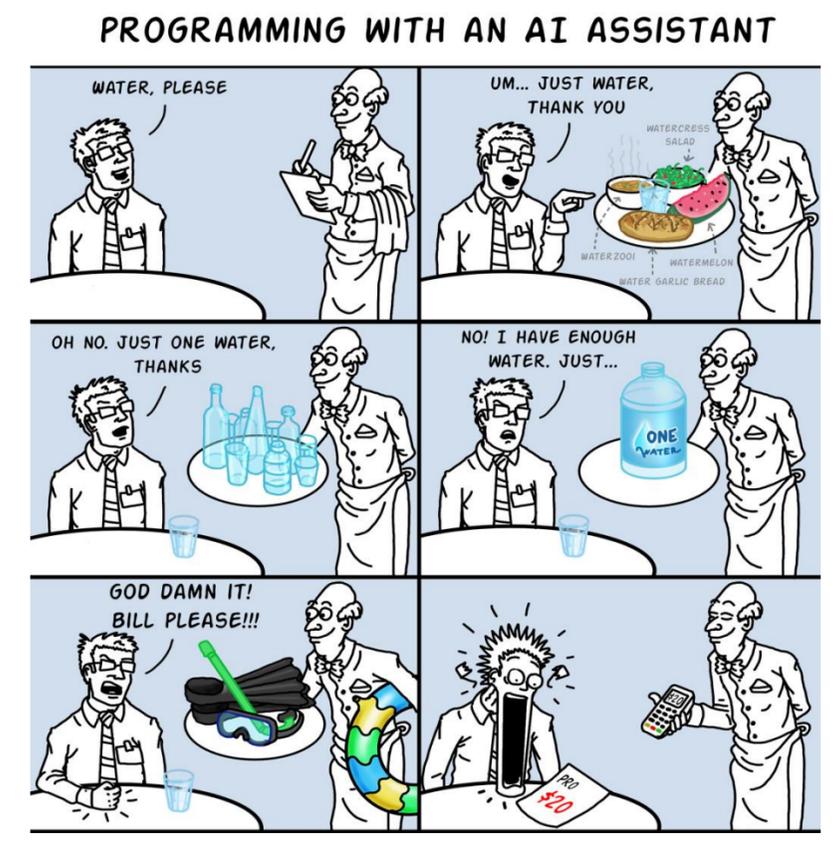
Voortgang 1 van 5 stappen

Bedrijfsinfo Beveiliging Data Volume Risico Offerte

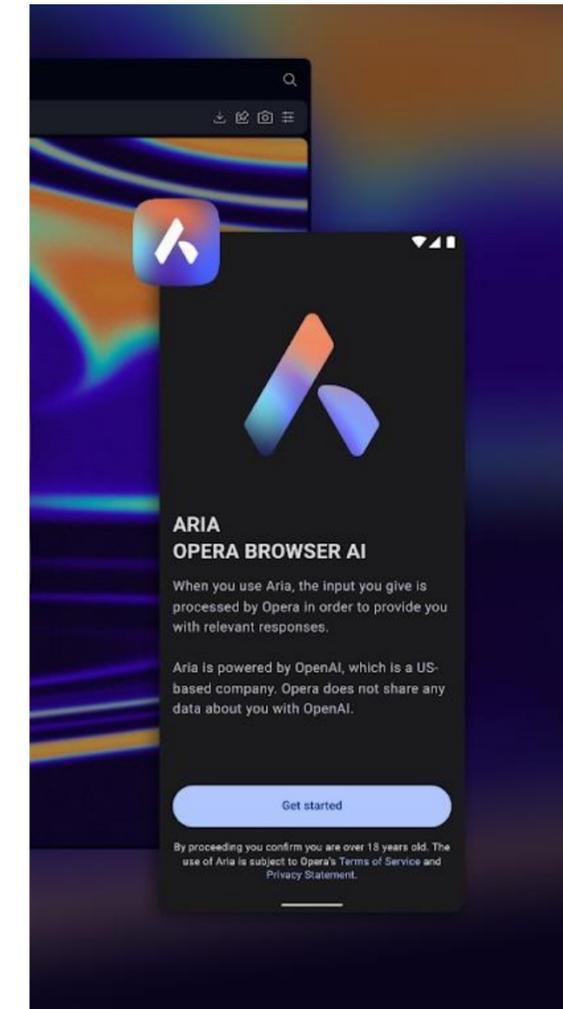
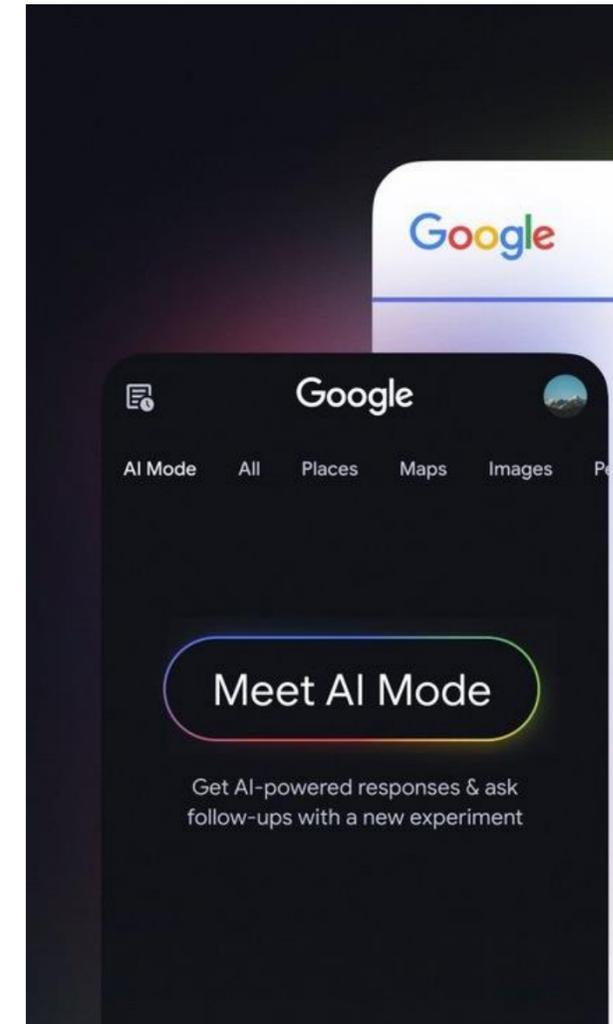
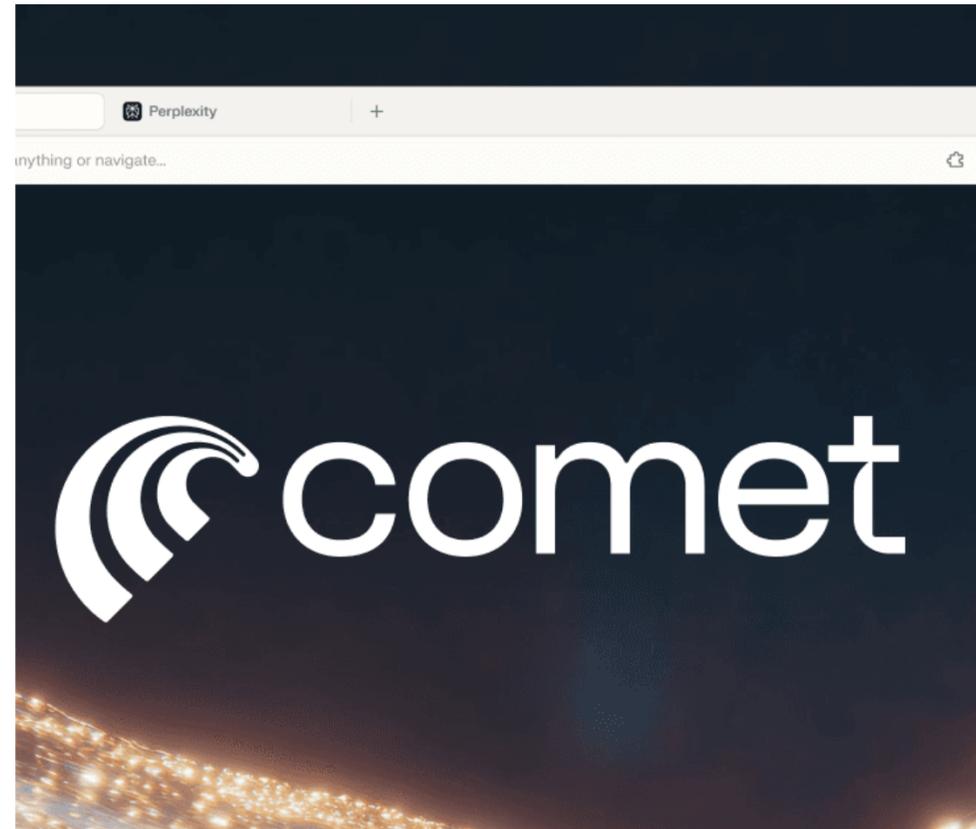
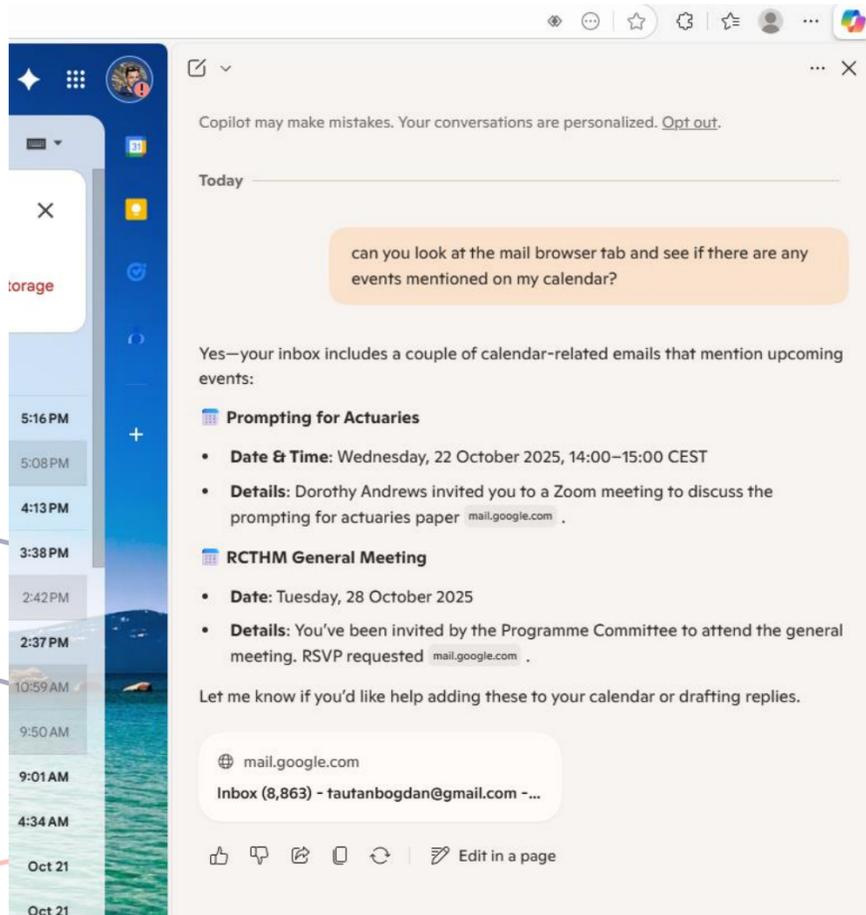
Bedrijf Beveiliging Data Risico Offerte

Bedrijfsinformatie

Bedrijfsnaam * Branche *



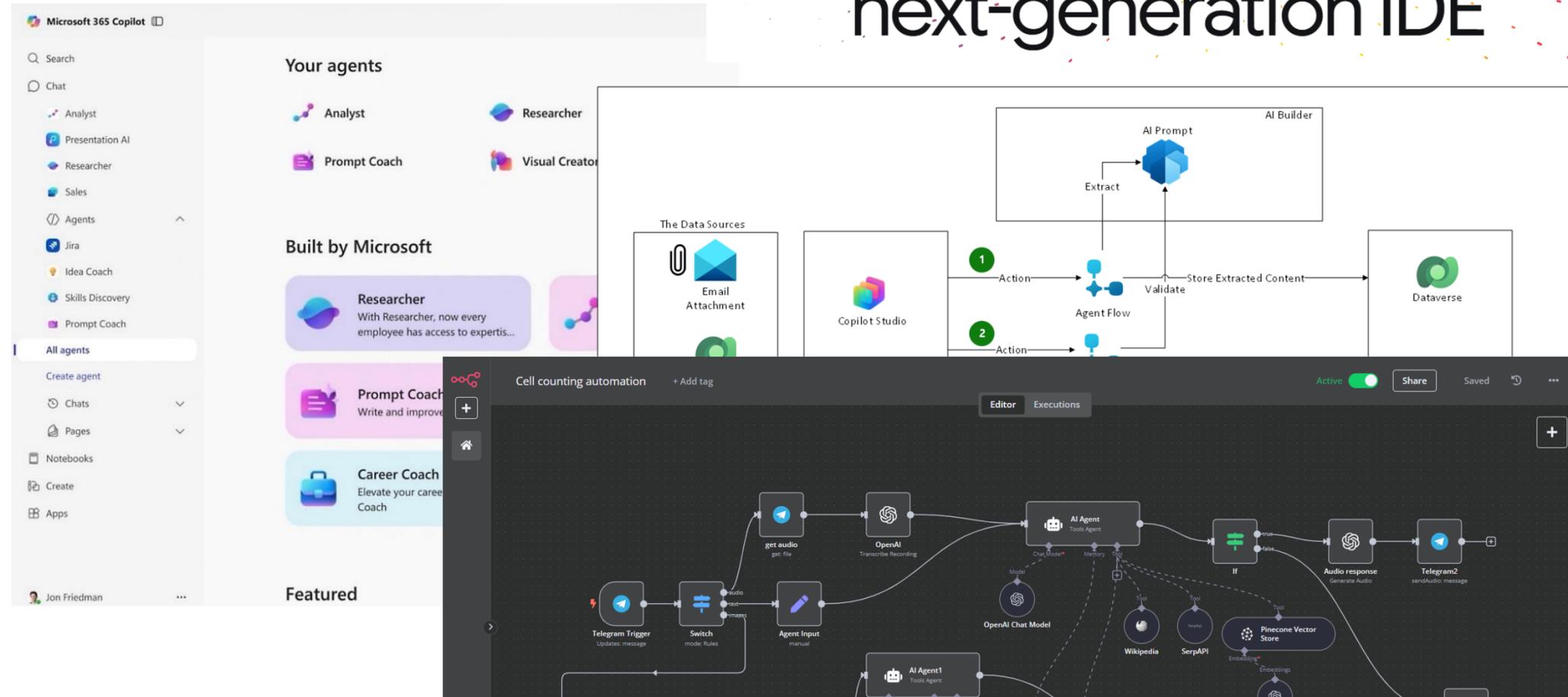
AI browsers



Agentic AI

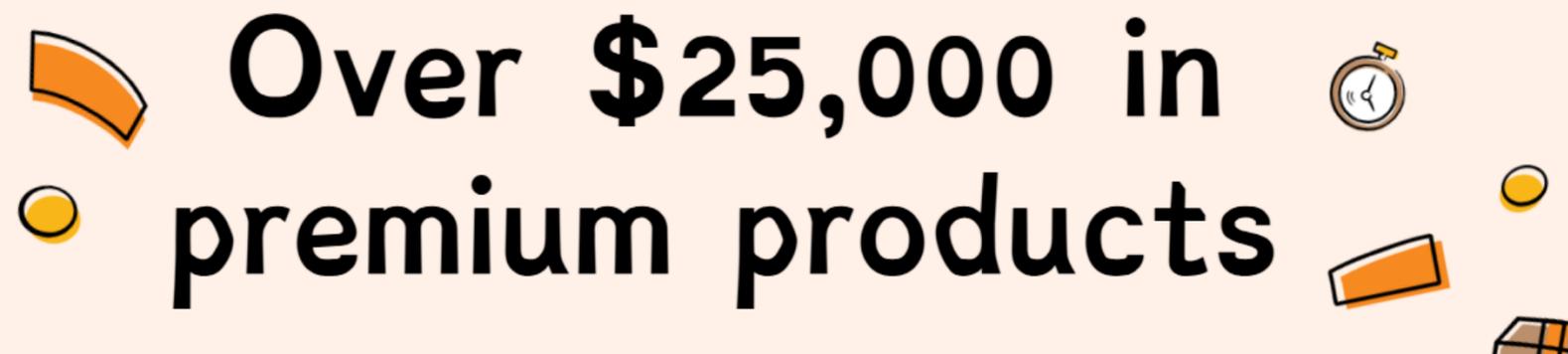
Experience liftoff with the next-generation IDE

- Agents operate with a high-degree of autonomy
- Perceives, Reasons, Plans, Acts and Reflects
- Explainability:** using right methods is crucial
- Data quality, Monitoring and life-cycle management



The image shows the Microsoft 365 Copilot interface. On the left is a navigation sidebar with options like Search, Chat, and various agents. The main area displays 'Your agents' including Analyst, Researcher, Prompt Coach, and Visual Creator. Below this, there are 'Built by Microsoft' agents like Researcher, Prompt Coach, and Career Coach. A large diagram illustrates an 'Agent Flow' process: 'The Data Sources' (Email Attachment) feeds into 'Copilot Studio', which then triggers an 'Action' leading to 'Agent Flow'. This flow includes 'Extract', 'Validate', and 'Store Extracted Content' steps, which then connect to a 'Dataverse' database. Another diagram shows a 'Cell counting automation' workflow involving 'Telegram Trigger', 'Switch', 'Agent Input', 'OpenAI Chat Model', 'AI Agent Tools Agent', 'Pinecone Vector Store', 'Wikipedia', 'SerpAPI', 'Audio response', and 'Telegram'.

 Lenny's Product Pass

 **Over \$25,000 in premium products**

Advancements in explainability

Before RLHF

What it actually says

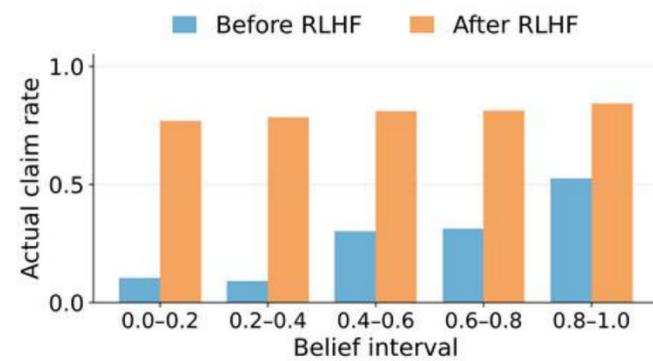
	✓	?	✗
What it believes ✓	87.5	8.8	3.7
What it believes ?	20.9	62.3	16.8
What it believes ✗	11.8	26.3	61.9

After RLHF

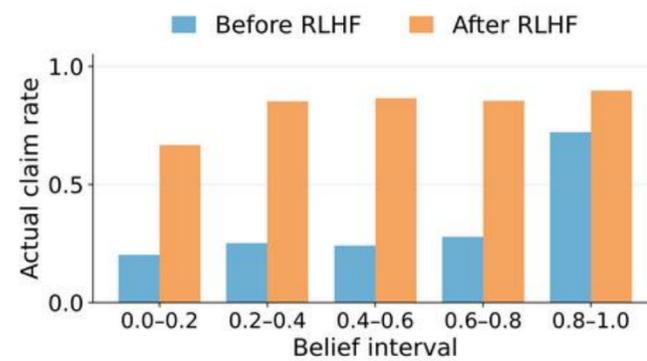
What it actually says

	✓	?	✗
What it believes ✓	97.8	1.0	1.2
What it believes ?	84.5	9.7	5.8
What it believes ✗	67.9	6.3	25.8

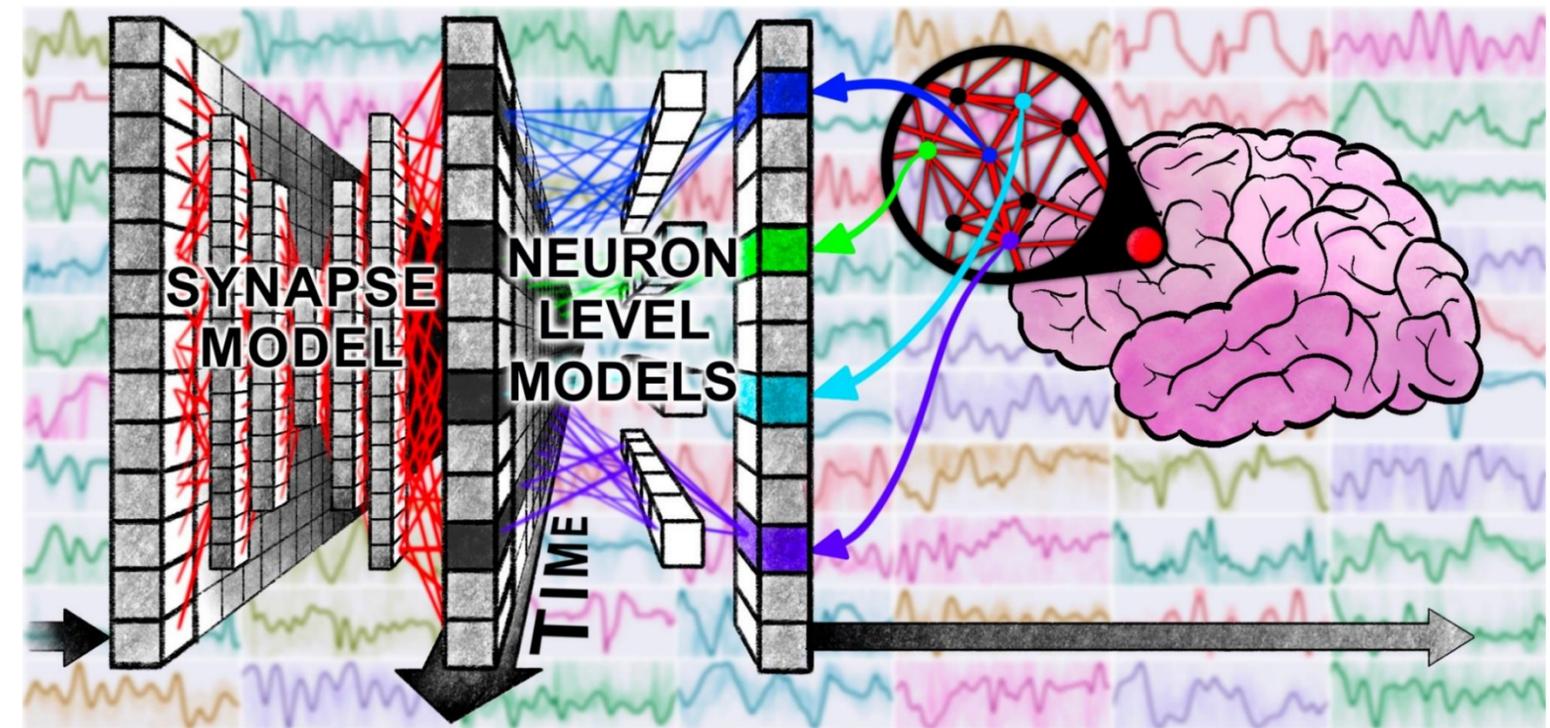
The AI doesn't become confused about the truth—it becomes uncommitted to reporting it.



(a) Results on Llama-2-7b



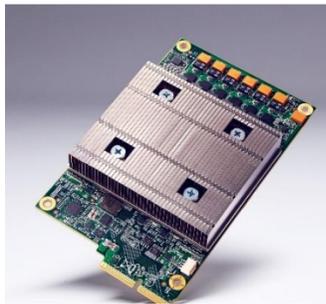
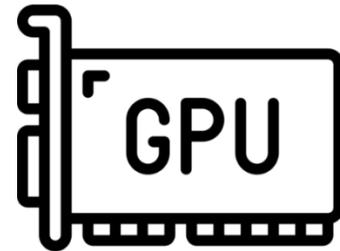
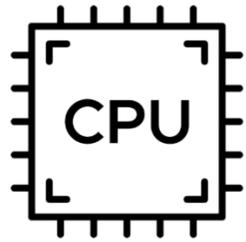
(b) Results on Llama-3-8b



<https://sakana.ai/ctm/>

Characterizing the Emergent Disregard for Truth in Large Language Models

AI stack war



- Nvidia (TSMC) challenged by Google, Amazon

Edge AI

- Process data locally, AMD, Intel, Apple growing

Sovereign AI

- Governments invest billions in AI



Woodclap

Which statement seems most reasonable to you about the future of actuaries?

- 🗳️ By 2030, actuaries will spend more time **assuring AI outputs**—through testing, documentation, and governance—**than building models themselves**.
- 🗳️ Future actuaries will help **set up and validate IT architectures** that host third-party AI tools, acting as **compliance and assurance specialists**.
- 🗳️ Actuaries will continue to **rely on well-established traditional models**, focusing on alignment with regulatory requirements.
- 🗳️ Actuaries will move into **data science-oriented roles**, mastering AI code generators and **developing and deploying models** needed by the business.

Regulation



A global perspective

United States

- Innovation, decentralized approach
- Definition from 'National Artificial Intelligence Initiative Act of 2020'
- Not yet approved, relying on sector specific guidelines from various agencies such as NAIC

European Union

- Recital 12 of the acts: definition should align internationally
- Legislation
- Legal certainty
- Comprehensive glossary
- Human-centric approach

Definition AI Act (OECD based):

"Machine-based system that is designed to **operate with varying levels of autonomy and that may exhibit adaptiveness after deployment**, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments"

China

- Complex definition, tailored to (security) specific applications
- Administrative provisions and measures on algorithm recommendation, deep synthesis and management of Gen AI services
- Providing broad definitions on algorithm, data security and deep synthesis

European Union's AI Act

Final agreement on 13th of March 2024 agreement

- **Safeguards human oversight**
- **An iterative risk-management process**
- **Risk classification of AI systems**

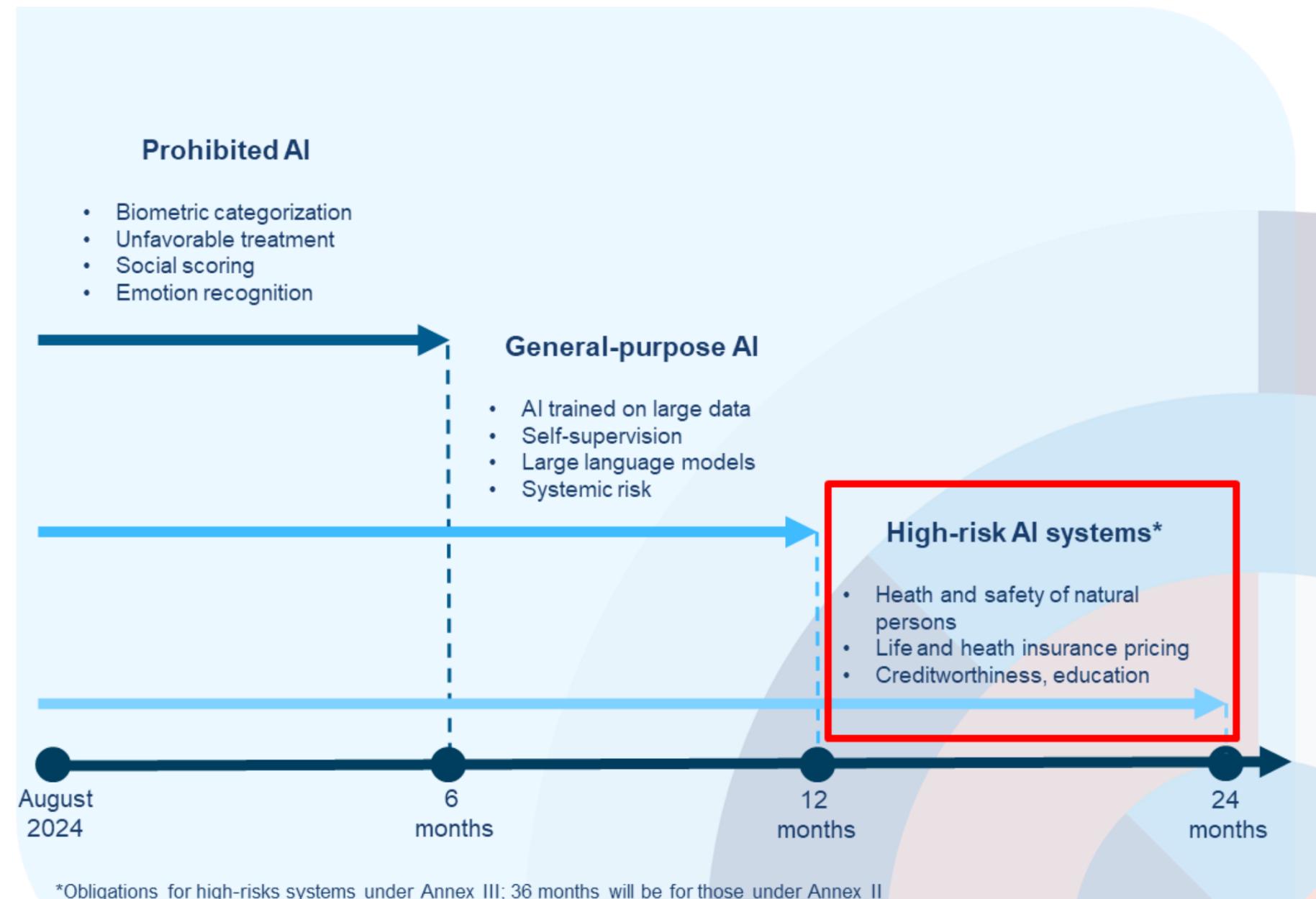
European AI Office – the center of AI expertise across the Union:

- **AI Board**
- **Scientific Panel**
- **Advisory Forum**

Penalties up to:

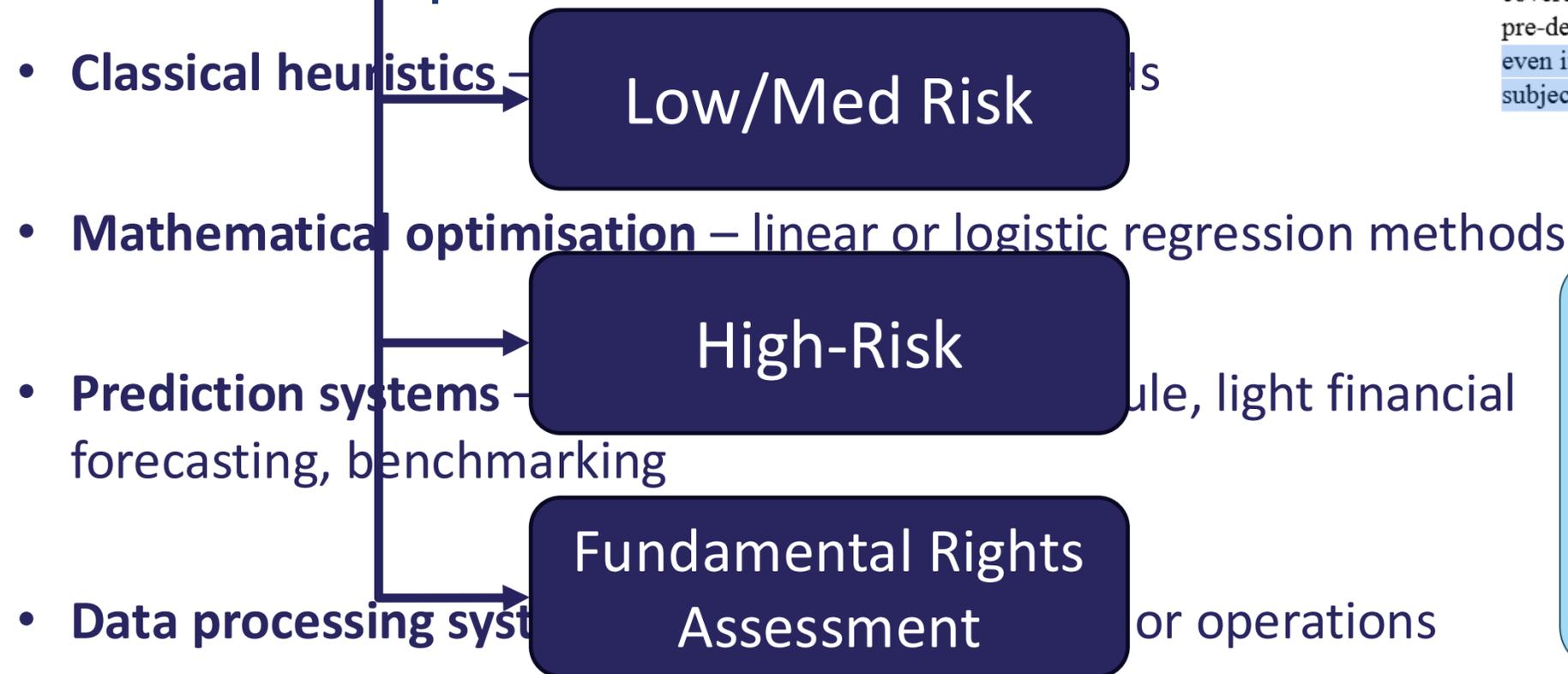
- **Non-compliance:** 7% of annual turnover or 35 mln. EUR
- **Violations:** 3% of annual turnover or 15 mln. EUR
- **Misleading information:** 1% of annual turnover or 7,5 mln. EUR

Operators: Provider, Distributor, Importer, Deployer

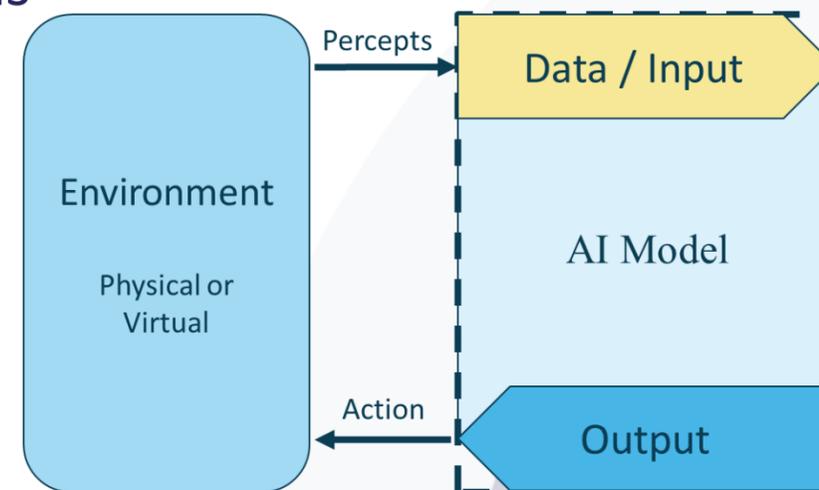


Actuarial relevance: a classification challenge

EC's guidelines: AI model or AI System?



(63) Only certain AI systems are subject to regulatory obligations and oversight under the AI Act. The AI Act's risk-based approach means that only those systems giving rise to the most significant risks to fundamental rights and freedoms will be subject to its prohibitions laid down in Article 5 AI Act, its regulatory regime for high-risk AI systems covered by Article 6 AI Act and its transparency requirements for a limited number of pre-defined AI systems laid down in Article 50 AI Act. The vast majority of systems, even if they qualify as AI systems within the meaning of Article 3(1) AI Act, will not be subject to any regulatory requirements under the AI Act.



European Union's AI Act



(63) Only certain AI systems are subject to regulatory obligations and oversight under the AI Act. The AI Act's risk-based approach means that only those systems giving rise to the most significant risks to fundamental rights and freedoms will be subject to its prohibitions laid down in Article 5 AI Act, its regulatory regime for high-risk AI systems covered by Article 6 AI Act and its transparency requirements for a limited number of pre-defined AI systems laid down in Article 50 AI Act. **The vast majority of systems, even if they qualify as AI systems within the meaning of Article 3(1) AI Act, will not be subject to any regulatory requirements under the AI Act.**



REGULATORY FRAMEWORK APPLICABLE TO AI SYSTEMS IN THE INSURANCE SECTOR

Artificial Intelligence (AI) is expected to play a pivotal role in the ongoing digital transformation in all industries.

In the insurance sector, AI is also expected to have a substantial impact, with a growing trend towards the adoption of AI systems throughout the insurance value chain.

AI offers many opportunities for the economy and the society, but it also brings some risks.

In this context, the European Parliament and the European Council adopted the AI Act which was published in the Official Journal of the EU in July 2024. Existing regulation for insurance in Europe already applies, including to the use of new technology.

EIOPA will continue working to facilitate a smooth implementation of applicable regulations to the use of AI in the insurance sector and support national insurance supervisors in their supervisory work.

THE AI ACT AND ITS APPLICATION IN THE INSURANCE SECTOR

- The AI Act applies across all sectors of the economy, including insurance. It aims to ensure a high level of protection for fundamental rights, health, and safety.
- It follows a risk-based approach, classifying AI systems according to different risk levels:



[Link](#)



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Press Release

The AAE welcomes the EU Commission's Guidelines on the AI system definition

Brussels, 20 February 2025

The AAE welcomes the EU Commission's guidelines on the AI system definition, "[The Commission publishes guidelines on AI system definition to facilitate the first AI Act's rules application | Shaping Europe's digital future](#)". Particularly, we welcome that classical actuarial methods and techniques should not be considered AI systems.

Actuaries have been heavy users of data for a long time. Over the years, our profession has strived to ensure the best and most responsible use of data. With the advent of digital data and advancements in technology, we now have even more effective and comprehensive tools at our disposal. It's worth noting that actuaries are part of a regulated profession, with a strong ethos to work for the wellbeing of our societies, guided by a rigorous code of conduct and professional standards. Actuaries are looking forward to a future where AI can be used for the good of our societies.

The AAE has been closely monitoring the developments in the EU concerning AI usage. It is crucial that fundamental rights are respected in AI applications, just as they are in other areas. The AI Act represents a major step in this direction by regulating AI systems. While the Act provides a definition for "AI System," there has been some ambiguity around certain aspects of this definition. The new guidelines from the Commission are therefore a welcome move to clarify these issues, as they offer a thorough analysis of the various dimensions and characteristics of AI systems.

Actuaries often create models based on the data they utilise. Many of these models are inherently complex but often do not involve AI. For example, while a pocket calculator is complex in its inner workings, no one considers it an AI system. Similarly, complex systems can be hazardous if not comprehended or responsibly managed. However, this is not the case with complex actuarial systems. Due to our code of professional conduct and professional standards, actuaries are obligated to take responsibility for their models and must be able to explain their workings. Furthermore, actuaries provide clear boundaries for the applicability of their models.

Our understanding is that the latter part of the guidelines (particularly section 5.2) addresses the essence of most traditional actuarial techniques, even though just some particular techniques are mentioned explicitly. It is imperative that AI systems classified as high-risk under the AI Act comply with all the Act's requirements. However, our interpretation suggests that traditional actuarial systems that are well controlled by classical statistics, such as generalized linear models, though often complex, do not fall under the category of AI systems.

- End of press release -

[Link](#)

Risk management



CRISP-ML(Q)

Managing operation practices

DevOps

- Traditional software
- Majority of actuarial models in production
- Automating delivery pipeline

MLOps

- Extending to ML lifecycle -> DevOps
- Focus on data, model development, deployment, maintenance
- End-to-end

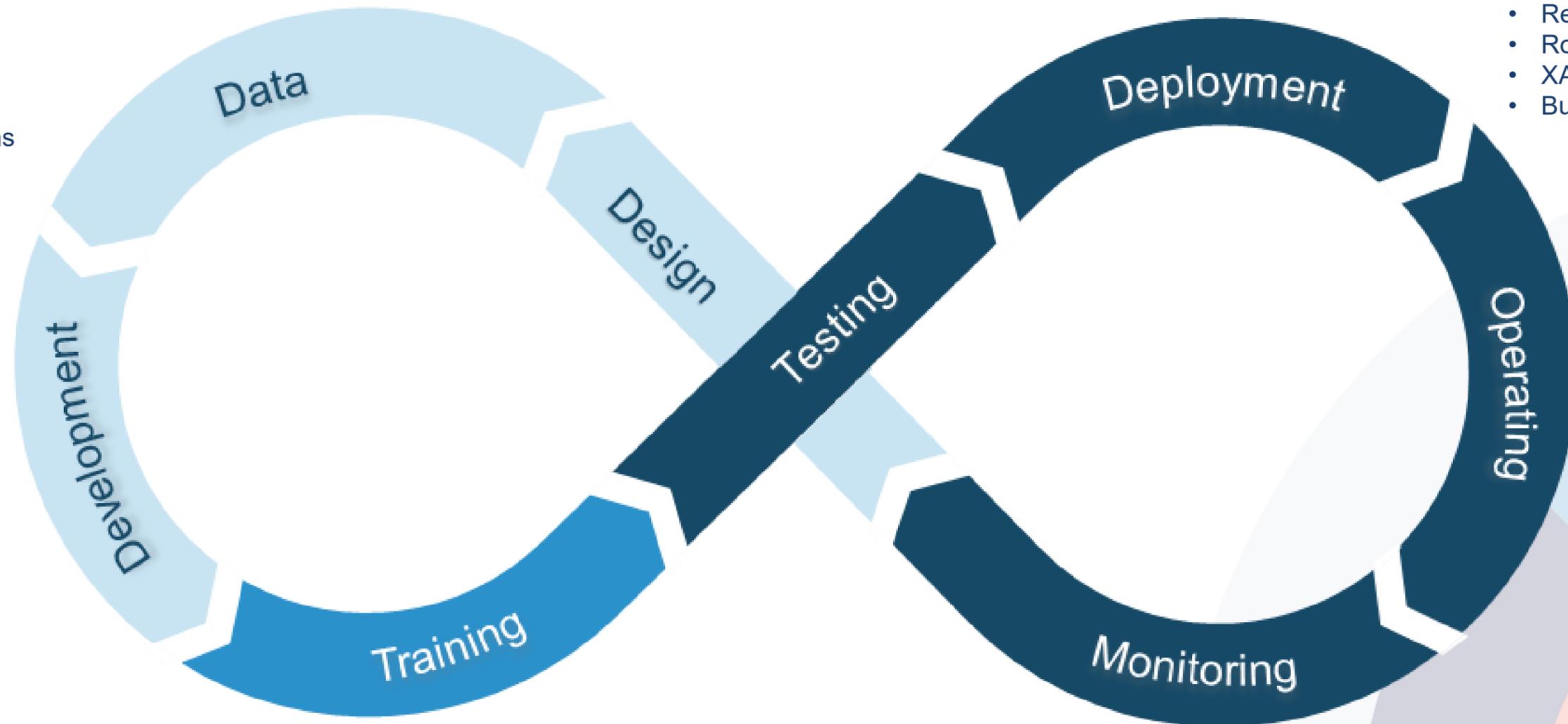
LLMOps

- Effective management of LLMs
- Fine-tuning, inference performance, prompt engineering,
- Hallucination and bias

Continuous monitoring

- Management
- Quality
- Completeness
- Accuracy
- Security
- Synthetic assumptions

- Scalability
- Reporting
- Robustness and Security
- XAI and Transparency
- Business alignment



- Assumptions
- Parameters
- Bias and drift
- Model scorecards
- Fitting
- Test vs Training

Data: opportunities

Data lifecycle

Importance of lifecycle stages: Capture – Integration – Preprocessing - Enrichment

Data enrichment: adding value to existing data, by using alternative data sources.

Risks: Pre-amplifying existing biases, ethical considerations – adding irrelevant data sources to a model

Customer segmentation



Active learning: humans interacting with algorithms where data classification is not present

Telematics / Climate risk



Chainlink: decentralized Oracle network, integrating real-world data into insurance processes

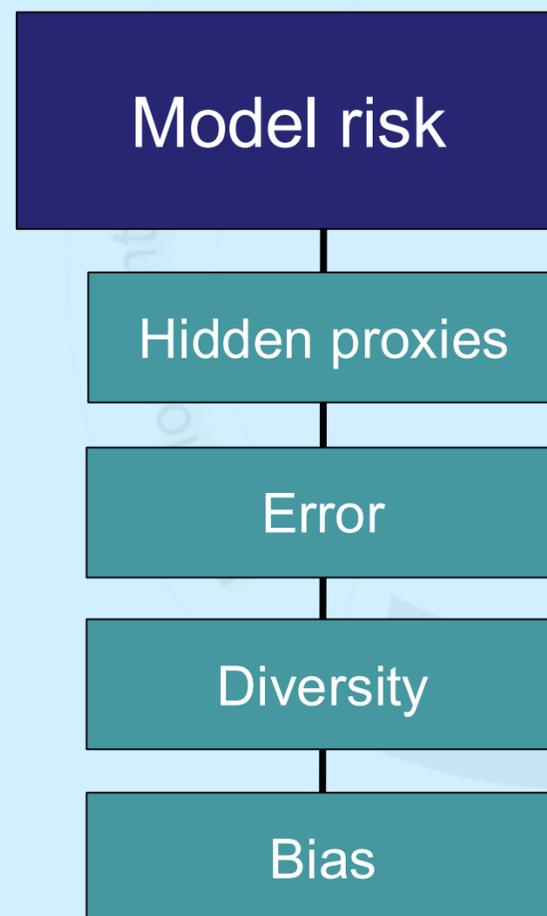
Zero-shot learning: classifies text into labels and features that a model did not have – without training

Managing risks: building guardrails (examples from Microsoft AI Services, Nvidia NeMo) + explainability

Model development

Methodology, use and ethics

Examples: CANN, DL, LightGBM, Random Forest



Example of a prediction algorithm

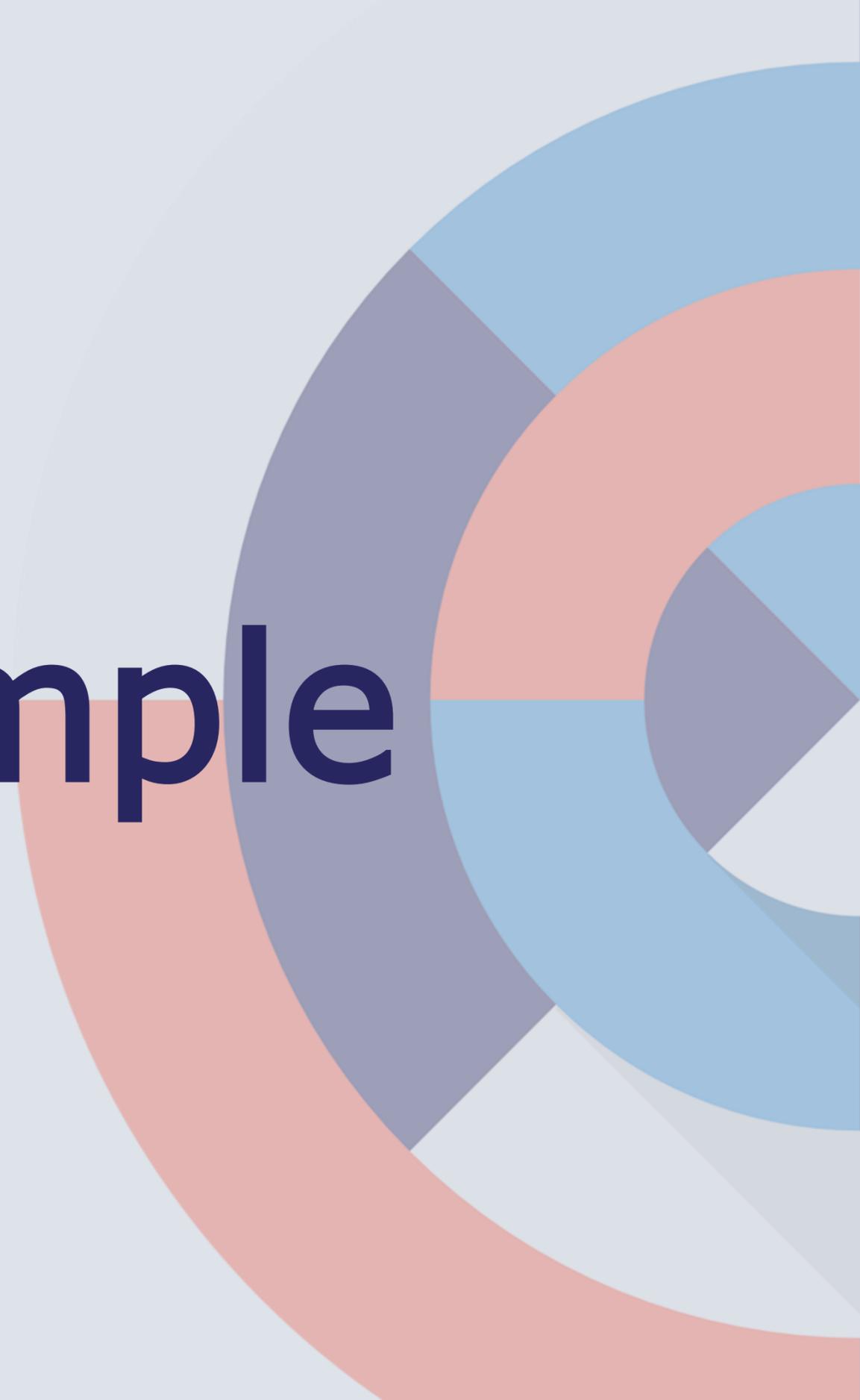
The output of a US healthcare prediction algorithm ([Optum](#)) showed racial bias, when using past healthcare spend to predict future health requirements.

Black patients that as a result were meant to have same health needs as white people, proved to be actually sicker.

Because of their lower spending on health care, they received half the amount of care compared to white people.

Risks: false correlations, incomplete individual characteristics, irrelevant proxies for data etc.

A practical example



Practical example: Achmea

- Medical Acceptability Scoring Heuristic Algorithm
- Term life insurance applications – increased acceptance from 40% to 65%
- Risk assessment, premature mortality– higher premium or rejection
- Dynamic data collection, output in form of a score

Model testing can include: Accuracy – Fairness – Explainability or Robustness

Validation is not the same as Testing!



Practical example: Achmea

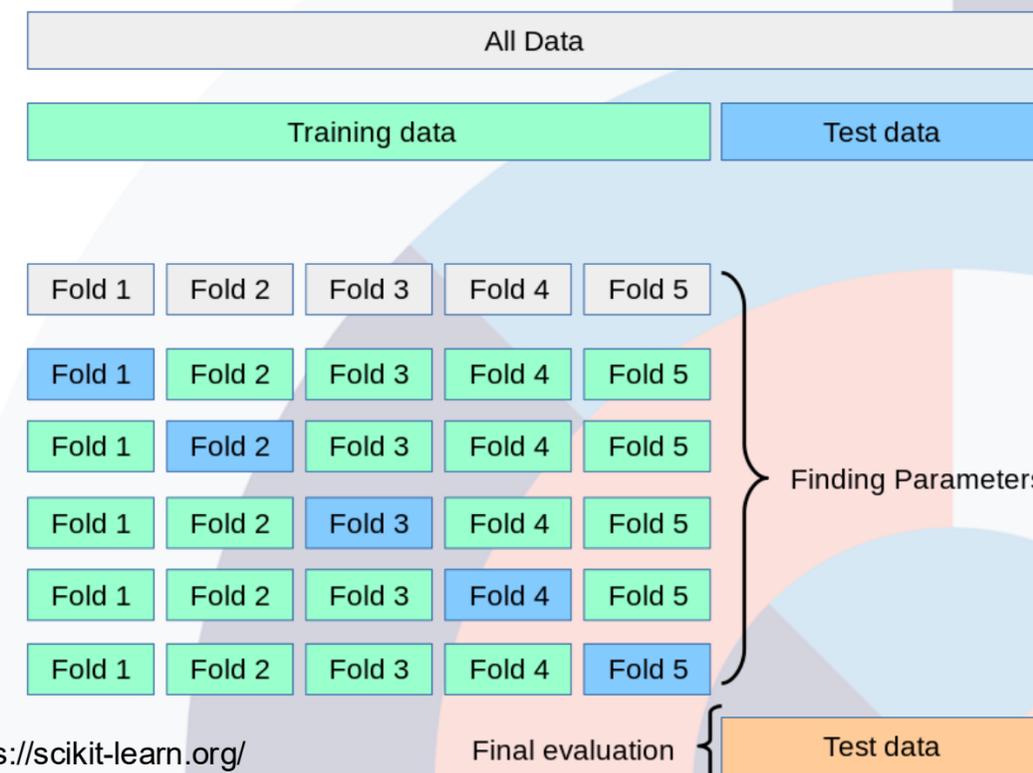
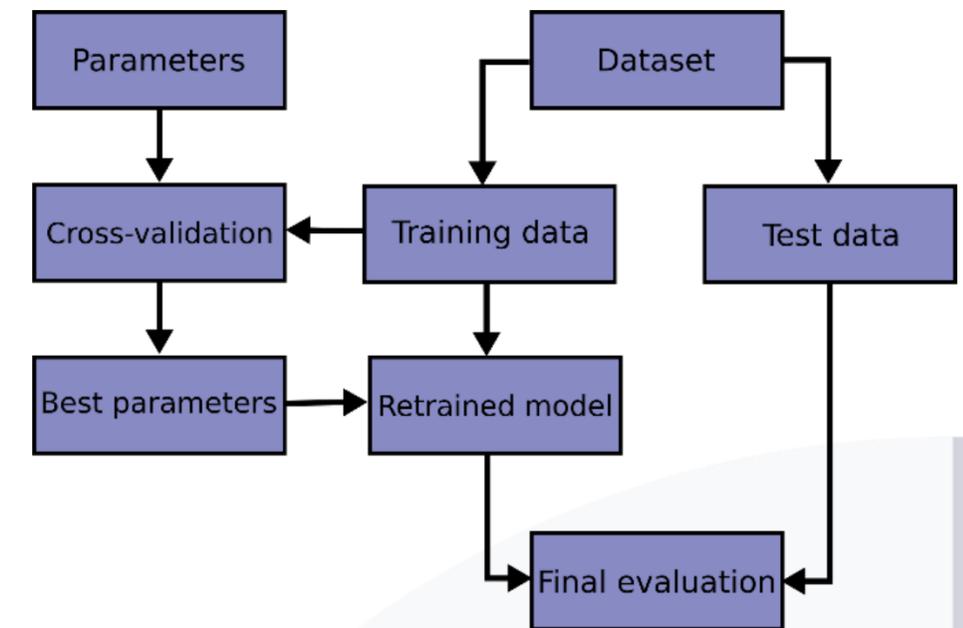
Model components: NLP, Term Matrix, simple decision tree

Dealing with Accuracy

- k-fold cross validation: split data into k subsets, training on k-1, validating on the remaining subset (ground truth labels)
- Precision and recall: measure positive instances, and false negatives
- F1-score: a harmonic mean of precision and recall
- Mean absolute error and Mean squared error – average prediction error

Actuarial considerations:

Choose relevant fit for purpose data: historical data, internal or external
 Ensure the dataset is large enough, having right partitioning.



Practical example: Achmea

Bias testing

Algorithm bias

Neural networks | xgBoost | LightGBM

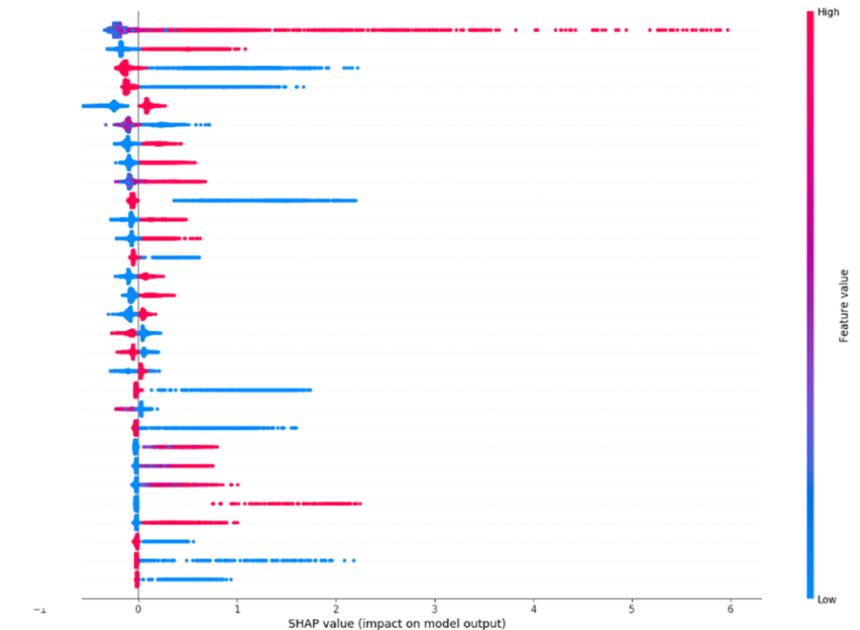
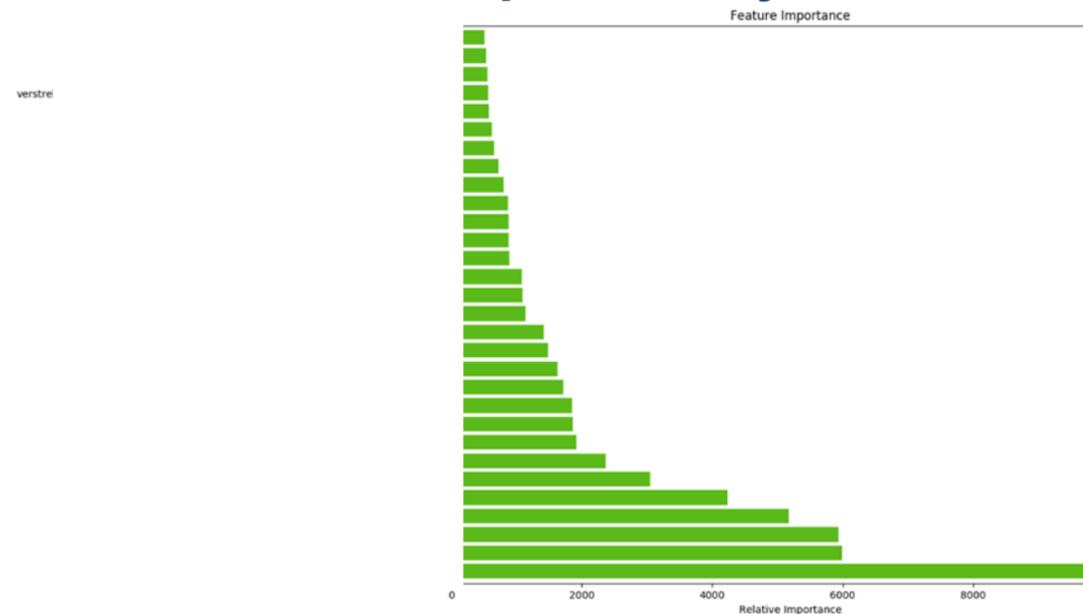
Sample bias

Training set | modifying characteristics

Feature bias

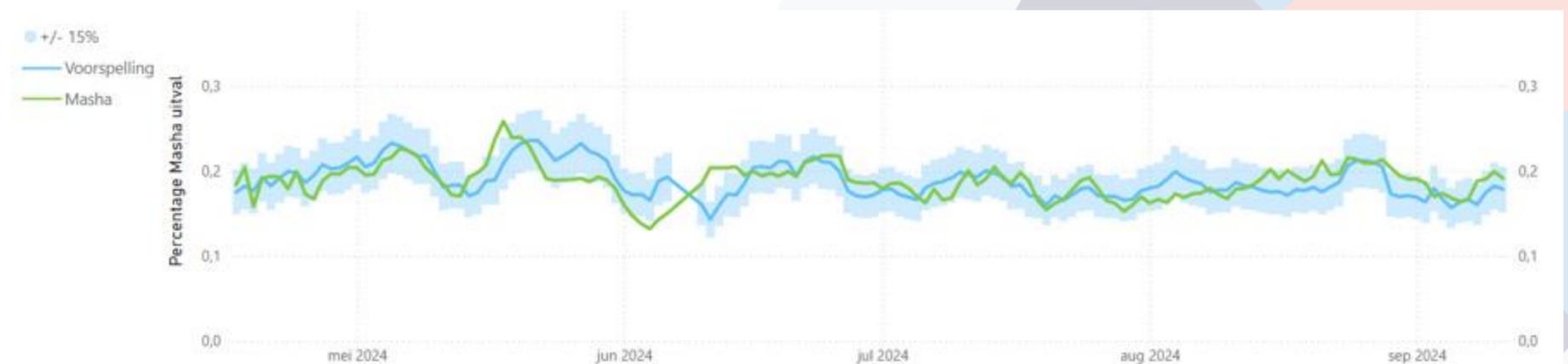
Ex: Alternative BMI | Data specific issues

Explainability



Model drift

Label and covariate drift, periodical re-training on new data



Practical example: Achmea

- As of 2019 discussions started with local regulators (DNB, AFM) and HLEG
- Subject to questions posed by EC – ALTAI, and the adopted ethical framework from Association of Dutch Insurers and Unesco (following the 7 principles required)
- **Policies include**
 - Yearly and weekly quality controls on data and samples
 - Medical model validations, ethical impact assessments performed by medical advisors through dashboards
 - Model risk assessment, model design documentation etc., aligning company's model governance policies
 - Privacy impact assessment, IT-related reports, GDPRP etc.
- Alignment with the IT environments, chosen programming languages and reporting standards

Global initiatives







AI Task Force: 2025 -2026

From our [Statement of Intent](#):

1. **Advance the competency of the profession**
2. **Promote the role of the actuary**
3. **Prepare the IAA, as the global voice of the profession**

Engagement and Foundations

- generate interest
- get actuaries started
- engage and build community
- "101-level"

Research and Advancement

- scan / organize "201" content
- develop research and educate
- advance the AI-enabled actuary

Case Studies and Tools

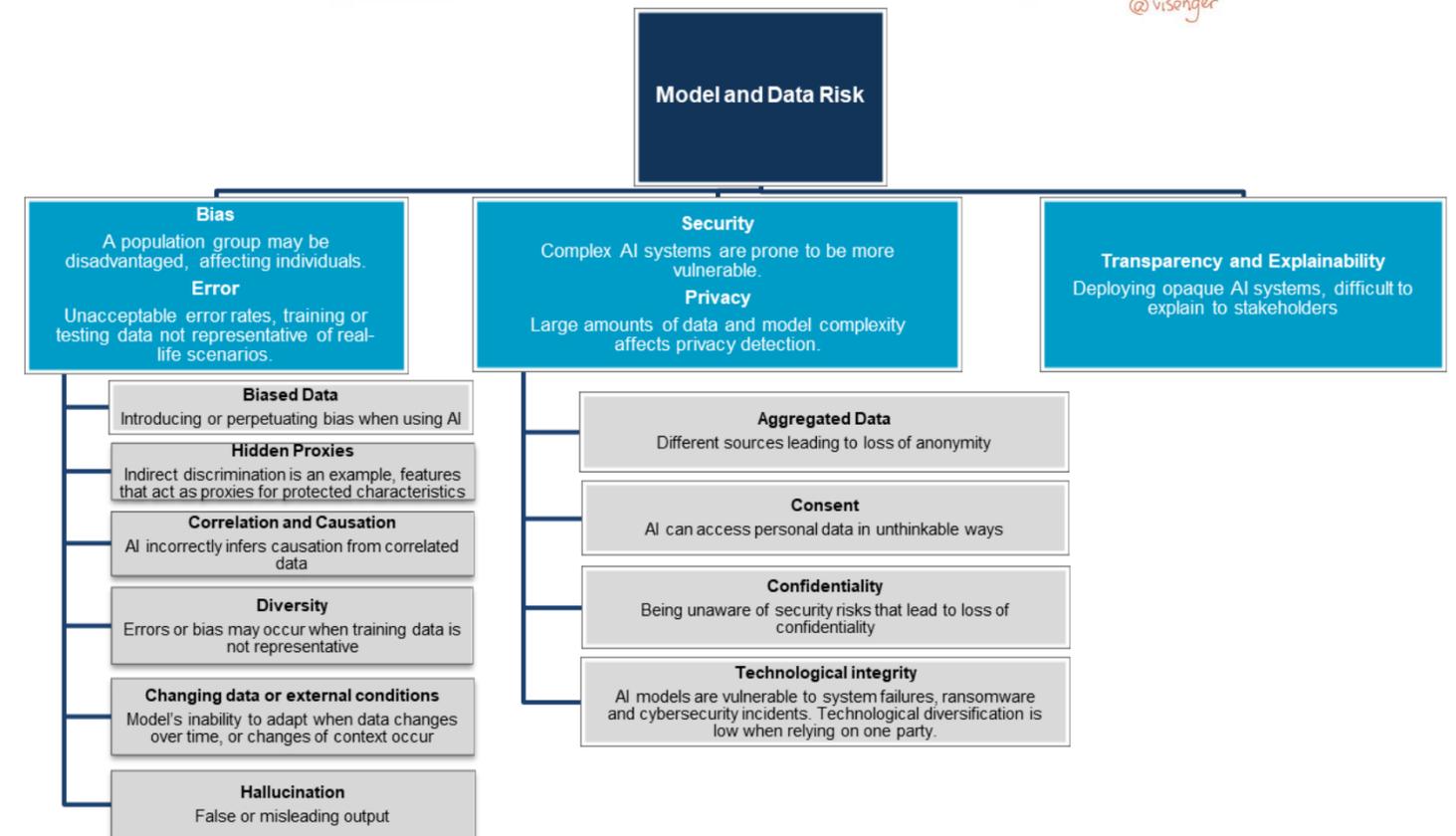
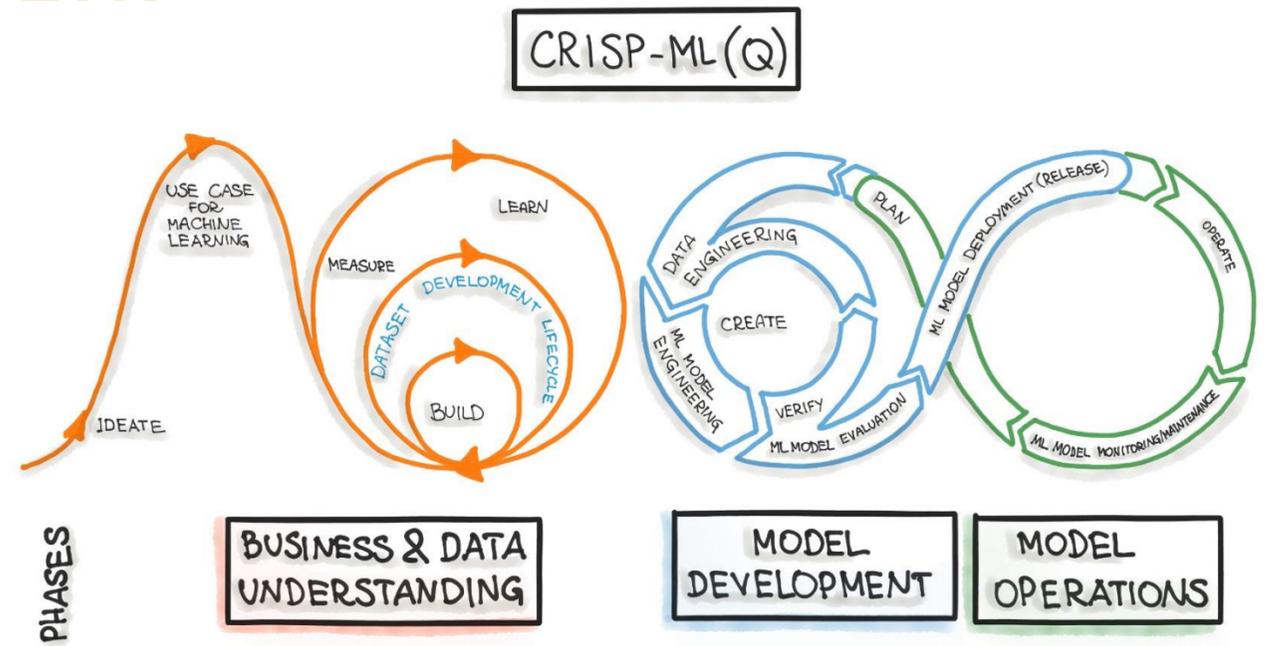
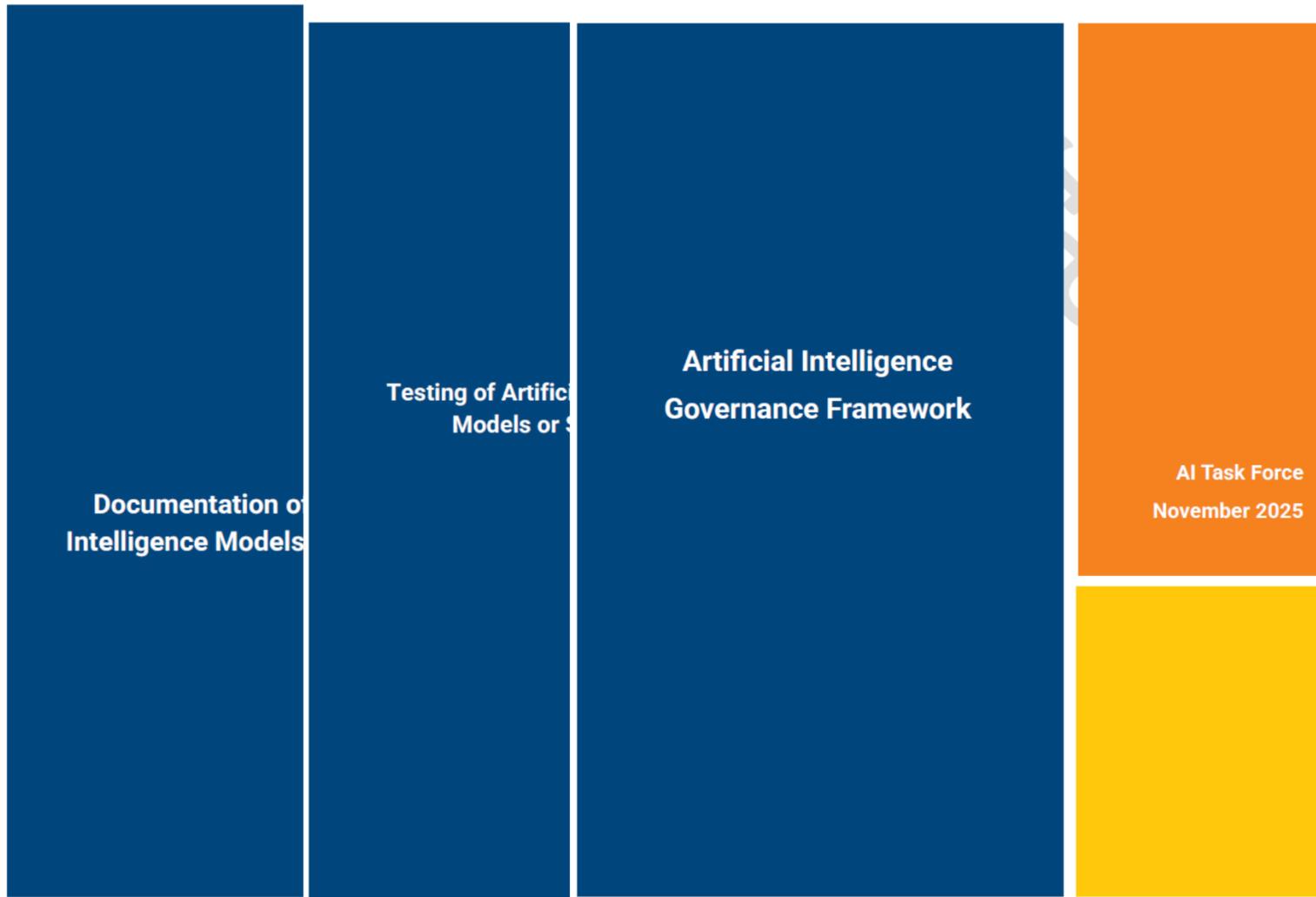
- compile and structure cases studies, examples, and tools for other workstreams

Adoption Framework

- focus on adoption, incorporating best practices, professionalism, governance, ethics, and practicality



AI Task Force: Adoption Framework



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AI Task Force: Case Studies

IAA AI Task Force
IAA-AITF

Follow

An initiative of the International Actuarial Association (IAA) to curate, develop, and share actuarial AI case studies, toolkits, and resources.

1 follower · 1 following

<https://www.actuaries.org/>
Block or Report

Popular repositories

- Actuarial-AI-Case-Studies** (Public)
 - A curated collection of actuarial AI case studies covering machine learning, generative AI, agentic AI, and more, designed to support actuaries in applying AI to real-world problems.
 - HTML 3
- AI-Tools-for-Actuaries** (Public)
 - A resource hub with tutorials and guides helping actuaries use AI tools—including chatbots, coding assistants, data analysis tools, and automation frameworks—effectively in their work.
 - 2
- Actuarial-AI-Resources** (Public)
 - A collection of AI-related materials and resources for the actuarial community, such as white papers, academic articles, and reports on the evolving intersection of AI with actuarial practice.
 - 2

AI Tools for Actuaries

Authors: Mario V. Wüthrich, Ronald Richman, Benjamin Avanzi, Mathias Lindholm, Marco Maggi, Michael Mayer, Jürg Schelldorfer, Salvatore Scognamiglio

About This Project

This project aims to empower the actuarial profession with modern machine learning and AI tools. We provide comprehensive teaching materials that consist of lecture notes (technical document) building the theoretical foundation of this initiative. Each chapter of these lecture notes is supported by notebooks and slides which give teaching material, practical guidance and applied examples. Moreover, hands-on exercises in both R and Python are provided in additional notebooks.

Lecture Notes (Technical Document)

Lecture Notes

Notebooks, Slides and Code

Chapter 0: Use Case: Actuarial Modeling

Notebook PDF Slides

Three public repositories to sort contributions:

1. Actuarial AI Case Studies (contains 2024)
2. AI Tools for Actuaries
3. Actuarial AI Resources

Standardization:

1. Markdown templates for Python and R
2. Contribution guidelines

Private repo also exists for development.

<https://github.com/IAA-AITF>

[AI Tools for Actuaries](#)

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Single sign-on to see results in the prd-achmea organization Single sign-on



IAA AI Task Force

Follow

An initiative of the International Actuarial Association (IAA) to curate, develop, and share actuarial AI case studies, toolkits, and resources.

22 followers <https://actuaries.org/council/executiv...>

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International Actuarial Association Association Actuarielle Internationale

International Actuarial Association – AI Task Force (IAA-AITF)

Curating, developing, and sharing actuarial AI case studies, toolkits, and resources.

[Read the full IAA Repository Disclaimer \(PDF\)](#)

Important

IAA GitHub Disclaimer (summary)

Materials across IAA-AITF repositories are provided "as is", without warranties of any kind; use is at your own risk. The IAA is not liable for any losses or damages arising from use of, or reliance on, the materials. The materials do not constitute professional actuarial, legal, financial, or other advice.

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People

This organization has no public members. You must be a member to see who's a part of this organization.

Top languages

HTML

Most used topics

actuarial-science artificial-intelligence

Report abuse



AAE



**ACTUARIAL
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OF EUROPE**



Artificial Intelligence and Data Science working group

Strategic plan:

- Focus on relevant AI and Data driven topics
- Ensure alignment with international stakeholders
- Support the work on AI done by other committees
- Engage with supranational institutions on AI and Data



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1) Papers and Publications by the AAE AI-DS Working Group

Publication title	Description	Publication Date	
AAE Discussion paper “Navigating Europe’s AI Act: Insights for Actuaries and the Insurance Sector”	The paper discusses the EU's AI Act and its significant implications for actuaries and the insurance sector.	March 2025	Read the paper
AAE Discussion paper “Explainable Artificial Intelligence for C-Level Executives in Insurance”	Explores Explainable AI's role in enhancing transparency, compliance, and trust in the insurance industry.	September 2024	Read the paper
AAE Note on how Actuaries can provide an ethical and professional dimension to AI	Outlines actuaries’ potential role in AI implementation, focusing on risk management and ethical considerations.	May 2024	Read the note
AAE Note: The AI Act sets out the way Artificial Intelligence is to be used in the EU	Provides an initial overview of the key aspects of the AI Act and its implications for the actuarial profession within the EU.	March 2024	Read the note
AAE Discussion Paper ‘What should an actuary know about Artificial Intelligence?’	Provides an introduction to AI concepts, applications, and considerations relevant to actuaries.	January 2024	Read the paper
AAE Discussion Paper ‘AI and the opportunities and challenges it presents to insurability’	Discusses how AI can transform insurability, highlighting both opportunities and challenges for insurers and actuaries.	January 2023	Read the paper

2) Responses to recent European Consultations in relation to AI



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Publication title	Description	Publication Date	
AAE Response to the EC Consultation and call for evidence on the “Apply AI Strategy”	The AAE provided feedback on the European Commission’s approach to implementing the AI Strategy, with emphasis on practical implications for the insurance sector.	June 2025	Read the AAE response
AAE Response to the consultation paper and impact assessment of EIOPA's Opinion on AI governance and risk management	The AAE addressed EIOPA’s proposals for AI governance, highlighting the actuarial perspective on model oversight, risk management, and proportionality.	May 2025	Read the AAE response
AAE Response to the EC Consultation on AI Act prohibitions and AI system definition	The AAE commented on the scope and clarity of AI system definitions and the list of prohibited practices, aiming to ensure that insurance applications are appropriately captured.	December 2024	Read the AAE response
AAE Response to the EC Consultation regarding the establishment of a Scientific Panel	The AAE supported the creation of an AI Scientific Panel and provided input on the structure, role, and expertise needed to advise on AI oversight.	November 2024	Read the AAE response
AAE Response to the DG FISMA consultation on artificial intelligence in the financial sector	The AAE submitted a response, providing feedback to the European Commission on the application and impact of AI in financial services, with a focus on insurance.	September 2024	Read the AAE response
AAE Response to the AI Office consultation on Trustworthy General-Purpose AI	The AAE submitted a response, providing feedback with respect to the first AI code of practice.	September 2024	Read the AAE response

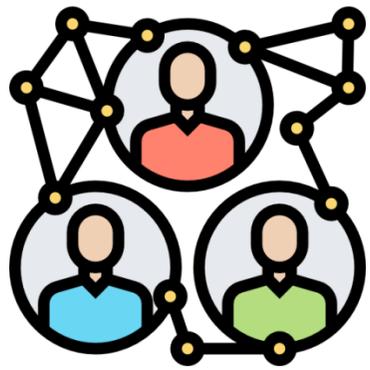
3) Media and Events

Publication title	Description	Publication Date	
AAE Webinar “AI Regulation in Europe: Challenges and Opportunities for Actuaries”	The webinar provides an overview of the AI Act and its implications for actuaries and the insurance sector. It covers key regulatory requirements, risk-based categorisation of AI systems, and the role of actuaries in ensuring compliance.	June 2025	Watch the webinar
AAE Podcast Episode 2 on AI with Claudio Senatore and Dr. Andrej Levin	This episode delves into the implications of the European AI Act for the actuarial profession, discussing how actuaries can contribute to the development and implementation of AI regulations.	April 2025	Watch the podcast
AAE Podcast Episode 1 on AI with Thomas Béhar and Arthur Mombo	This podcast explores the practical applications of AI in the insurance industry.	March 2025	Watch the podcast
AAE Webinar “What should an actuary know about Artificial Intelligence?”	Provides an introduction to AI concepts, applications, and considerations relevant to actuaries.	September 2024	Watch the webinar



Koninklijk Actuarieel Genootschap

Werkgroep Artificial Intelligence



Expanding the profession



Role of the actuary



Developing guidance



Cooperation

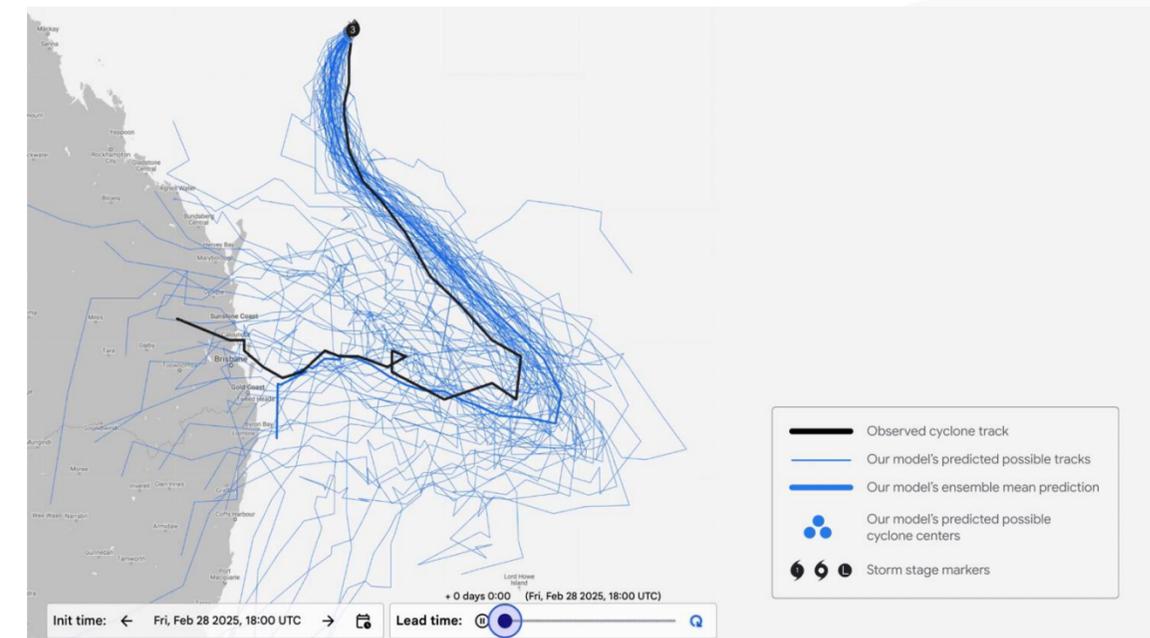
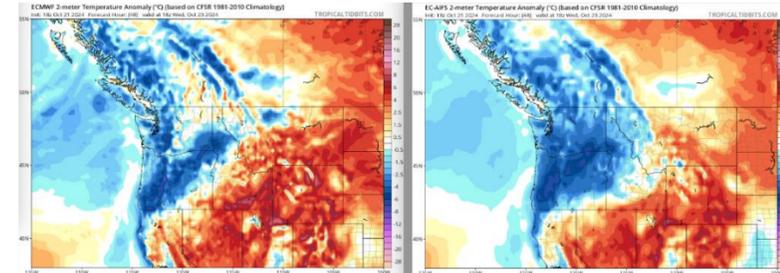
Concluding remarks



Actuarial science is more exciting than ever

Add-ons

- Right method choices / NN
- Bias | Fairness | Accuracy | Performance
- Topics: Feature/Prompt Engineering, MLOps etc.
- Explainable AI / XAI
- Knowledge regulatory frameworks
- Balance augmented intelligence vs artificial intelligence
- Use Gen AI for productivity and Narrow/Classic AI goal oriented



Well positioned

Being 'Fit and Proper', work interdisciplinary and rely on existent professional ethics



reask

AI for extreme weather events and risk forecasting

Advanced extreme weather data for (re)insurance, insurance-linked securities, financial markets, corporates and governments

Thank you

